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SELF-REGULATED LEARNING, TRAINING SATISFACTION AND PERCEIVED COMPETENCE OF YOUNG ATHLETES DURING COVID-19 PANDEMIC PERIOD

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Abstract

The aim of this study was to evaluate the perceived competence and satisfaction of Young Athletes at their training and determine the peculiarities of Self-regulated learning during Covid-19 conditions. In this research, we adopted three scales: Self-Regulated Learning Scale (SRL-SRS) (8 subscales with 53 items), Perceived Competence for Learning Scale (PCLS), and Sport Satisfaction Instrument (SSI). In this study, 452 respondents (male – 278, 61.5%; female – 174, 38.5%) (Team sports – 226; individual sports – 226) were analyzed. Age varied from 13 to 19 years old (average 15.85±1.45). Conclusions. The instrument is multidimensional, because of its complexity and it needs further investigation when trying to adapt to a Lithuanian population. The Adopted Self-regulated learning Scale was characterized by good internal compatibility and is suitable for data analysis, but the next step is to prepare a shorter version of SRL. It is important to adopt a shorter version for Coaches and Athletes to make it more easier to implement it into the coaching practice. Such results were obtained, because of the Covid-19 pandemic peculiarities. For further investigation we need to receive more data from usual trainings, not including distance/remote learning and distance/remote coaching.

Keywords: Self-regulated learning, young athletes, perceived competence, sport satisfaction

Introduction

The Covid-19 Pandemic period was a challenging time for various fields. This Pandemic changed the world and restricted the freedom to live, communicate, work, travel, engage in favorite activities. The Impact is especially felt in the areas of Physical Activity and Sports. In order to meet these new challenges, we need to be able to cope with the challenges and barriers that arise. Self-regulated learning (SRL) can help to adapt to change.

Self-regulation is a construct that consists of: planning, goal setting, challenge acceptance, evaluation, reflection, self-control or self-reflection, concentration, effort (McCardle et al., 2018). Self-regulated learning (SRL) in education is a construct about learning styles, metacognition and regulation styles, goal-directed behavior. SRL focuses on how learners actively manage their own learning.

Self-regulated learning focuses on how learners actively manage their learning by planning, monitoring, and applying appropriate techniques and methods (Winne and Hadwin, 1998; Zimmerman, 1998, 2000). Self-regulation is thought to involve processes that allow individuals to control their thoughts, feelings, and actions (Baumeister & Vohs, 2004). The various perspectives on self-regulated learning have at least four important assumptions (Pintrich, 2000): (a) learners are active representatives of their learning processes; (b) learners can control their cognition, motivation, behavior and some aspects of the environment; (c) learners have goals or criteria that guide action and form the basis for metacognitive decisions; (d) Self-regulated learning processes strengthen the link between desired outcomes and personal characteristics by adapting to different contexts.
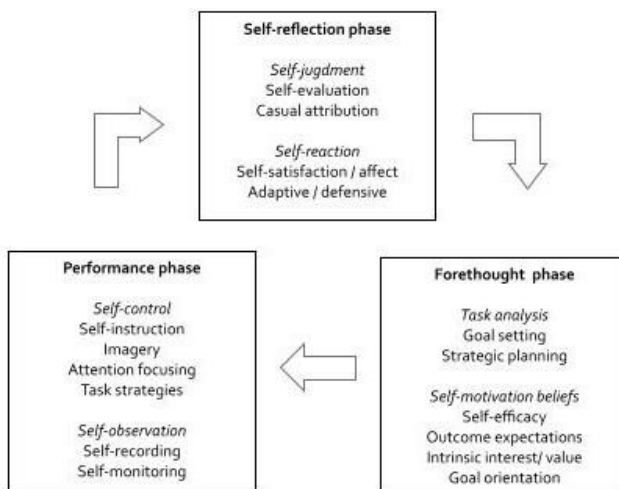

Figure 1. Cyclical phases and sub-processes of SRL (Zimmerman, 2000)

Conceptual models of self-regulated learning are mainly based on (a) metacognition, as learners are able to regulate when they know and control their cognition; and (b) motivation, as engaging in metacognitive and behavioral control requires a lot of effort (Zimmerman, 2011).

