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SELF-EFFICACY AND TIME ACHIEVED IN THE 60 METER RUN AMONG SCHOOL-AGED CHILDREN

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Abstract

Introduction. A person who actively participates in sports benefits not only from the function of corrective conditioning, but also from the benefits of seeing that there are working patterns between the different types of action that make that action possible.
The aim of the work was to apply between an independent method and the obtained effect of teaching in an environment at 60 m in children aged 11-12.
Materials and methods. The research covered forty-six primary schools. Blessed Edward Grzymała in Sadowne (n=16 children, n=30 boys), aged 11 and 12. In assessing the effectiveness of the user's actions, the Self-Efficacy Scale form was used to assess the effectiveness of actions. The subjects also performed an individual run over a distance of 60 m from a high start.
Results. It has been noted that there is a significant relationship between the beneficial effect of the effective action and the results at the 60 m position in school children. With the connection of time to operate in the direction of 60m was visible.
Conclusion. We recommend teachers of independent education on the Self-Efficacy Scale to evaluate viewership in comparison with school corrections in order to assess the effectiveness of their education process.

Key words: physical education, primary school, athletics, speed, physical activity

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Introduction

Perfect physical preparation (a high level of development of basic motor skills) is a factor determining the high efficiency of the body, manifested in all types of activities, e.g. in learning, sports activities, and above all, it is the foundation of health of people of all ages [1]. In teaching, during physical education lessons, teachers use various fitness tests, which are used to check the level of the students' motor skills. The collected data make it possible to determine the progress made by the pupils in terms of their physical fitness. In sports disciplines where locomotive speed prevails, speed measurement tests lasting a few seconds are used [2]. The most popular distances for such a measurement are: 50 m (speed test from the International Physical Fitness Test) and 60 m (a typical sprint test). According to Mackenzie, the 60 m run is an appropriate test of speed, because the recorded results give great opportunities for predicting the competitor's results at other distances of the run [3].

Self-efficacy refers to the belief in the ability to take specific actions that lead the individual to achieve the intended goal [4]. Behaviour analyses have shown that self-efficacy has an impact on greater motivation to undertake tasks, which is associated with positive reinforcement of the individual's achievements. The concept of self-efficacy in the psychological aspect is crucial in many fields, especially in health psychology, as it refers to making and implementing changes in health behaviour [5]. A person who has a high level of self-efficacy is characterized by eagerly undertaking increasingly difficult and complicated tasks [4]. In turn, a low level of self-efficacy most often reduces the motivation associated with the action [6]. The child acquires the first-hand knowledge, habits or styles of reaction from an early age, observing the behaviour of his parents as well as siblings and other family members. The child not only adapts new patterns of understanding and meaning of emerging experiences in the functioning of the family, but also those that relate to internal feelings and the assessment of self-worth and effectiveness [7, 8].

Feltz and her co-authors believe that self-efficacy undoubtedly has an important and positive impact on a physically active person taking specific actions [9]. According to the authors, the belief in high self-efficacy depends on how success is perceived and analysed by the athlete. Strauss and co-authors showed that the experienced physical activity in children correlates with the results of self-efficacy assessment [10]. Understanding the factors determining physical activity among children and adolescents is important for promoting an active lifestyle and preventing civilization diseases, such as overweight, obesity or diabetes. Currently, the sense of self-efficacy in sports activities is an interesting topic for many scientists [11-14]. A thorough analysis of the literature in this area allows researchers to conclude that this is a fascinating and contemporary topic of scientific research. In order to determine the relationship

between self-efficacy and sports performance, most studies involved older people with a certain level of advancement in a given discipline or sport competition. There are few studies conducted in this area, which concern children who do not train professionally [15]. Therefore, the study was undertaken to determine the relationship between the level of self-efficacy and the result obtained in the 60 m run in school-aged children.

Material and methods

Forty-six students of classes V-VI of the Primary School took part in the research. Blessed Edward Grzymała in Sadowne (n=16 girls, n=30 boys) (age: 11.57 ± 0.5 years; body weight: 49.5 ± 13.21 kg; body height: 154.26 ± 10.07 cm).

