

# THE EMOTIONAL-SOCIAL INTERACTION BETWEEN TEACHERS AND STUDENT DURING THE PHYSICAL EDUCATION AND SPORTS LESSONS

HARBACH BRAHIM<sup>1</sup> GUEZGOUZ MOHAMED<sup>1</sup>, BENSMICHA ELEID<sup>2</sup>

<sup>1</sup>Institute of Sports and Physical Education, University of Abdelhamid Ibn Badis - Mostaganem, Algeria

<sup>2</sup>Laboratory of Programs Optimization in APS, University of Abdelhamid Ibn Badis - Mostaganem, Algeria

## Correspondence:

Harbach Brahim, Institute of Sports and Physical Education, University of Abdelhamid Ibn Badis - Mostaganem, Algeria,  
brahim.harbach@univ-mosta.dz

**Abstract:** The study aimed to find out the correlation between the emotional-social interaction of a professor of physical education and sports and the activity of his students during the physical education and sports lesson.

It was used the descriptive approach, and the sample comprised (14) teachers and (398) students from some Middle school of El Bayadh state, and the researchers used the questionnaire form and the Weethol scale to measure the social-emotional interaction.

The results showed the existence of a positive and strong correlation between the first three behavioral groups of the tool, and the extent of student activity. The researchers recommend using indirect methods by professors in teaching, whether verbal or kinesthetic.

**Keywords:** emotional interaction, physical education, teachers, students.

## INTRODUCTION

The teaching process consists of a group of important components or elements, namely the teacher and the student (Sumirattana, Makanong, & Thipkong, 2017), the educational objectives, the skill or the content of the lesson (Papi & Abdollahzadeh, 2012), the tools and equipment used, the methods, methods and teaching strategies, the professor's interactions and social interactions with the pupils, the procedures and steps followed in organizing the lesson, classroom management, evaluation and all of these. The components need a teacher with a sufficient degree of experience to deal with them and in a way that achieves the desired goals. (Ardalan, 2008; Westwood, 2008) The component of the professor's socio-emotional interactions with students is among the most important components of the teaching process (Delahunty, Verenikina, & Jones, 2014), and it is the critical element that if the teacher mastered it, he helped him achieve the greatest amount of motivation for pupils and their revitalization of the teaching process and the participation of pupils in the output of the lesson (Händel et al., 2020).

Through the above, we wanted from our research this link between pupils' activity during their exercise of the lesson of physical education and sports and the social emotional interaction of the professor who is distinguished by means of adaptation, cooperation, communication, communication, etc (Ahmed et al., 2017).

The physical education and sports lesson is considered one of the forms of academic subjects, such as natural sciences, physics, and literature, as they meet in methods and objectives, and their curricula and content differ, but they fall into one point, which is to provide students with knowledge and direct them to a healthy future. The presentation of the physical education and sports lesson differs from these subjects in He does not care about the cognitive and scientific fields, but goes beyond that to the physical, psychological, social and health fields through activities. In this regard, Renshaw (2010) noted that Physical education and sports do not aim to train through education the individual from the physical point of view only, but rather its purpose is higher than that, it is the formation of the individual. Balanced in all its physical, moral, mental, social and psychological aspects (Kirk, 2005), in addition to what the individual acquires in terms of health-related information in terms of hygiene and healthy behavior (Pereira, Duarte, Rebelo, & Noriega, 2014; Ryan, Patrick, Deci, & Williams, 2008), as the general information of the individual increases through his contact and mixing with different external societies and interacting with them socially and culturally (Belkadi et al., 2015), which confirms that physical education And sports are not less important than the rest of the subjects (Bailey et al., 2009), given their necessity in developing important aspects of the student's per-

sonality, especially from the social aspect(Kirk, 2012). Which brings the student to adaptation and integration within the class(Zepke & Leach, 2010), meaning the strengthening of relationships between students and the decoupling of isolation from each other, thus promoting proper adaptation.

