

TIME RATIONALIZATION DURING PHYSICAL EDUCATION PRE-SCHOOL CLASS - YOUNGER AGE-

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Abstract

In order to learn about the time structure during the physical education class in the pre-school environment, 60 children of the average age of 3.5 years were observed during 60 physical education classes. The results of the comparative analysis of the scheduled class duration, actual class duration, duration of the total time dedicated to effective exercising, as well as the quantitative analysis of some sequences of the class, show that numerous subjective and objective factors affect the effective time dedicated to exercise. This is to a large extent reflected in both the general and the motor efficiency of work. To improve the present situation and rationalize time during work with children of that age it is first necessary to detect and then to eliminate the identified factors.

Keywords: *time rationalization, physical education class, children of pre-school age*

Zusammenfassung

RATIONALISIERUNG DER SPORTUNTERRICHTSSTUNDE IM KINDERGARTEN - JÜNGERE ALTERSGRUPPE

Es wurden 60 Kinder, die durchschnittlich 3,5 Jahre alt waren, im Laufe von 60 Sportunterrichtsstunden getestet, um festzustellen, wie die Zeit der Unterrichtsstunden bei der jüngeren Altersgruppe im Kindergarten ausgenutzt wird. Die Resultate sowohl der parallelen Analyse der vorausgesehenen Dauer, der eigentlichen Dauer der Unterrichtsstunde, der maximalen Zeit während der Unterrichtsstunde, der insgesamt verbrachten Zeit und der effektiven Übungszeit als auch der quantitativen Analyse von einzelnen Stundenteilen zeigen, daß viele subjektive und objektive Faktoren die effektive Übungszeit beeinflussen, was auch zum größten Teil nicht nur die generelle, sondern auch die motorische Effektivität der Unterrichtsstunde bewirkt. Um diesen Zustand zu verbessern und um die Zeit der Unterrichtsstunde rationeller auszunützen, soll man versuchen, die Beschränkungsfaktoren, die detektiert wurden, zu beseitigen.

Schlüsselwörter: *Rationalisierung der Zeit, Sportunterrichtsstunde, effektive Übungszeit, Kinder im Vorschulalter*

1. Introduction

The goals and tasks of physical education may be fulfilled in any environment, and consequently in the pre-school environment too, in different ways, by different work organizational forms, by application of different means and methods, by the application of an adequate workload, and by the use of timely and reliable information related to work efficiency, that is to physical exercise. No doubt that the weight of achieving the stated goals and tasks in the hierarchy of the organizational forms covered by the programme is on the work in the class.

The role of physical education in the pre-school class articulated in such terms on the one hand, and the lack of objective data related to the use of the comparative advantages of this organizational form in practice on the other, stimulated this investigation.

The objective of the research is to establish time utilization during physical education pre-school class, in other words with children of a younger age-group. However, to obtain the answer as to how to achieve the objectives and tasks set in the pre-school physical education programme, the fulfillment of the fundamental organizational work form, that is the class work, should be identified. One of the feasible ways to achieve this goal is by gaining the relevant feedback on the quality and

quantity of its implementation. Obviously, time utilization during the physical education class is related to the work quantity. However, the work quantity and work quality are interrelated, so by investigating the work quality (class duration, class sequence duration, time utilized on the work organization, time dedicated to active exercise) one can learn much to improve not only the quantity but also the quality of work.

The research was carried out on children aged 3 to 4. To the author's knowledge there are no matching investigations with that age-group, so it seemed reasonable to start the investigation with the younger group of pre-school children. To date studies dealing with the problem of work quantity, in other words time rationalization during the physical education class, were exclusively concerned with elementary and secondary school pupils.

Thus, although a small number of authors was directly or indirectly concerned with the time rationalization during the physical education class, still their work contributed to the problem clarification, and what is more, it instigated further research (Janjac, 1964; Stanojević, 1965; Ivanović, Acković, 1969; Findak, 1976, 1979; Krzysztozek, 1977).

These studies can be indirectly related to the present study since they are considered fundamental although

carried out with older age groups.

2. Methods

The sample consisted of 60 pre-school children of younger age (average age 3,5 years). The research was carried out in 15 kindergartens in Zagreb, with 60 groups of younger children during 60 physical education classes. During each class only one child was observed (the choice was based on random sample), which means that research covered 60 children (30 boys and 30 girls). On the average there were 15 children present in the class.