The cyclicality of self-regulation consists of the following three phases: Self-reflection, Forethought, and Performance (Fig. 1).

The Perceived Competence Scale (PCS) is associated with feelings and behaviors (Williams, et al., 1998; Williams & Deci, 1996). This is a short 4-point questionnaire that assesses how much participants feel confident in changing (or maintaining) behavior, participating in or implementing educational programs. It has been found that people, who feel more competent about a particular behavior are more likely to change and sustain change and show better results. Better acknowledged Perceived Competence is associated with better academic performance (Obach, 2003).

According to the authors (Pelikan et al., 2021) students, who consider themselves highly competent use self-regulated learning strategies (goal setting and planning, time management, metacognitive strategies) more often and are more fundamentally motivated than students of lower perceived competencies. The study revealed that students, who perceived themselves as highly competent, appeared to be better able to cope with the challenges posed during the Covid-19 pandemic (Pelikan et al., 2021).

Job satisfaction determines motivation and involvement and survival in the chosen activity. Satisfaction with physical activity (Baños et al., 2020) mediates between maintaining autonomy and academic performance. However, boredom with physical activity did not mediate between support for autonomy and student achievement (Baños et al., 2020).

In our study, we sought to find out how young athletes perceive their competence and how the self-regulatory mechanism works during a pandemic, and how young athletes are satisfied with the ongoing training.

The aim of this study was to evaluate the perceived competence and satisfaction of Young Athletes at their training and determine the peculiarities of Self-regulated learning during Covid-19 conditions.

Material and methods

Participants. This research was done in the pandemic period (December, 2020). It was prepared questionnaire online. Collected data were analyzed comparing participants by gender, as well as by looking into differences between Team sport athletes and individual sport athletes.

In this study, 452 respondents (male – 278, 61.5%; female – 174, 38.5%) (Team sports – 226; individual sports – 226) were analyzed. Athletes from Team sports like Basketball, Football, Volleyball, Handball, Rugby, Field hockey, Water polo, Hockey and from Individual sports like

Track and Field Athletics, Judo, Greco-Roman wrestling, Boxing, Cycling, Tennis, Rowing, Powerlifting, Triathlon , Gymnastics, Skiing, Table tennis, Figure skating, Modern pentathlon, Taekwondo took part in this research. Age varied from 13 to 19 years old (average 15.85 ± 1.45). Detailed data are presented in Table 1.

Table 1

Information on the distribution of research participants by groups of sports, their age and training experience in the chosen sport

Sports by Groups	Participants			Age (X±SD)	Experience in years (X±SD)
	Total	Male	Female		
Team Sports	226	150	76	15.99±1.3	7.57±2.6
Individual Sports	226	128	98	15.72±1.6	5.55±2.9

Statistical analysis. Data analysis was performed using SPSS 26 and Jamovi software. Prior to the analysis, the data were checked for missing estimates in the respondents 'responses. As most of the scale indicators are not distributed according to the normal distribution, non-parametric criteria were used in the data analysis.

Cronbach's α coefficients were calculated to assess the internal consistency of the scales used for the study and their subscales, and the structural validity of the scales was assessed by the correlation of the statements with the subscale coefficient ITC (Item-total Correlation) and the Cronbach's α coefficient after elimination of the statement (α e.t.). Although the minimum recommended internal compatibility threshold is 0.90 (Cronbach, 1951; Bernstein & Nunnally, 1994), very rarely do researchers achieve an ideal and an internal compatibility ratio of 0.7 is considered satisfactory for most scales (Boateng et al., 2018).

The suitability of the data for factor analysis was determined by evaluating the Spearman-Brown coefficient of increased confidence, the Kaiser-Meyer-Olkin measure, and the Bartlett sphericity test.