The success of the physical education and sports lesson is limited to the role of the professor in presenting the various aspects of physical and sports activities(Pill, 2008), but he has a greater role than that, as he works to provide educational duties through physical activities that aim to develop and shape the values and high morals of students, taking into account the tendencies and desires of students (Gil-Arias, Harvey, Cárceles, Práxedes, & Del Villar, 2017) where both (Fabelico & Afalla, 2020; Ryan et al., 2008) indicate that there is a correlational relationship in a positive direction between each feature of the teacher’s calmness and the motivation of perseverance(Pill, 2008) among students and the existence of a correlational relationship in a positive direction between the social characteristic of the professor and the motivation of achievement behavior among students(Ghanizadeh & Moafian, 2011), (Andriani, Kesumawati, & Kristiawan, 2018; Fabelico & Afalla, 2020; Ghanizadeh & Moafian, 2011; Pill, 2008) concluded that Social relations have a great impact on learning among adolescents in the study of physical education and sports and relying on group formation helps a lot in science and raising the level of students (Harahsheh, 2017) in contrast to the study of (Bailey et al., 2009) noted that a weak correlation between the competencies of a professor of physical education and sports and the dimensions of the following trend scale(Haerens et al., 2013) social experience, health experience, stress reduction and athletic excellence(Cury et al., 1996)

The purpose of the study is to determine the emotional social interaction that the teacher of physical education and sports could have on motivating and stimulating students to practice physical and sports activities during the pandemic covid -2019.

## MATERIALS AND METHOD

### Participants

The researchers used the descriptive method to study the correlation between the emotional interaction of a professor and the activity of the students.

The study population consisted of teachers and students of Al Bayadh state schools.

*Table 1. The distribution of the research sample (teachers and students) by municipalities*

Number of pupils	Professor’s name	Name of the educational institution	Municipal
30	Khalil	Zidouri Abdel kader Intermediate school	Sidi Cheikh
29	Benyoucef	Karkab abdelmalek intermediate school	Arboit
28	Mbrek	Shirfawi Mohamed Intermediate School	Bouktab
29	Fechfouch	Madani mamar intermediate school	Echkik
27	Djeffel houari	Belakid mohamed intermediate school	Elkaf
31	Boucek elhadj	Abdali mohamed intermediate school	Elghasoul
27	Slimani	Hamitou elbachir intermediate school	Echalala
25	Farji	Eldjadida elkhaither intermediate school	Elkhaither
30	Talbi tahar	Mahari kouider intermediate school	Tesmouline
29	Zair mourad	Tajdin abdelkader intermediate school	El Bayadh
26	Laribi amer	Lkhadari mohamed intermediate school	Sidi amer
31	Rajaa salem	Tarek ben ziad intermediate school	Bousamgho
27	Bachiri	Youcefi mohamed elwassini intermediate school	Ain elirak
29	Koiadri salem	Boukhabza elbay intermediate school	Brizina
398	14	Total summation	

### ***Materials***

- The pilot survey from 09/08/2019 to 09/18/2019.
- The basic experiment was conducted from 09/29/2019 to 11/21/2019.
- Spatial domain:
- Filming was done for the exploratory experience in the Al Bayadh state schools.

### **Data collection tools:**

First: Arab and foreign sources and references.

Second: The cameras are not for filming for the classes, then half an hour is taken from each class.

### ***Study design***

The cinematography of the teaching sessions, 14 classes, was conducted for professors in some of the Al Bayadh state schools.

To build the questionnaire (related to student activity), we consulted with some teachers and phrases were extracted on teacher motivation for students, then conducting an exploratory study for the purpose of surveying and knowing the extent of the validity of the form (the student form) and judging it by the teachers so that we used in analyzing the results and unpacking them the five-point scale of the Likart which is as follows:

- The first axis: the psychological role (includes 12 phrases)
- The second axis: an educational and social role (includes 12 phrases)
- Method of evaluating the scale scores. Drafting the scale paragraphs with a positive form and the evaluation of the answer is based on a five-year scale. Graduation (practiced to a very large degree, we give it "5" degrees, it is practiced to a large extent "4", it is practiced with a medium degree "3" it is practiced weakly "2", it is practiced very weakly we give it "1" degrees

Through this, we have reached a review of this form and its correction by the professors. The appropriate phrases for the subject of our study (for the form and the tool) were extracted. And after viewing it A group of arbitrators: The final version of the form intended for middle school students has been reached.