The selection of kindergartens, groups and individual children was imposed by the research objective. Care was taken that the kindergartens be located in different parts of the city, that the work conditions were different, that the work be distributed between classes in the open air (playground, court-yard, lawns) and indoors (assembly rooms, halls, purposely-adapted areas), that both sexes be covered, that classes be managed by educators with different length of professional service, however essentially by those who volunteered for the research. Each educator had two classes, one in the open and one indoors, which means that 30 educators altogether participated in the research. All the educators were females with approximately eight years of professional experience. No special instructions were given to the educators prior to their classes, on the contrary it was suggested that their work should be as typical as possible.

The professor of physical education methodology at the Department of Pre-School Education in Zagreb observed and measured the work sequences during the classes. For the purpose of the research a special record was devised for following the work during the physical education classes, in which the class sequences which were to be observed were precisely defined. Measurement was performed by means of a stop watch (precision to 1/10 secs.). The watch was started at the beginning of the activity (when the child started exercising) and stopped when the child interrupted the activity. The stop watch was also started at the beginning of the passive period (when the child interrupted their exercising) and stopped at the end of the passive period (when the child restarted the activity). The results obtained were meticulously registered in the Report Chart which followed the work during the physical education class.

For the purpose of this research along with the mean values for the actual, maximum and effective class duration, that is separately for each class sequence, charts presenting the three vital sequences were elaborated.

3. Results and Discussion

It was found that the scheduled class duration of 25 minutes was not fully utilized, the main reason being that the class did not either begin or end on time. The consequence was the time loss of 4 minutes and 14 seconds (18.20 %).

Thus, due to the foregoing reasons the actual class dura-

tion in the younger age-group amounted to 20 minutes and 46 secs. (81.80 %) (see enclosures 1 & 2). The data show that during some class sequences the legitimate methodological principles have not been respected. One of the fundamental reasons is the deficient distribution of time within and among specific class sequences (see enclosure 2). For example, the warming up sequence lasted from 40 secs. to 4 minutes and 50 seconds, the preparatory sequence from 1 min. and 15 secs. to 5 min. and 10 s, the main "A" sequence from 1 min. to 55 secs. to 8 min. to 30 secs, and the main "B" sequence from 1 min. and 50 secs. to 5 min. and 14 secs, and the concluding class sequence lasted from 0.50 min. to 3.10 min.

When the time spent on lining up, greetings, (20 secs), presentation of the task, its description and demonstration (3 min. and 43 secs.), arrangement and clearing up the equipment and apparatuses (3 min. and 20 secs.), transition from one task to the other during the main "A" class sequence (30 secs.), transition to the next class sequence and taking the necessary formation (2 min. and 22 secs.) is deducted from the actual time, the maximum time, that is the time dedicated to the effective exercising is obtained. The maximum effective time in the younger age-group amounted to 10 min. and 15 secs. (49.59 %) (see enclosure 1).

Whereas it might be said that the time spent on lining up and greetings is within reasonable limits, the same does not hold for the presentation, its description and demonstration. The period of time of almost 4 min. cannot be justified either by the group age, or the work sequences that follow. It is exclusively the result of the educator's personality. That is, the analysis of the internal structure of the specific class sequences shows that the same task in one group took up 22 seconds, and in the other 55 seconds. Arranging and clearing up the necessary equipment takes up quite a lot of time, still the time span in some sequences, having in mind the children's age, is within the expected limits. Nevertheless, we assume that the time spent on the equipment could be shortened if all the children equally participated in the assignment and not only, or mostly, the "stronger" ones. The transition time from the main "A" sequence to the next one (30 s) is within acceptable limits, which cannot be said for the immediately following sequence and forming their positions. That is, the organizational sequence lasting 2 min. and 22 seconds, is too long even for work with children of that age, the fact which is after all supported by the internal analysis data of the class sequences. That is, the analysis shows that that kind of activity takes up most of the time in the main "A" class sequence (48 secs.), which is acceptable. However, the transition time from the warming up to the preparatory sequence lasting 40 seconds can hardly be justified.

