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THE RELATIONSHIP BETWEEN THE TEACHING STYLE OF SWIMMING COACHES AND THEIR ATHLETES' MOTIVATION FOR SPORT

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Abstract*. The paper presents a research dealing with one of the most relevant problems in sports education science, the coach's influence on young athletes' motivation. The aim of the research is to investigate the correlations between manifestation of the teaching style applied by coaches and motivation of their athletes for sport. The research raises a hypothesis that the teaching styles applied by coaches may be related to the motivation for sport in the athletes being trained. The research is based on the provisions of reproductive and productive teaching methods as well as the self-determination theory. The research involved 14–18-year-old swimmers and their coaches. Two questionnaires have been employed: description of the teaching style (Curtner-Smith et al., 2001; Hein et al., 2012) and sport motivation scale (SMS–II; Pelletier et al., 2013). Referring to the responses in relation to manifestation of the teaching style, the coaches have been divided into three groups. The one factor analysis of variance (ANOVA) was applied to test the research hypothesis. The research hypothesis was proven only partly. It was found that application of different teaching styles may have had effect on young athletes' external motivation only. It can be substantiated that the teaching style employed by swimming coaches and related both reproductive and reproductive teaching methods have no significant effect on young athletes' intrinsic motivation for sport in the coaching practise.*
Keywords: *motivation for sport, self-determination theory, swimming, teaching styles.*

Introduction

Motivation for sport is one of the most important factors of effective training of an athlete; in recent years, it has become a highly relevant problem in research in sports science (Weinberg & Gould, 2019). The goals and sport interest of the trainees may be significantly influenced by a sports pedagogue (Jõesaar, Hein, & Hagger, 2012; Pelletier, Rocchi, Vallerand, Deci, & Ryan, 2013; Ryan & Deci, 2007). Some researchers (De Francisco, Arce, Sánchez-Romero, & del Pilar Vílchez, 2018) suppose that motivation is a fixed trait or characteristics of a personality – an athlete is simply motivated or not. Nevertheless, relationships between coach and athlete are one of major factors that can determine athlete's

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motivation for sports among various external factors having effect on an athlete throughout one's career in sports (Cuevas, García-López, & Serra-Olivares, 2016; Mageau & Vallerand, 2003; Reynders et al., 2019). Performance methods, style being applied by a coach may have both positive and negative influence on an athlete; therefore, it is important to understand what effect on athlete's motivation is made by coach's behaviour, personality and teaching style (Delrue, Soenens, Morbée, Vansteenkiste, & Haerens, 2019; Hanif & Mardesia, 2014).

Even though the correlation between coach's teaching style and athletes' motivation has been indirectly investigated in several research works (Hanif & Mardesia, 2014; Jõesaar et al., 2012; Karjane & Hein, 2015; Reynders et al., 2019), there is no unified answer to that issue. On the other hand, swimming is a very specific branch of sport where democratic methods of training may not always be effective. Having considered the said, a *relevant* scientific problem arises: what is the relationship between swimming coaches' performance style and trainees' motivation.

The research *hypothesis*: it is likely that the teaching styles employed by coaches may be related to the motivation for sport in their trainees.

The aim of this research is to investigate the relationships between manifestation of swimming coaches' training styles and their athletes' motivation for sport.

Literature Review

Sport is a complex activity where it is important to maintain a balance between good development of motor skills and maintenance of motivation (Weinberg & Gould, 2019). Therefore, the relationship between teaching methods and teaching styles is highly important. The style of sports pedagogue's training is usually understood as behaviour manifestation between authoritarianism as well as control and democracy. Specific teaching styles can occur in different places of this dichotomy.

M. Metzler (2011) has it that M. Mosston's works are often referred to when dealing with methods of physical training in contemporary comprehensive education institutions in various countries. M. Mosston has grouped the proposed ideas on teaching physical education into categories which are called the Mosston spectrum of teaching styles (Mosston & Ashworth, 2008).