School Management consented to the research (dated 08/01/2021). The following criteria for the inclusion of students in the study were adopted: written consent of parents/legal guardians to participate in the study, age 11-12 and no health contraindications. The research was conducted in accordance with the principles of the Declaration of Helsinki. The Senate Research Ethics Committee of the Academy of Applied Sciences in Łomża approved the research project (of February 1, 2021).

The research consisted of two stages. In order to assess the level of self-efficacy in the subjects, the Self-Efficacy Scale form was used. Efficacy on perceived physical fitness by Ryckman et al. [16] adapted by Colell et al. [15]. At the beginning, the subjects were asked to individually fill in a personal form, which consisted of six statements relating to: strength, speed and coordination. The reliability of the scale used was confirmed by the Alpha-Cronbach coefficient (0.81). For each item, the respondents were asked to choose one of the four statements that most accurately described their feelings during: physical games and activities, exercises during physical education lessons and other physical activities. Statements 1, 3 and 5 were scored from 1 to 4, while the scores for statements 2, 4 and 6 were reversed. (Table 1). This allowed for an overall score on the level of self-efficacy from 1 to 24. A high score indicated high confidence in one's physical abilities, and a low score indicated low self-efficacy [15].

Table 1. Self-Efficacy Scale form [15]

1.	I run very slowly.	I run slowly.	I run fast.	I run very fast.
2.	I am able to do very difficult exercises.	I am able to do difficult exercises.	I am only able to do easy exercises.	I am only able to do very easy exercises.
3.	My muscles are very weak.	My muscles are weak.	My muscles are strong.	My muscles are very strong.
4.	I move very rapidly.	I move rapidly.	I move slowly.	I move very slowly.
5.	I feel very insecure when I move.	I feel somewhat insecure when I move.	I feel sure when I move.	I feel very sure when I move.
6.	I do not feel tired at all when I move.	I do not feel tired when I move.	I feel tired when I move.	I feel very tired when I move.

After the test assessing the level of self-efficacy, the subjects performed a general warm-up, which included general exercises: a jog / 10 minutes (e.g. arm circles and skipping), in place / 10 minutes (e.g. hip circulation, twisting, and squats). The task of the subjects was to perform an individual single run over a distance of 60 m from a high start. This test was carried out in the presence of a physical education teacher on the track and field in the Primary School Blessed Edward Grzymała in Sadowne. The test result was used to assess the speed of the subjects (time in which the distance was covered). Time was measured with a sports stopwatch accurate to hundredths of a second.

Statistical analysis

To demonstrate your level of self-efficacy and running performance at 60 m, the arithmetic mean (M) and standard deviation (SD) were used. The normality of the data distribution was tested using the Shapiro-Wilk test. The Mann-Whitney U Test (corrected for continuity) was used to determine the statistical significance of differences between the level of self-efficacy in girls and boys. During the statistical analysis, $p<0.05$ was considered significant.

Spearman's rank correlation coefficient was used when determining the relationship between the levels of self-efficacy and the result in the 60 m run.

STATISTICA 12 software (StatSoft, Inc. 1984-2014, USA) was used for the analyses.

Results

The average number of points scored by the respondents in the scale determining the level of self-efficacy was 16.39 ± 2.88 (68.29%). In turn, Figure 1 presents the average number of points recorded on the self-efficacy scale separately by girls (DZ) and boys (CH).

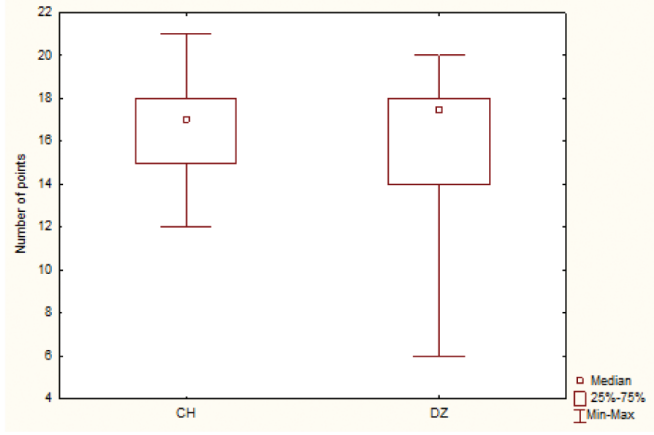

Fig. 1: Average number of points recorded on the self-efficacy scale separately by girls and boys