Confirmatory factor analysis was performed to isolate the factors. The suitability of the CFA model is assessed by the following reliability indices: CFI (Comparative Fit Index), TLI (Tucker-Lewis Index) and RMSEA (Root Mean Square Error of Approximation) (Moosburger & Kelava, 2012), Satorra-Bentler criterion ($\chi2$ / df) (Muthén, Muthén, 1998–2012). CFI ≥ 0.95, TLI ≥ 0.95, RMSEA 0.05–0.08, and $\chi2$ / df <3.0 indicate good model compatibility, indicators that do not meet these requirements do not support the model.

Research instrument. In this research, we adopted three scales: Self-Regulated Learning Scale (SRL-SRS) (8 subscales with 53 items) (McCardle et al., 2018), Perceived Competence for Learning Scale (PCLS), and Sport Satisfaction Instrument (SSI).

The Sport Practice Version of the Self-Regulated Learning — Self-Reporting Scale (SRL-SRS) consists of 8 subscales: planning, goals setting, self-monitoring, evaluating, reflecting, self-efficacy for challenges, effort, concentration. Cronbach's α of SRL-SRS – high 0.976; RMSEA – 0.0619 (must be lower than 0.08), CFI – 0.861, TLI – 0.852, χ2 / df – 2.72. CFA (Confirmatory Factor Analysis) confirmed the model. The model is accepted when the score is from 0 to 0.08. Scores of CFI and TLI are a bit to low (must be higher then 0.9), but are close to 0.9.

The „Planning" subscale consists of 9 statements ("I determine how to approach a practice task before I begin"; "Before practice tasks, I carefully plan my course of action"; "I try to understand the goal of a practice task before I begin"). it ";" I think about what a practice task requires me to do before I do it ";" I clearly plan my course of action before starting practice tasks ";" Before I do a practice task, I think through the steps in my mind ";" Before practice tasks, I figure out what I need to do to accomplish my goals ";" Before practice tasks, I consider the parts of the task I have to complete ";" I develop a plan for resolving difficulties at practice "), Cronbach's α – high 0.857, Item-total Correlation ranged from 0.495 to 0.702.

The subscale "Goals setting" consists of 7 statements ("I consciously have goals in mind for how hard I want to work at practice"; "I prioritize the most important goals I have for practice"; "During practice, I consciously have goals in mind to improve how I train ";" Before practice tasks, I figure out my goals ";" I am aware of the outcomes I want to achieve during training ";" I set specific training goals for myself ";" I set personal training goals so I can check my progress "), Cronbach's α – high 0.855, Item-total Correlation ranged from 0.533 to 0.700.

The subscale "Self-monitoring" consists of 4 statements ("I check how well I am doing during practice tasks"; "While I am engaged in a practice task, I know how much of it I still have to complete"; of my workout while doing it ";" I check my work all the way through a practice session "), Cronbach's α – 0.728, Item-total Correlation ranged from 0.419 to 0.615.

The "Evaluating" subscale consists of 8 statements ("I look back to check if what I did in practice was right"; "I compare my performance at practice with what I had done before"; procedures at practice ";" I evaluate whether I am getting better from practice to practice ";" I double-check to make sure I did practice tasks right ";" I compare my performance at practice with the goals that I have ";" After finishing, I look back on practice tasks to evaluate my performance ";" I look back to judge if the way I

practiced felt right "), Cronbach's α – 0.873, Item-total Correlation ranged from 0.497 to 0.719.

The "Reflecting" subscale consists of 8 statements ("I reappraise my practice experiences so I can learn from them"; "I reflect about how I can practice things better next time"; "I reflect upon my actions at practice to see whether I can improve them ";" I think about my practice experiences so I can adjust my goals for practice ";" When thinking about my practice, I reflect about my strengths and weaknesses"; "I think about my past experiences at practice to gain new insights"; "I think about how practice has been going so I can plan for next time"; "I reflect on my practice in order to set new goals"), Cronbach's α – 0.896, Item-total Correlation ranged from 0.575 to 0.742.