The methods for physical education presented in the spectrum of teaching methods by M. Mosston suit for students attributed with different physical and social characteristics; therefore, they can be applied directly or separate elements of these methods can be used merging them to one method. Other researchers (Chatoupis & Vagenas, 2011; Sicilia Camacho & Brown, 2008) emphasise that

the spectrum of teaching methods proposed by M. Mosston may sufficiently well suit for the sports education environment.

The teaching methods according to M. Mosston's spectrum are the following: (a) command; (b) practise; (c) reciprocal; (d) self-check; (e) inclusion; (f) guided-discovery; (g) convergent; (h) divergent; (i) individual; (j) learner-initiated; (k) self-teaching.

M. Goldberger, S. Ashworth and M. Byra (2012) have it that the Mosston spectrum scale encompasses teaching methods: from the teaching methods characteristic of minimal decisions of learners to the teaching methods attributed with maximal decisions and autonomy of learners. One of the major ideas of the M. Mosston and S. Ashworth' (2008) spectrum is the goal to gradually transfer from the method "from a teacher–to a student" to the decision-making process, higher autonomy and personal responsibility.

Motivation, as a research object in sports science, is important due to several reasons. On the one hand, it significantly impacts the pace of development in sports and the sport result itself (Weinberg & Gould, 2019). On the other hand, methods of coaching, preparation, participation in competitions, coach's activities, various social circumstances make a significant effect on the manifestation of athletes' motivation and its structure (Hagger & Chatzisarantis, 2007; Jõesaar et al., 2012). These reasons greatly influence quite a large interest of researchers in the problem of motivation for sport.

Recently, several theories are widely employed to ground the explanations of motivation for sport and physical activity. The *self-determination theory* is one of the most popular (Ryan & Deci, 2018). In the *self-determination theory*, person's motivation and related behaviour are considered through the source where the decision is determined and controlled (Hagger & Chatzisarantis, 2007; Ryan & Deci, 2018). Basically, there can be two sources: intrinsic and external. Therefore, while learning, working or exercising sports, two kinds of motivation stand out: *intrinsic* and *external*. *The intrinsic motivation* is a wish to be effective and act for the activity sake. *The external motivation* is the striving for an external reward or a wish to avoid punishment (Ryan & Deci, 2018; Vallerand, 2007). According to the founders of this theory (Ryan & Deci, 2018), only in such activity or situation, where three major psychological needs (competence, autonomy and relatedness) can be satisfied, one can expect conditions of intrinsic motivation.

Methodology

The surveyed. The survey involved 148 young swimmers (78 boys and 70 girls) from several swimming sport schools in Lithuania. The age of young

athletes was 14–18 years, the average age was 15.3 ± 1.3. The average duration of attending swimming training was 7.6 ± 2.2 years. Coaches (N = 18) of swimmers were surveyed, too. The age of coaches varied from 30 to 59, the average age was 44.1 ± 10.7. Their coaching experience was 18.3 ± 10.7 years.

Measurements. Motivation of young athletes was measured by *The Sport Motivation Scale* II (SMS–II) (Pelletier, Rocchi, Guertin, Hébert, & Sarrazin, 2017; Pelletier et al., 2013). The scale was designed on the ground on the self-determination theory. This scale of motivation for sport comprises 18 statements divided into 6 sub-scales for each three: *Intrinsic Motivation, Integrated Regulation, Identified Regulation, Introjected Regulation, External Regulation, Amotivation*. Validation of the scale for the Lithuanian language met quite high standards. Cronbach α of single scales varied from 0.63 to 0.89. While responding to each statement, the surveyed had to choose answer options in the seven-point Likert scale from "completely disagree" (1) to "completely agree" (7). The analysis of the research results involved the operation with mean values of the sub-scales of the sport motivation scale.

To identify the teaching style of swimming coaches, a modified questionnaire designed by the University of Tartu scientists (description of teaching styles (Curtner-Smith, Todorovich, McCaughtry, & Lacon, 2001) was chosen. The questionnaire presents closed-type questions on application of different teaching methods (from reproductive to productive) in physical education, including examples. The questionnaire includes the following teaching methods: (a) command, (b) practise, (c) reciprocal, (d) self-check, (e) inclusion, (f) managing engagement, (g) divergent; (h) student's initiative. The methods a–e correspond to reproductive methods, whereas f–h correspond to productive ones. Responding to each statement, the surveyed had to choose answer options in the five-point Likert scale, from "I never apply" (1) to "I apply very often" (5).

