

COMPARATIVE ANALYSIS OF DIFFERENT CURRICULA ON STUDENTS' SWIMMING TECHNIQUES ACQUISITION

(Preliminary communication)

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Abstract

The aim of this paper is to determine any difference between a traditional two semesters continued teaching and a ten-day course block scheduling. The sample comprised the third-year students of the Faculty of Sport and Physical Education in Leposavić, attending the Swimming and Water polo courses. The sample consisted of 142 students, 74 of whom regularly attended class, while 68 of them attended a ten-day course covering the same material. To evaluate the acquisition of the necessary skills, following was used: 200 m freestyle time and the evaluation of the butterfly performance, breaststroke and backstroke technique at a distance of 25 m. The results were obtained by applying a t-test for independent samples, and the Mann-Whitney U test. Based on the obtained results it could be concluded that the swimming curriculum realized over a ten-day course gave better result for the training of the swimming technique of the Faculty of Sport and Physical Education students in Leposavić which questions the validity of the current realization of the swimming course in most faculties of this kind.

Keywords: *continued teaching of swimming, block teaching of swimming, time for the 200 m freestyle, butterfly technique, breaststroke technique, backstroke technique, t-test for independent samples, Mann-Whitney U test.*

INTRODUCTION

The outcomes and subject matter of any particular course is defined for each study program at the university level. The aim is to use the subject matter of the course to reach an outcome which would be referential in terms of swimming: Students are now able to practically demonstrate all swimming techniques and use the acquired theoretical and practical knowledge in the planning and programming of training processes and physical education classes.

But is this the case? Critics will immediately say that a grade is a more reliable criterion of one's level of abilities. This may be true, but grades range from six to ten, and we unfortunately often forget that the role of the university, faculty and teachers is to encourage students to express their abilities and to be awarded top grades. When it comes to swimming, one cannot be sure that the selection of the current curriculum accepted in most faculties, is the best solution (Višnjić, Jovanović,

& Krasomenko, 2004; Oreb, 2008; Toskić, 2008).

People unfortunately adhere to the stereotype, without relying on research to reach better solutions. To those who would deny this, and claim continued classes over an extended period to be the best solution for acquiring motor tasks, we might immediately agree completely, with a remark that two hours of exercise per week cannot be considered as an example of the continued classes, which is where our problem begins.

Could we, based on the given extent and the weekly dynamics of classes, realize the set goals and reach the aforementioned outcome, or could better results be achieved using some other curriculum? This is our core research question.

Considering that for each swimming class a special unit is planned, based on which we formulate the general and special tasks and aims of the class, we select the appropriate methodology, props, logical order of the exercises, as well as the organization of work, and we

carefully approach duration and intensity of individual exercises so that each swimming class could represent a separate unit.

However, teaching is a process, thus each swimming lesson must represent a continuation of the previous one, and logically precede the following one. This means that it is very important what was carried out in the previous classes, and to which extent the previous material was acquired, and if it is applicable for the classes which follow. Only then is it possible to realize the necessary continuity of work where the effects of each subsequent class are a continuation of the previous ones, and the final score manifest the achieved results. Accordingly, each swimming lesson must be viewed as one of the links in the planned chain of data processing of the entire teaching process. Thus, it is not difficult to conclude that block schedules could surface as the more effective solution, since the effects of the classes overlap in a shorter time interval.

The effectiveness refers to two components which we monitored through testing: educational component as well as an essential component of physical abilities (which are especially pronounced in the 200 m freestyle). Success on this test, in addition to a properly acquired swimming technique, to a great extent depends on the motor potential of the students to effectively perform repeated movement at a set distance.

When speaking about the effects of coursework teaching, we could compare swimming classes and some other classes (skiing for example), organized according to a similar model. Such studies infer conclusion that the consequence of programmed exercise on a ten-day practical training course of skiing is manifested in the higher level of the measured motor skills of the students, following its completion (Lilić, 2007). Considering the fact that we are dealing with an identical (or similar) sample of subjects who were students at the same university, it is expected that equally good results would be obtained in this study.