There are several reasons for such behaviour. One of the main ones is the inappropriate time wasted on such activities in some educators. The transition from the warming up to the preparatory sequence in some educators, for example, spanned from 10 secs. to 1 min. and 35 secs., or from the main "A" sequence to the "B" main sequence from 15 secs. to 1 min. and 20 secs. Another reason is that children of that age prefer doing exercises in free formation rather than in a formal one, especially if they have not mastered it before. The statement is

supported by the data that quite a lot of time was wasted exactly because some of the educators insisted on strict formations, the children were not capable of performing. Next, the transition to the next work sequence and taking up of a certain formation took longer when the educators' instructions were not clear. The typical example of such behaviour was the arrangement of the group into teams during the main "B" sequence. That is when the educator was unclear in formulating her requests, understating defining criteria for the team formation, and when she disregarded laws of natural group-formation, the organization of that class content took much longer than was actually necessary. The transition from the main "B" sequence to the concluding sequence took, on the average, 10 seconds, which is within reasonable limits. Nevertheless, it was noted that the time spent on that activity largely depended on the content or outcome of the task performed during the main "B" class sequence. In other words when the outcome was as expected, the transition and taking up of the required formation for the concluding part of the class caused no problems; when the outcome, however, was unexpected the performing of the same activities took longer.

The effective time spent in exercising is calculated from the actual class duration less the remaining class time, that is the time during which children do not do exercises. The effective time spent in exercising on the average amounts to 7 min. and 29 secs. (see enclosures 1, 3 & 4). Since it has been established that the effective time spent in exercising during the physical education class amounts to 35.60 % of the actual class duration, one rightly poses the question why the time spent on exercise is not longer. The question has been partly answered so far and is also supported by the data obtained by the analysis presented in the enclosures 3 & 4, and the internal organization of the class sequences. That is, the enclosed table (see enclosure 3) shows that the class organization and other activities take up to 13 min. and 17 secs. or 64.40 %. This strikingly unfavourable relation of the effective time spent on exercising and the remainder of the class time is even more noticeable on the chart (see enclosure 4). The chart shows that the curves are approximately the same only in the warming up class sequence while their trend of growth is extremely negative for the curve indicating the effective exercise time. The disproportion is strikingly obvious in the main "A" class sequence where only 2 min. and 5 secs. or 30.80 % account for effective exercising and the other activities account for 5 min. and 45 secs. or 43.10 %. One of the reasons for such negative proportion regarding the effective exercise during the main "A" sequence is because children spend most of the time standing and waiting their turn, roughly speaking, doing nothing. The time spent in waiting one's turn amounts to 1 min. and 45 secs. and in some classes the time spent in waiting amounted even to 3 min. It goes without saying that children should have a rest when exercising, and the children of that age all the more so; however, if the time spent in exercising is twice as long as the time spent in waiting one's turn, then it definitely exceeds the required time for rest. However, the data obtained by the internal organization of the class sequences imply that the inadequate application of the methodological organizational forms of work are responsible for the situation. Not only because

the educators employed only the frontal approach while working but also because they did not carry it out in the proper way. Furthermore, inappropriate time distribution during some of the class sequences, poor application of the modern methodological organizational forms of work, inadequate sensitivity in selecting the content of work with some educators, and their not always appropriate engagement in carrying out the selected content, definitely affected the effective time spent in doing exercises.

In order to gain a complete picture of the actual situation and the reasons that caused such a situation one should along with the stated subjective factors point to the objective ones that more or less affected the effective time spent in doing exercise during physical education class in working with children of younger age. One of the main objective factors relates to the material resources. The classes in the open air were mostly carried out in courtyards and indoors in the purposely- adapted areas. It is more than obvious that in such circumstances much time is spent only on the class organization and on the safety measures. The use of often improper dress and equipment was also one of the objective factors that affected the effective time of exercise. The limiting factor was the number of children that in some groups was as many as 19. The greater number of children particularly negatively affected the time of effective exercising where the educators had to engage more in taking care of or helping the children. The personal dress of the educators was an additional factor that contributed to the reduced time spent in effective exercise. Adequately dressed teachers of physical education are one of the fundamental prerequisites for properly running the classes and for achieving high efficiency.