### ***Weephole tool to measure social-emotional interaction***

Therefore, we developed the Test of Regulation in and Understanding of Social Situations in Teaching (TRUST), which is a theory-based situational judgment test measuring teachers' knowledge about strategies for emotion regulation and relationship management in emotionally and socially challenging situations with students, which allowed to observe and record with the Weethol tool in observing the social emotional interaction of the professor: The Weethol tool is used to observe the professor in places of study during his teaching of any systematic topic. Where the Weethol tool for observing the social emotional interaction of the class members consists of seven behavioral categories: the first three are reinforcing for the pupils and their behavior (reinforcing behavior for the pupils, the behavior of accepting and clarifying what the students show, the behavior that helps the students to solve) and the fourth is neutral (neutral behavior), and the last three are reinforcing For the teacher and for the behavior and roles he performs in classroom education (behavior directed at students, behavior of rebuke, reprimand, reprimand and condemnation, the behavior of strengthening the teacher for himself) and when observing the teaching with a tool, the observer intends to sit in an area of the classroom that enables him to see what is happening in the place of study and hear what the professor is showing And students of phrases, comments, inquiries, directions, instructions and questions. The best classroom site that enables him to do all this, seeing and hearing the course of the class without interfering or negatively affecting it is one of the back corners of the class. The observer takes a Weethol model with him to record what happens from the seven types of professor behavior. It is preferable for the observer to attend the class at the beginning of the class, where he spends the first minutes in identifying the general components of the class and the method of organizing them, and also distinguishes the occasion or the behavioral beginning that the teacher or students initiate in the first session and usually directs the nature of events, methods of interaction and its content in the following minutes or during the whole session Sometimes the observer can, in order to facilitate the recording and the multiplicity of types of behavior, divide the session into periods of ten or fifteen minutes each, where he places a sign, Next to the type of behavior that he notices each time it occurs. The observer uses the following procedural principles to observe and distinguish the seven behavioral types that are embodied in the present Weethol tool: We

summarize them in the classification of any statement, comment, question or reference that focuses on the teacher or the student and aims in the appropriate field for it (Mohamed, Mohamed, Mohammed, Mokrani, & Belkadi, 2019).

**Procedures**

After the exploratory study, we started our basic study where one of the researchers tends to the intermediate level and then takes a suitable place to register with a tool for emotional-social interaction, as we mentioned above, then after the end of the class, we distribute the form to 30 students for each pupil's share of direct registration classes and give a chance of 10 to 12 d at most. To retrieve the form, with the researcher answering students' questions for some vague phrases (the form directed to them). Then we calculate the average total of (10 d) classes for each of the phrases of the tool and the thawl and the average of the total of the students' answers to the questionnaire, then calculate the correlational relationship between the emotional-social interaction and the extent to which the teacher motivated students to perform the physical education and sports class well.

**The exploratory study**

The exploratory experiment was conducted by the method of conducting the test and returning it in two phases, where the time difference was a week, so the researchers reached the following results: The validity coefficient ranged by using Pearson's coefficient of the questionnaire directed to the pupils of the two axes, the lowest correlation coefficient was 0.882 and the highest value 0.938 and this shows That the tool (the questionnaire directed to students) is characterized by a high degree of validity and reliability coefficient

The researchers used the stability factor, and its value ranged respectively: 0.939 and 0.968), which indicates that the tool is characterized by a high degree of stability. As for objectivity, the two tools, after being presented to the aforementioned arbitrators, agreed that the tool actually used measures what it was intended to measure, as the following table shows the validity and reliability of the students' questionnaire: where the exploratory sample was represented by students of some averages from the white state of (07) students without the study sample The original and very similar to the original sample to ensure the validity of the measuring instrument.