METHODS

The sample of subjects

The sample comprised the third-year students of the Faculty of Sport and Physical Education in Leposavić, who completed part of the Swimming course. The research included only the students attending this practical part more than 80% of the classes, aged 21 ± 6 months. There were 142 such participants in both groups. The group which attended classes in Kruševac consisted of 68 students, 63 of whom were males and 15 females. The group from Leposavić, which attended class through coursework consisted of 74 students, 60 of them males and 14 females.

The differences in the curricula were reflected in the way the 30 classes of the practical work were realized, that is, 30 swimming classes per semester, which is approximately the usual number of classes at almost all the faculties of this type in Serbia. The group of students

who studied in Kruševac completed that number of classes through regular class attendance (two classes per week over a period of 15 weeks), while the other group which studied in Leposavić, due to a lack of indoor pool facilities, realized this number of classes during a ten-day course (2 classes in the morning + 1 class in the afternoon).

The sample of variables

Four variables were used to evaluate students' knowledge: the time achieved on the 200 m freestyle and the grade given for the performance of the butterfly, the breaststroke and backstroke swimming technique at a distance of 25 m. The successful performance of all three swimming techniques at a distance of 25 m was evaluated by three swimming coaches with an A license, who in addition were professors of sport and physical education. The average value of their grades was taken as the final grade for the given technique.

The statistical data analysis

In this study, for each variable following descriptive parameters were calculated: the means (Mean), standard deviation (Sd), the coefficient of the variation (Cv%), the minimum (Min) and maximum result (Max). In order to calculate the differences between the groups for the variable of the 200 m freestyle, the t-test for independent samples was used. In order to calculate the differences between the groups for the variable of the grade for butterfly, breaststroke and backstroke technique, the Mann-Whitney U test was used, considering the fact that it was a case of nonparametric statistics. All of the statistical procedures were performed by in the SPSS 19 program.

RESULTS AND DISCUSSION

Table 1 shows the basic descriptive parameters of the measured variables of the students who attended continued, regular, classes. It could be concluded that the average time for the 200 m freestyle was 4.08, while the grades for the remaining three techniques ranged from 5 to 8. Group homogeneity was great for all four variables.

Table 2 shows the basic descriptive parameters of the measured variables collected for the group of students who took part in block scheduling. Based on the obtained results, it can be concluded that the average time for the group was 3.68, while the grades ranged from 5-10. Based on the obtained values of the variation coefficient, it can be concluded that this group was more homogenous than the continued classes group.

Chart 1 shows the obtained differences in the measured variables between the students who attended continued classes and block scheduling. It can be seen that there was a significant difference in all the measured variables.

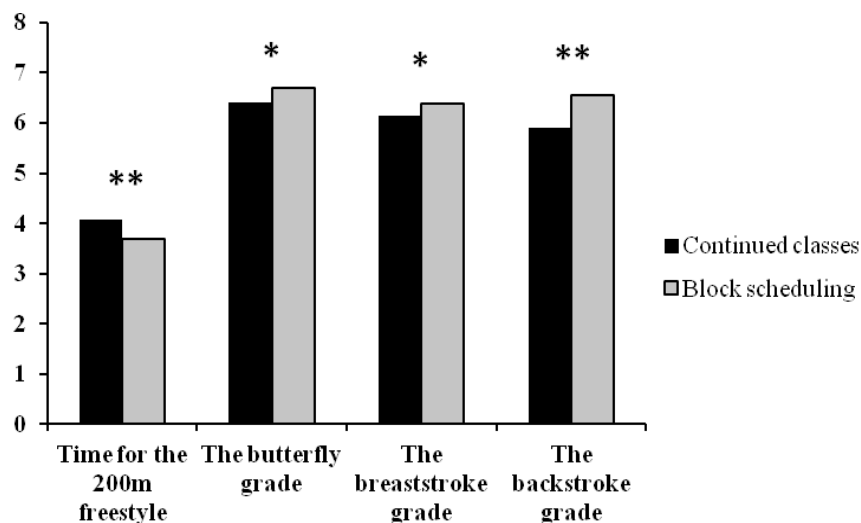
In the 200 m freestyle variable a statistically significant difference was obtained between the groups at the $p=0.01$ level of significance. The students who took part in block scheduling achieved lower levels for the 200