The „Self-efficacy for challenges" subscale consists of 5 statements ("I know how to handle unforeseen situations during practice, because I am resourceful"; "No matter what comes my way at practice, I am usually able to handle it"; "When facing difficulties at practice I can rely on my coping abilities"; "I am confident that I can deal efficiently with unexpected events at practice"; "When I am confronted with a difficulty during practice, I can usually find several solutions"), Cronbach's α – 0.871, Item-total Correlation ranged from 0.680 to 0.720.

The „Effort" subscale consists of 6 statements ("Even when I don't like a task during practice, I work hard"; "I usually put forth my best effort when performing tasks at practice"; "I am willing to do extra practice on tasks in order to acquire more skill"; "I usually keep working hard even when sport training tasks become difficult"; "If I'm not really good at a task, I can compensate by practicing hard"; "I don't give up at practice even if a task is hard"), Cronbach's α – 0.898, Item-total Correlation ranged from 0.687 to 0.754.

The „Concentration" subscale consists of 6 statements ("If I'm not really good at a task, I can compensate by fully concentrating"; "I concentrate fully when I do a task at practice"; "I do not lost my focus at practice, even if a task is hard"; "I usually block out distractors when performing sport training tasks"; "I usually stay focused even when tasks become difficult at practice"; "Even when I don't like a task during practice, I try to concentrate on what I'm doing"), Cronbach's α – 0.883, Item-total Correlation ranged from 0.671 to 0.752.

Sport Satisfaction Instrument (SSI) adapted to physical education (Baena-Extremera et al, 2012) had two subscales „Fun" and „Boredom". Cronbach's α of SSI – high – 0.808, RMSEA – 0.0813, CFI – 0.967, TLI – 0.952, $\chi 2/df$ - 3.98.

Sport Satisfaction Instrument (SSI) had 2 subscales with 8 items. First subscale – Satisfaction/fun consists of 5 statements ("I usually have fun in the Training"; "I usually find Trainings interesting"; "In the Training, I usually find time flies"; "I usually get involved in the Training"; "I usually enjoy Trainings") , Item-total Correlation ranged from 0.464 to 0.664.

The second subscale – Boredom – 3 statements ("I often daydream instead of thinking about what I'm really doing in the Training"; "In the Training, I am usually bored"; "In the Training, I usually wish the class would end quickly"). Item-total Correlation ranged from 0.302 to 0.570.

Perceived Competence for Learning scale (PCL) (Williams, et al., 1998; Williams & Deci, 1996) consists of 4 statements, wich were adopted in sports practice ("I feel confident in my ability to learn in my Training"; "I am capable of learning the material in my Training"; "I am able to achieve my goals in my Training"; "I feel able to meet the challenge of performing well in my Training"). Cronbach's α of PCL in Sport – high – 0.855, Item-total Correlation ranged from 0.653 to 0.740.

Results

Subscale analysis showes that boys are more ready to meet the challenges ($p < 0.05$) than girls and they are more satisfied ($p < 0.01$) with their trainings in this pandemic period (Tab. 2).

Table 2

Gender differences in subscales

Subscales	Male		Female	
	M	SD	M	SD
Planning	4.05	.63	4.08	.61
Goal Setting	4.14	.67	4.12	.64
Self Monitoring	3.97	.71	3.95	.69
Evaluating	3.93	.77	3.99	.67
Reflecting	4.06	.72	4.13	.67
Self-efficacy for challenges *	**4.06**	**.72**	**3.89**	**.76**
Effort	4.26	.70	4.19	.74
Concentration	4.14	.71	4.12	.68
Perceived Competence	4.28	.69	4.23	.71
Satisfaction (Fun) **	**4.44**	**.66**	**4.27**	**.76**
Satisfaction (Boring)	1.96	.99	2.01	.99

* - $p < 0.05$;   ** - $p < 0.01$

Data analysis showed that respondents from team sports are more satisfied with their trainings ($p < 0.05$) but athletes from individual sports are more prone to self-monitoring ($p < 0.05$) (Tab. 3).