**Table 2.** Results of the Pearson correlation coefficient to calculate the validity and reliability of the measuring instrument

Honesty Lab	Computed correlation coefficient	Sample volume	Behaviors (talk of learning and pupils)
0.90	0.82	07	The first axis
0.99	0.98		The second axis
The tabular value of (t) is at the significance level 0.05 and below the sine degree 06 = 0.81			

Through Table 2 it is evident that the validity coefficient of the axes that make up the measuring tool (the students' questionnaire) reached the lowest correlation coefficient (0.82) and the highest value (0.98). This shows that the tool is characterized by a high degree of honesty, and the researchers used the reliability coefficient. Self, where its lowest value ranged from (0.90) and its highest value (0.99). This indicates that the tool is characterized by a high degree of honesty and stability.

**Statistical analysis**

Statistical analysis was performed using the using SPSS software (version 22) and Significance levels were set at  $p \leq 0.05$ .

**RESULTS**

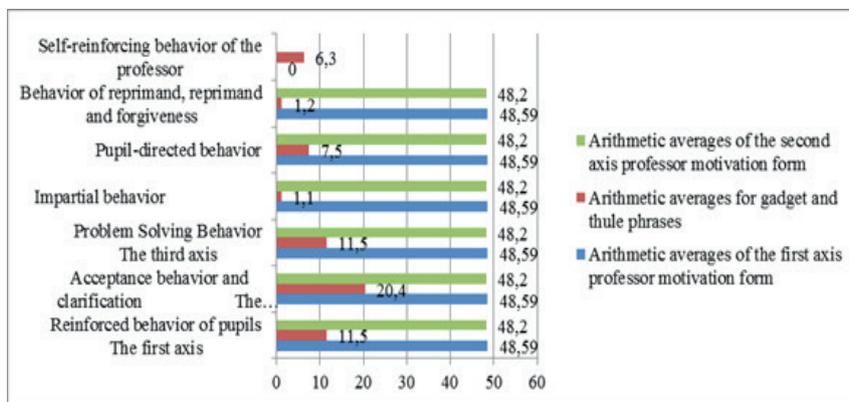
The study indicates the lack of significant differences between the indicators studied.

The link between the emotional interaction of the professor and his encouragement for the students.

**Table 3.** The arithmetic averages, standard deviations and percentages of the results of unloading a tool and a weethol (emotional interaction) and the form of teacher encouragement for students and the correlation between them.

Relationship type	Statistical significance	The computed value (t)	Standard deviation	SMA	The axes of the student motivation form	Percentages	Standard deviation	SMA	Thule's phrases of behavior
Positive	Function	0.94	4.62	48.59	The first axis	18.3	11.5	54.4	Reinforced behavior of pupils
Positive	Function	0.92	4.99	48.20	The second axis				
Positive	Function	0.98	4.62	48.59	The first axis	29.7	20.4	88.3	Acceptance behavior and clarification
Positive	Function	0.97	4.99	48.20	The second axis				
Positive	Function	0.96	4.62	48.59	The first axis	18.7	11.5	55.6	Assistant to solve problems
Positive	Function	0.98	4.99	48.20	The second axis				
Positive	Not function	0.05	4.62	48.59	The first axis	1.7	1.1	5.0	Impartial behavior
Positive	Not function	0.11	4.99	48.20	The second axis				
Positive	Not function	0.24	4.62	48.59	The first axis	24.5	7.5	72.7	Pupil-directed behavior
Positive	Not function	0.34	4.99	48.20	The second axis				
Negative	Not function	-0.59	4.62	48.59	The first axis	0.8	1.2	2.3	Behavior: reprimand and forgiveness
Negative	Not function	-0.62	4.99	48.20	The second axis				
Negative	Not function	-0.97	4.62	48.59	The second axis	6.3	6.3	18.9	Self-reinforcing behavior or of the professor
Negative	Not function	-0.97	4.99	48.20	The third axis				

Tabular value (t) at the level of significance 0.05. degree of freedom 13 = 0.55. sum of averages = 297. and deviation = 31.4



**Figure 1.** The arithmetic averages for the phrases Gadha and Thawal (the emotional interaction of the professor and the arithmetic averages for the phrase, a comment, a question or a reference that focuses on the professor or the student to encourage the teacher to his students)