Table 1. The descriptive indicators of the measured variables of the students who took part in continued classes

Statistic	Variables			
	Time for the 200m freestyle	The butterfly grade	The breaststroke grade	The breaststroke grade
Mean	4.08	6.41	6.14	5.91
Sd	0.86	0.83	0.71	0.9
Cv%	21.18	12.98	11.67	15.39
Min	3.15	5	5	5
Max	6.25	8	8	8

Table 2. The descriptive indicators of the measured variables in block scheduling students

Statistic	Variables			
	Time for the 200m freestyle	The butterfly grade	The breaststroke grade	The backstroke grade
Mean	3.68	6.69	6.38	6.55
Sd	0.56	0.79	0.73	0.92
Cv%	15.23	11.9	11.49	14.03
Min	3.11	5	5	5
Max	5.47	10	9	10



**p=0.01, *p=0.05

Chart 1. The differences between the curricula

m freestyle than the group of students who took part in continued classes. Since a smaller shorter period of time means a better score, it could be said that in the case of the swimming time, block scheduling indicated better results than continued class attendance.

A statistically significant difference was also determined between the groups for the other three measured variables. For the variable of the butterfly grade, a statistically significant difference was determined between the groups at the $p=0.05$ level of significance, in favor of block scheduling, or in a word,

the block scheduling students had significantly higher grades for butterfly technique than those who attended class regularly. This difference is perhaps even more significant if we note that in the continued classes group 5 students did not pass this part of the exam, that is, were given a fail grade, while in the block scheduling students, only one student was given a fail grade.

For the breaststroke grade variable, another statistically significant difference was obtained between the groups at the $p=0.05$ level of significance, in favor of the students who had block scheduling. In case of

the fail grade students, the difference is even greater than for the previous variable. The number of fail grade students attending class continuously was 9, while in the block scheduling group there were only two.

For the backstroke swimming technique, the greatest significance was obtained for the grades awarded for technique. A statistically significant difference was obtained at the $p=0.01$ level, in favor of the participants who took part in block scheduling. From the students who regularly attended classes, 26 did not pass this part of the exam, while from the group of students who took part in block scheduling, nine did not pass.

CONCLUSION

The results obtained in this research indicate unambiguously to the fact that the students who attended their swimming classes as part of a ten-day course achieved better results in all the monitored parameters than the students who attended the same classes in a continued fashion over a period of 15 weeks (one semester). What might, at first glance, be the cause of such illogical results?

In order to answer this question we need to reconsider the effectiveness of in-class work. If we take into consideration the time span of one class, that is, the duration of the class, is not in accordance with active time and student in-class activity, while directly related to the load during class, then the question is how this is reflected on the educational and motor effects of the class itself (Toskić, Stanković, & Okičić, 2012; Milenković, Aleksić, Radenković, & Toskić, 2013). Teaching focused on the course, due to the timeframe and the manner in which it is planned and organized, diminishes the aforementioned inconsistencies and as such imposes itself as a better solution.

Class participation during a course as an alternative to the continued class attendance allows for more effective organizational forms as well as some more intense methodological organizational forms increasing the value of active time. Thus, fixing the profile of the physiological load during the class itself leads to a more favorable influence on the development of physical abilities, whereas general educational effects are not diminished. In fact, quite the contrary happens. Naturally, even during continued classes we can use the aforementioned forms of work, but due to the time constraints of such classes, their cumulative effect cannot be manifested as during classes grouped over a shorter period of time. It is quite clear that the number of classes over a certain period of time is not a valid proof of their effectiveness and validity (Milenković, 2006;

Milenković & Simić, 2009).

Considering all the aforementioned information the results could be illogical, but they are, on the contrary, quite expected. The results obtained in such a way doubt the validity of the current plans and programs being implemented at the various faculties of sport and physical education. This study has shown that some other methods and forms of organization can provide better results than those achieved within the current method of work, since, as mentioned at the beginning, the role of the university, faculty and teacher is to encourage the students and enable them to realize their abilities so as to be awarded the highest grades possible.

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