As it has been already stated the effective time of exercise is affected by both subjective and objective factors. No doubt that their elimination or at least their suppression, especially in relation to the subjective ones, would increase the general and motor efficiency during the work in a physical education class with pre-school children of the younger age. Since only adequately performed physical exercise, which among other things relates to adequate time and place when and where it is performed, enhances positive changes in an organism, positive development of personal characteristics and abilities, an increase of the level of motor abilities and an improvement of motor achievements, it is to be expected that the changes of motor efficiency during the class would positively reflect not only the increase of the effective exercise time and the total efficiency of the physical education class, but also the fulfillment of the tasks and objectives of physical education in general and pre-school physical education in particular.

4. Conclusion

The objective of the study was to establish the actual time utilization during the physical education class with pre-school children of the younger age, essentially with reference to the effective time of exercise as one of the fundamental prerequisites in the achievement of the objectives and tasks of physical education.

Table 1 Actual Class Duration

Class sequence	Time	%
Warming up sequence	2'32"	11,40
Preparatory sequence	4'5"	21,20
Main sequence	11'52"	56,30
Concluding sequence	2'17"	11,10
Total	20'46"	100

Table 2 The Relation of the actual class duration, actual class duration exclusive effective exercising, and duration of the effective exercising

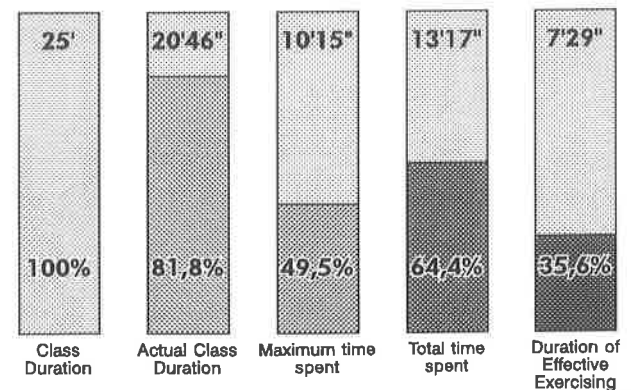
Class sequence	Actual class duration		Actual class duration excl. effect. exercising		Duration of the effective exercising	
	Time	%	Time	%	Time	%
Warming up sequence	2'32"	11,40	57"	5,30	1'35"	20,60
Preparatory sequence	4'5"	21,20	2'15"	18,30	1'50"	22,80
Main "A" sequence	7'50"	36,70	5'45"	43,10	2'5"	30,80
Main "B" sequence	4'2"	19,60	2'38"	21,10	1'24"	19,00
Concluding sequence	2'17"	11,10	1'42"	12,20	35"	6,80
TOTAL	20'46"	100	13'17"	100	7'29"	100

In consonance with the aforementioned the research on the sample of 60 children of pre-school age (aged 3 to 4 years) was carried out. The statistical analyses indicate that there is a significant difference between the scheduled and actual class duration. The comparative analysis of the actual time duration, the effective exercise time duration and the duration of the remaining time imply that the differences among them negatively affect the time of effective exercise. The quantitative analysis of the class duration shows that the effective time duration in the pre-school physical education class would be longer if the adverse subjective and objective factors were eliminated. The elimination of the interfering subjective factors could be achieved by the application of modern methodological and organizational work forms,

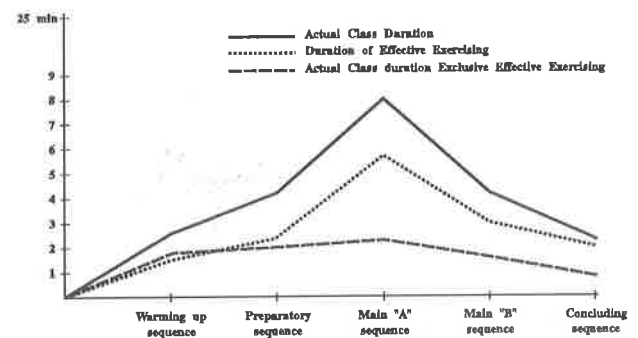
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Chart



Chart



by the appropriate selection of the content of work, by adequate employment of equipment, and the more balanced engagement of children during the work organization. The elimination of the interfering objective factors should be carried out by providing better material work conditions, by decreasing the number of children per group, and the proper professional education of the educators, essentially in the field of physical education. The elimination of the stated, but also of some other subjective and objective adverse factors, is at the same time the prerequisite for the increase of general and motor efficiency during the class which is, in turn, the fundamental requirement for the successful fulfillment of the objectives and tasks of physical education, and the total work effects in the field of physical education in pre-school.

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