### DISCUSSION

It is clear to us from Table 3 and Chart (01) that the calculated value of “R” is greater than the tabular “R” (0.55) in the classes or types of social emotional interactions of the indirect professor (reinforcing behavior of students - behavior of acceptance and clarification - supportive behavior. On problem solving (with two axes, the pupils motivation form, which is evidence of a strong positive correlation between the type of indirect social emotional climate that prevailed in the class atmosphere and the interaction of the teacher to encourage students and increase student activity in class No.( 3.2.1) the reinforcing behavior of pupils - acceptance behavior and Explanation - Helping behavior to solve problems) where the percentage of professor’s behavior and interaction reached 18.3% 29.7% 18.7 respectively in category No. 3.2.1. It can be said according to the “Weethol” tool that the professor was indirect in his interaction and building on his emotional-social interaction with the students and thus This leads to stimulating pupils’ activity during the class. As for the other groups, the calculated “t” was less than the tabular but rather the relation In the two categories, 7.6, where the teacher’s interaction and interaction rate was in the 7.6.5 category (behavior directed at pupils - rebuking and reprimanding behavior - self-reinforcing behavior of the teacher) 24.4%, 0.8,6.3%, respectively, so here the teacher is direct in his dealings with students and is constructive In his social emotional interaction, and thus the return on pupils’ activity is in a rapid and noticeable decline, as the percentage “R” calculated for the last three categories of tool and was less than the tabular and negative evidence of the existence of an inverse relationship between the direct categories of tool and thaw and stimulating student activity.

The first hypothesis, in which we assume that there is a positive correlation between the three direct categories of a tool, a tool, and the extent to which the teacher encourages and motivates students to perform physical activity. To prove this hypothesis, it is shown to us through Table 4, and this result we have reached is consistent with the findings of previous studies, (Kirk, 2005), where they came out with the conclusion that there is a strong positive correlation between some characteristics of the professor’s personality and the motivation of achievement among pupils towards the class of physical education and sports. Social relations have a great impact on learning among adolescents in the study of physical education and sports and relying on forming groups helps a lot in Knowledge and raising the level of pupils) and the researchers attribute this result in the fact that the teachers were indirect in their teaching and it becomes a work The professor is easy and effective, and Sarhan asserts, “The teachers’ work becomes easier and more productive if the students are driven to self-learning and thus more attainable (Moseley et al., 2005). Hall and others add, “It is the tendency to feel and act as if the individual is an influential factor in life events and not a helpless person. And weak “ (Fabelico & Afalla, 2020). Hence, indirect methods of teaching are effective in stimulating students to participate in the work.

With regard to the second hypothesis, in which we assume that there is a negative negative relationship between the last three direct categories of a tool and a thule (behavior directed to students, behavior of reprimand and reprimand and forgiveness, the behavior of strengthening the teacher for himself) and the extent to which the teacher encourages and motivates students to perform physical activity and to prove this hypothesis, it is shown to us through

the three boxes The last of Table No. (04) and this result is in line with the findings of previous studies. It is clear to the Secretary where he came out with a result (that there is a negative relationship between the trait of aggression of the professor and the motivation of the level of ambition of third-stage secondary education pupils and a correlational relationship in the direction of Positive between the calm character of the professor's personality and the motivation of perseverance among the students in the third year of high school) and the researchers attribute this result in that the more direct teachers they are in their teaching, the greater the behavior of rebuking, reprimanding and asking for forgiveness for the professor and the behavior of the professor's reinforcement of himself on his students and that is due to the large number of behavior directed to students, as teaching strategies can To talk to students and create motivation for them to learn this subject (Abu Saima, 1995, p. 24) and the professor here is less intrusive. It is only directed, and the professor's speech is little, which contradicts the concept of "the student at the center of the educational process" (Lotkowski, Robbins, & Noeth, 2004). Consequently, direct methods in teaching are ineffective to stimulate students to participate in work and thus not achieving teaching with competencies. Like what is stipulated in the second generation curricula Algeria and the goals remain mere rhetorical statements and slogans that rise above reality and distract from its concerns (Ghanizadeh & Moafian, 2011; Händel et al., 2020). Finally, we recommend the use of indirect methods by professors in teaching, whether verbal or kinesthetic - giving a large space when teachers form emotional-social interactions during Teaching - Holding training sessions for professors in various teaching stages and emphasizing the importance of social studies.