Table 3
Sport specific differences in subscales

Subscales	Individual Sport		Team Sport	
	M	SD	M	SD
Planning	4.09	.67	4.04	.59
Goal Setting	4.16	.68	4.10	.64
Self-Monitoring*	**4.04**	**.70**	**3.90**	**.69**
Evaluating	3.98	.73	3.92	.74
Reflecting	4.12	.71	4.05	.69
Self-efficacy for challenges	3.99	.77	3.99	.69
Effort	4.21	.77	4.26	.66
Concentration	4.13	.73	4.13	.66
Perceived Competence	4.25	.77	4.28	.62
Satisfaction (Fun) *	**4.29**	**.80**	**4.47**	**.58**
Satisfaction (Boring)	1.99	.98	1.98	1.00

*- $p<0.05$

In terms of perceived competence, no statistically significant differences were found between team and individual athletes (Tab 3). We also found no differences in terms of gender (Tab. 2).

When analysing differences in subscale items (Tab. 4), it was found that female athletes more often ($p<0.05$) look back to check if what they did in practice was right and more often ($p<0.05$) compare their performance at practice with what was done before. Male athletes more often are ready to meet the challenges in the practice so they more often mentioned to be usually able to handle unforeseen situations during practice because of resoursefulnes ($p<0.05$) and no matter what comes in their way at practice ($p<0.05$).

Table 4
Differences in SRL subscale items by gender and sport

SUBSCALE	ITEM	GENDER	Mean	p	SPORT	Mean	p
SELF-MONITORING	05 I check how well I am doing during practice tasks.				Indiv	4.15	p=0.036 p<0.05
					Team	3.96	
	14 While I am engaged in a practice task, I know how much of it I still have to complete.				Indiv	4.29	p=0.038 p<0.05
					Team	4.12	

Table 4 contioniu

SUBSCALE	ITEM	GENDER	Mean	p	SPORT	Mean	p
EVALUATING	06 I look back to check if what I did in practice was right.	Male	4.08	p=0.025			
		Female	4.30	p<0.05			
	07 I compare my performance at practice with what I have done before.	Male	4.08	p=0.047	Indiv	4.23	p=0.034 p<0.05
		Female	4.27	p<0.05	Team	4.07	
	15 I look back to see if I did the correct procedures at practice.				Indiv	4.05	p=0.021 p<0.05
					Team	3.82	
	25 I compare my performance at practice with the goals that I have.				Indiv	4.02	p=0.029 p<0.05
					Team	3.87	
REFLECTING	18 I think about my practice experiences so I can adjust my goals for practice.				Indiv	4.18	p=0.046 p<0.05
					Team	4.03	
SELF-EFICACY for CHALENGES	36 I know how to handle unforeseen situations during practice, because I am resourceful.	Male	3.91	p=0.004			
		Female	3.65	p<0.05			
	37 No matter what comes my way at practice, I am usually able to handle it.	Male	4.05	p=0.015			
		Female	3.83	p<0.05			

Athletes from individual sports had higher scores than team sports athletes (p<0.05) at Self-monitoring, Evaluating and Reflecting subscale items (Tab. 4).

Male athletes more than female athletes feel able (p<0.05) to meet chalenge of performing well in their training. Male athletes usually have more fun (p<0.01), get involved (p<0.05) in the training and more enjoy trainings (p<0.001) (Tab. 5).