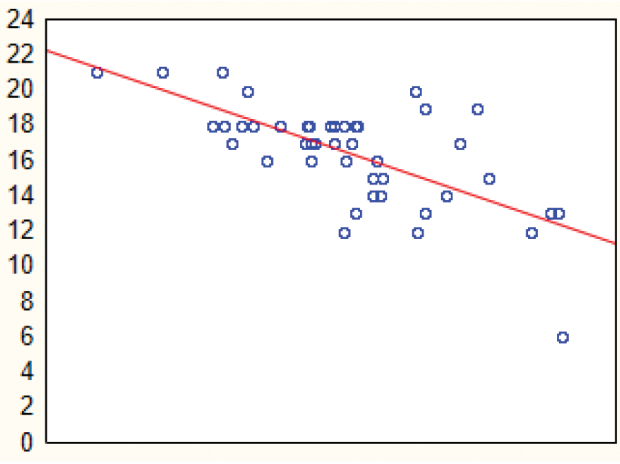

Fig. 2: Correlation between the level of self-efficacy and the result in the 60 m run

On the basis of the Mann-Whitney U Test (corrected for continuity), it was found that the level of self-efficacy obtained by girls differed statistically insignificant compared to the result recorded by boys ($p>0.05$). It was noted that the analysed data did not meet the criterion of normality of distribution ($p<0.05$). Figure 2 shows the relationship between the level of self-efficacy and the result in the 60 m run determined using Spearman's rank correlation coefficient.

It was found that there is a significant relationship (-0.61) between the level of self-efficacy and the result in the 60 m run in the study group, a negative correlation (-0.61) was noted.

Results

Based on the literature review, it can be concluded that there are positive relationships between the level of self-efficacy and physical activity undertaken [9, 17]. The aim of this study was to determine the relationship between the level of self-efficacy and the result obtained in the 60 m run in school-aged children.

A detailed analysis of the results of our own research showed that the respondents scored a total of 68.29% of the maximum possible number of points on the scale of self-efficacy, which proves the recorded average result. It was also proved that gender did not significantly differentiate the examined group of children aged 11 to 12 years. The level of self-efficacy regarding physical fitness was similar among both boys and girls. These results are not consistent with the results of studies by other authors [15, 18], who noted that boys have a higher level of self-efficacy in terms of physical skills than girls. This may be due to distance learning in physical education, which was introduced in Poland due to the COVID-19 pandemic, and this research was conducted after the start of in person teaching. Perhaps a long break in regular physical activity undertaken by boys during physical education lessons contributed to their lower perceived physical fitness. In addition, it was found that there is a significant relationship between the level of self-efficacy and the result in the 60 m run in the study group. Namely, it was proven that along with a higher level of self-efficacy, the time achieved in the 60 m run was shorter. These results are consistent with the results of other authors [10], who showed that the experienced physical activity in children correlates with the results of self-efficacy assessment. Moreover, the results of our research confirm that there are positive relationships between the level of self-efficacy and physical activity undertaken [9, 17]. Understanding the determinants of physical activity is important for promoting an active lifestyle among children and young people. We recommend physical education teachers to use the Self-Efficacy Scale regarding the perceived physical fitness of students in order to assess the effectiveness of their educational process. Systematic improvement of the level of motor skills of an individual may result in a higher level of self-efficacy in relation to physical fitness, as well as an increase in students' motivation to regularly actively participate in physical education lessons and additional sports activities. This can also be used to better understand aspects of self-perception by the children.

Conclusions

1. Gender did not significantly differentiate the level of self-efficacy regarding physical fitness in children aged 11 to 12.
2. There is a significant relationship between the level of self-efficacy regarding physical fitness and the result in the 60 m run in children aged 11 to 12. Along with the higher level of self-efficacy, the time achieved in the 60m race was shorter.

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