## CONCLUSION

Through the results of the hypothesis, we conclude that the relationship is correlative between the behavioural groups: the first three of the tools and the thule and the extent of pupils' activity, which is consistent with the study of Clear Al-Amin and Saibi's study that "the relationship between the social trait of the professor and the motivation of achievement behaviour among students is positively high" (wadah A. E.-A., 2014) (Mokhtari, Yassin. Bin Saibi Youssef, 2018) where previous studies, as well as our study, recommend attention to the psychological and social aspect of the education stage for pupils to move away from complete control and roughness in the treatment of students and try to approach them in solving their problems, which is what Zamali indicates that the use of teaching with competencies, i.e. indirect methods in teaching, strengthens Some psychological skills such as self-confidence (Lotkowski et al., 2004) As for the inverse relationship between the behavioral groups: the last three and the extent of student activity, we find that they are consistent with the study of (Sumirattana et al., 2017). There is a weak correlation between the competencies of the professor of physical education and sports and the dimensions of the following trends scale: Social experience Health experience, stress reduction and athletic excellence (Fink, 2013), meaning that the study sample was direct in its work and did not take into account social relations in the teaching of Tala This requires us to prepare curricula that satisfy the emotional-social relations and to work with them with the establishment of training courses for teachers and to emphasize in them the importance of the professor's personality and his social interactions with students according to our curriculum.

## ACKNOWLEDGMENTS

We thank the Algerian General Directorate for Scientific Research and Technological Development (DGRSDT-MESRS) for their co-operation and help in setting up the study. also, for maintaining and supporting finances and quality of research.

## REFERENCES

- Ahmed, H. E. H., Mohammedi, S., Abdelhafid, L., Adel, B., Mohamed, B., & Jacques, G. (2017). study of perception of professional competences in teachers in relation to the requirements of the profession of teaching physical education. *European Journal of Education Studies*, 3(7), 681.
- Andriani, S., Kesumawati, N., & Kristiawan, M. (2018). The influence of the transformational leadership and work motivation on teachers performance. *International Journal of Scientific & Technology Research*, 7(7), 19-29.
- Ardalan, K. (2008). The philosophical foundation of the lecture-versus-case controversy : Its implications for course goals, objectives, and contents. *International Journal of Social Economics*.
- Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup, I., Sandford, R., & Education, B. P. (2009). The educational benefits claimed for physical education and school sport : An academic review. *Research papers in education*, 24(1), 1-27.
- Belkadi, A., Othman, B., Mohamed, S., M, B. H., Gleyse, J., Adel, B., ... Gleyse, J. (2015). Contribution to the Identification of the Professional Skills Profile of Coaches in the Algerian Sport Judo System. *International Journal of Sports Science*, 5(4), 145-150.
- Cury, F., Biddle, S., Famose, J.-P., Sarrazin, P., Durand, M., & Goudas, M. (1996). Personal and situational factors influencing intrinsic interest of adolescent girls in school physical education : A structural equation modelling analysis. *Educational Psychology*, 16(3), 305-315.