Data analysis. In terms of their answers on manifestation of teaching styles, the coaches were divided into three types: *type 1* comprised stronger expressed productive teaching methods (relationship between productive and reproductive methods ≤ 0.94); *type 2* meant teaching methods of balanced manifestation (relationship between productive and reproductive methods 0.95–1.05); *type 3* was stronger expressed productive teaching methods (relationship between productive and reproductive methods ≥ 1.06). The young athletes were divided into groups according to the type of a coach. To analyse the research results, methods of descriptive statistics have been employed: mean (M), standard deviation (SD). Supposing that the correlation between the variables may be of a non-linear character, the testing of the research hypothesis employed the analysis of variance (ANOVA) (Berkman & Reise, 2011). The inter-group difference was significant when $p < 0.05$.

Research Results

Table 1 presents descriptive statistics and ANOVA results of the three groups. In majority of sub-scales on sport motivation, no significant influence from coach to trainees' motivation was found: *Intrinsic Motivation* ($F = 1.24$, $p > 0.05$), *Integrated Regulation* ($F = 0.27$, $p > 0.05$), *Identified Regulation* ($F = 2.44$, $p > 0.05$), *Introjected Regulation* ($F = 0.85$, $p > 0.05$) and *Amotivation* ($F = 1.37$, $p > 0.05$); significant influence on the young swimmers' motivation type *External Regulation* ($F = 3.57$, $p < 0.05$).

Table 1 ***Manifestation of Young Swimmers' Motivation Depending on the Type of Coach's Teaching Style***

Motivation sub-scale	**Group 1** X ± SD	**Group 2** X ± SD	**Group 3** X ± SD	**F**	***p***
Intrinsic motivation	5.57 ± 1.12	5.79 ± 0.82	5.33 ± 1.39	1.24	0.294
Integrated Regulation	4.81 ± 1.21	5.02 ± 1.22	5.13 ± 1.48	0.27	0.761
Identified Regulation	5.48 ± 1.12	5.48 ± 1.15	4.86 ± 1.22	2.44	0.095
Introjected Regulation	5.02 ± 0.87	5.42 ± 1.08	5.08 ± 1.36	0.85	0.431
External Regulation	3.60 ± 1.43	4.01 ± 1.86	2.92 ± 1.29	3.57	0.033
Amotivation	1.83 ± 0.98	2.50 ± 1.31	2.24 ± 1.34	1.37	0.262

***Note**: **Group 1** comprised young swimmers whose coaches held stronger expressed reproductive teaching methods; **Group 2** included young swimmers whose coaches held equally expressed both reproductive and productive teaching methods; **Group 3** comprised young swimmers whose coaches held stronger expressed productive teaching methods.*

Table 2 presents the results of comparison of pairs among the groups. Tukey's HSD test revealed only one significant inter-group difference in the sub-scale *External Regulation* ($p < 0.05$). Cohen's d identified the medium effect size (Cohen, 1988) in the following sub-scales: *Identified Regulation* (Group 1 *vs*. Group 3 ($\Delta = 0.62$, ES = 0.53) and Group 2 *vs*. Group 3 ($\Delta = 0.62$, ES = 0.52)), *External Regulation* (Group 1 *vs*. Group 3 ($\Delta = 0.68$, ES = 0.50) and 2 Group *vs*. Group 3 ($\Delta = 1.09$, ES = 0.68)), *Amotivation* (Group 1 *vs*. Group 2 ($\Delta = -0.67$, ES = 0.58). It is worth noting that the effect size of the *Intrinsic Motivation* was small in three compared pairs and varied from 0.19 to 0.40.