Table 5

Differences in perceived competence scale item and in satisfaction subscale items by gender and sport

SUBSCALE Items	GENDER	Mean	p	SPORT	Mean	p
PERCEIVED COMPETENCE 4. I feel able to meet the challenge of performing well in my Training	Male	4.40	p=0.04 p<0.05			
	Female	4.26				
SATISFACTION/FUN I usually have fun in the Training	Male	4.55	p=0.003 p<0.01	Indiv	4.37	p=0.007 p<0.01
	Female	4.33		Team	4.58	
SATISFACTION/FUN I usually get involved in the Training	Male	4.52	p=0.023 p<0.05			
	Female	4.34				
SATISFACTION/FUN I usually enjoy Trainings	Male	4.36	p=0.000 p<0.001	Indiv	4.08	p=0.001 p<0.01
	Female	4.04		Team	4.4	
SATISFACTION/FUN In the Training, I usually wish the class would end quickly				Indiv	2.2	p=0.011 p<0.05
				Team	1.89	

Athletes from team sports have usually more fun in the training (p<0.01), more often enjoy trainings (p<0.01) and less wish the class would end quickly (p<0.05) (Tab. 5).

Discussion

In our study, the statements in the questionnaire were applied to sports practice. We used Self-regulated learning scale (53 Items), Perceived Competence for Training scale (4 Items), Sport Satisfaction Instrument (SSI) (8 Items) to identify how young Athletes perceive their Competence in trainings and how they are Satisfied with their trainings as well to identify Self-Regulated Learning skills of young athletes.

In Lithuanian conditions, we chose to adapt a 53-item scale consisting of eight elements: effort (6 items), concentration (6 items), planning (9 items), goal setting (7 items), self-monitoring (4 items), evaluation (8 items), reflecting (8 items), self efficacy for chalenges (5 items). This was a daunting test, as such a construct is new in educational practice and we tested its expression during a pandemic. During this period, the trainings were conducted in remote and normal mode, working in reduced groups.

The authors (Baños et al., 2020) analyzed satisfaction, enjoyment, and boredom in physical education lessons as a mediator between support for autonomy and physical education achievements. The study revealed that support / maintenance of autonomy does not directly predict physical education outcomes but is necessary for students to feel satisfied with physical culture. Satisfaction with physical activity mediates between maintaining autonomy and academic performance. However, boredom with physical activity did not mediate between support for autonomy and student achievement. In our study male athletes are more satisfied with their trainings, as well as team sports athletes are more satisfied than individual. It means that athletes got support from coaches, yet we could't predict the achievements, because no competitions were organized in this period.

The Covid-19 situation poses significant challenges for teachers, parents, and students/pupils (Huber and Helm 2020). Research by Deci and Ryan (2000) has shown that perceived competence influences self-regulation (SRL), intrinsic motivation, and delay. The authors (Pelikan et al., 2021) considered these variables in the context of distance learning among adolescents. The results of their study showed that students who consider themselves highly competent use SRL strategies (goal setting and planning, time management, metacognitive strategies) more often and are more fundamentally motivated than students with lower perceived competence. They also delay less.

In our study we didn't find differences in perceived competence so at the moment we can not state who is more motivated or more competent to use SRL strategies.

Qualitative analysis (Pelikan et al., 2021) revealed that although all students faced similar challenges (e.g., self-directed learning, time and task management, computer learning, lack of contact with teachers, and peers), students who perceived themselves as highly competent appeared to feel better they also cope with the need for support.

In our study differences were found in SRL Self-monitoring and Self-eficacy for chalenges subscales, but no differences were found in Planning, Goal setting, Evaluating, Effort, Reflecting and Concentration.

Researchers state (Carter Jr. et al., 2020), while the COVID-19 crisis is unique, preliminary research on online learning can be useful in supporting teacher practice and proposing future research. Developing (improving) students 'SRL skills will ensure the effectiveness of online learning, on which the field of education can ultimately focus in the future.

Conclusions

The instrument is multidimensional, because of its complexity and it needs further investigation when trying to adapt to a Lithuanian population.

The Adopted Self-regulated learning Scale was characterized by good internal compatibility and is suitable for data analysis, but the next step is to prepare a shorter version of SRL. It is important to adopt a shorter version for Coaches and Athletes to make it more easier to implement it into the coaching practice.

Such results were obtained, because of the Covid-19 pandemic peculiarities. For further investigation we need to receive more data from usual trainings, not including distance/remote learning and distance/remote coaching.

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