- Delahunty, J., Verenikina, I., & Jones, P. (2014). Socio-emotional connections : Identity, belonging and learning in online interactions. A literature review. *Technology, Pedagogy and Education, 23*(2), 243-265.
- Fabelico, F., & Afalla, B. (2020). Perseverance and Passion in the Teaching Profession : Teachers' Grit, Self-Efficacy, Burnout, and Performance. *Journal of Critical Reviews.*
- Fink, L. D. (2013). *Creating significant learning experiences : An integrated approach to designing college courses.* John Wiley & Sons.
- Ghanizadeh, A., & Moafian, F. (2011). The relationship between Iranian EFL teachers' sense of self-efficacy and their pedagogical success in Language Institutes. *Asian EFL Journal, 13*(2), 249-272.
- Gil-Arias, A., Harvey, S., Cárceles, A., Práxedes, A., & Del Villar, F. (2017). Impact of a hybrid TGfU-Sport Education unit on student motivation in physical education. *PLoS one, 12*(6), e0179876.
- Haerens, L., Aelterman, N., Van den Berghe, L., De Meyer, J., Soenens, B., & Vansteenkiste, M. (2013). Observing physical education teachers' need-supportive interactions in classroom settings. *Journal of Sport and Exercise Psychology, 35*(1), 3-17.
- Händel, M., Stephan, M., Gläser-Zikuda, M., Kopp, B., Bedenlier, S., & Ziegler, A. (2020). Digital readiness and its effects on higher education students' socio-emotional perceptions in the context of the COVID-19 pandemic. *Journal of Research on Technology in Education, 1-13.*
- Harahsheh, A. H. (2017). Perceived Self-Efficacy and Its Relationship to Achievement Motivation among Parallel Program Students at Prince Sattam University. *International Journal of Psychological Studies, 9*(3), 21-34.
- Kirk, D. (2005). Physical education, youth sport and lifelong participation : The importance of early learning experiences. *European physical education review, 11*(3), 239-255.
- Kirk, D. (2012). *Defining physical education (Routledge revivals) : The social construction of a school subject in postwar Britain.* Routledge.
- Lotkowski, V. A., Robbins, S. B., & Noeth, R. J. (2004). The Role of Academic and Non-Academic Factors in Improving College Retention. ACT Policy Report. *American College Testing ACT Inc.*
- Mohamed, K. S., Mohamed, K., Mohammed, S., Mokrani, D., & Belkadi, A. (2019). The Effect of Heavy Weight Training on Physiological Abilities of Soccer Players Under the Age 21 Years Old. *Acta Facultatis Educationis Physicae Universitatis Comenianae, 59*(1), 33-43. <https://doi.org/10.2478/afepuc-2019-0004>
- Moseley, D., Baumfield, V., Elliott, J., Gregson, M., Higgins, S., Miller, J., & Newton, D. P. (2005). *Frameworks for thinking : A handbook for teaching and learning.* Cambridge University Press.
- Papi, M., & Abdollahzadeh, E. (2012). Teacher motivational practice, student motivation, and possible L2 selves : An examination in the Iranian EFL context. *Language learning, 62*(2), 571-594.
- Pereira, P., Duarte, E., Rebelo, F., & Noriega, P. (2014). A review of gamification for health-related contexts. *International conference of design, user experience, and usability, 742-753.* Springer.
- Pill, S. (2008). A teacher's perceptions of the Sport Education model as an alternative for upper primary school physical education. *ACHPER Australia Healthy Lifestyles Journal, 55*(2-3), 23-29.
- Renshaw, I., Chow, J. Y., Davids, K., & Hammond, J. (2010). A constraints-led perspective to understanding skill acquisition and game play : A basis for integration of motor learning theory and physical education praxis? *Physical Education and Sport Pedagogy, 15*(2), 117-137.
- Ryan, R. M., Patrick, H., Deci, E. L., & Williams, G. C. (2008). Facilitating health behaviour change and its maintenance : Interventions based on self-determination theory. *The European health psychologist, 10*(1), 2-5.
- Sumirattana, S., Makanong, A., & Thipkong, S. (2017). Using realistic mathematics education and the DAPIC problem-solving process to enhance secondary school students' mathematical literacy. *Kasetsart Journal of Social Sciences, 38*(3), 307-315.
- Westwood, P. S. (2008). *What teachers need to know about teaching methods.* Aust Council for Ed Research.
- Zepke, N., & Leach, L. (2010). Improving student engagement : Ten proposals for action. *Active learning in higher education, 11*(3), 167-177.

Primljen: 10. jun 2021. / Received: June 10, 2021

Prihvaćen: 14. septembar 2021. / Accepted: September 14, 2021