Table 2 ***Inter-group Comparison of Young Swimmers' Motivation Depending on the Type of Coach's Teaching Style***

Motivation sub-scale	Tukey's HSD test			Cohen's *d* effect size		
	Group 1: Group 2	Group 1: Group 3	Group 2: Group 3	Group 1: Group 2	Group 1: Group 3	Group 2: Group 3
Intrinsic motivation	0.815	0.793	0.262	0.22	0.19	0.40
Integrated Regulation	0.872	0.740	0.945	0.17	0.24	0.08
Identified Regulation	1.000	0.247	0.109	0.00	0.53	0.52
Introjected Regulation	0.545	0.987	0.511	0,41	0.05	0.28
External Regulation	0.694	0.396	0.026	0.25	0.50	0.68
Amotivation	0.235	0.596	0.704	0.58	0.35	0.20

***Note**: **Group 1** comprised young swimmers whose coaches held stronger expressed reproductive teaching methods; **Group 2** included young swimmers whose coaches held equally expressed both reproductive and productive teaching methods; **Group 3** comprised young swimmers whose coaches held stronger expressed productive teaching methods.*

Discussion

The aim of this research was to investigate the relationships between manifestation of swimming coaches' teaching style and their athletes' motivation for sport.

The self-determination theory is gradually more often employed to understand motivation for exercising sports, drilling as well as different effects on education and physical training processes (Hagger & Chatzisarantis, 2007; Grajauskas & Razmaitė, 2017; Pelletier et al., 2013; Ryan & Deci, 2018 etc.). Scientists put it that sports pedagogues who give athletes more autonomy, maintain favourable mutual relationships and acknowledge competence can stimulate intrinsic motivation for sport (Vallerand, 2007). When providing at least several options to athletes to choose physical activities, athletes' intrinsic motivation for sport in being encouraged, meeting basic psychological needs (Cuevas et al., 2016). On the other hand, setting pressure on athletes and controlling their behaviour, sports coaches do not contribute to satisfaction of their basic needs of autonomy, competence and mutual relationships (Pelletier et al., 2013).

Employing the self-determination theory, the researchers are usually interested in two different performance styles of sport pedagogues: autonomy-supporting and controlling (Delrue et al., 2019; Karjane & Hein, 2015). Maintaining autonomy, coaches acknowledge athletes' feelings and prospects as well as allow them to take part in the decision-making process; whereas those who

use the controlling style hold the style which is highly characteristic to the autocratic relationship style (Mageau & Vallerand, 2003).

The research hypothesis stating that it is likely that the teaching styles employed by coaches may be related to the motivation for sport in the trainees has been proven only partly. It was found out that independently of manifestation of the performance style of swimming coaches (whether it is oriented to autonomy or control) intrinsic motivation for sport in the trainees did not differ. However, the coach's style of teaching correlated to external motivation. In other words, coaches who were applying reproductive, i.e. more controlling teaching methods (command; practise; reciprocal; self-check; inclusion), more frequently motivated their athletes more externally. Moreover, similar results in slightly different contexts were obtained earlier (Amorose & Anderson-Butcher, 2015; Hanif & Mardesia, 2014).

Grounding on the obtained research results, an assumption can be drawn that perhaps the specific character of the swimming sport branch is the reason to it. Complexity of organisation of training swimming is basically determined by the time spent in the water constituting the largest part of exercising, and sports pedagogues must apply as diverse teaching methods as possible. Traditionally, the teaching of swimming is based on the methods of "command", when a coach renders information and a swimmer reproduces it, without assessing psychological variables included in teaching, learning and assessment (Merono, Calderon, & Hastie, 2016). During swimming competitions, the method when a coach assigns tasks and controls the process of their completion usually prevails. And this is quite natural in such sports branches which require complex motor coordination, such as a swimming.

Swimming coaches performed self-identification of their teaching style dominating in their performance according to teaching methods they employ. According to the obtained research results on manifestation of self-identification in terms reproductive and productive methods, three types were singled out. Limitation of the research would emphasise that coaches identified their teaching styles themselves but not by their trainees. To our mind, this aspect would supplement the investigation with more objective data. Seeking to expand the limits of questionnaires used in the research, it would be helpful to carry out an investigation in a slightly larger sample of the surveyed and with more diverse levels of sports excellence swimmers in the future. Moreover, the research results could be analysed in the contexts of coaches' sex, work experience, trainees' achievements in sports.

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