

RESEARCH ARTICLE

MOTIVATIONAL CLIMATE AND SKILLS DEVELOPMENT IN PHYSICAL EDUCATION: A PILOT STUDY EXAMINING PHYSICAL ACTIVITY BEHAVIOR IN AN EDUCATIONAL ENVIRONMENT

*¹Chawki Derbali, ²Fathi Matoussi and ³Ali Elloumi

¹High Institute of Physical Education and Sport of Kef, University of Jendouba, Tunisia

²High Institute of Education and Continuing Training of Tunis, Virtual University of Tunisia

³Faculty of Human Sciences of Sfax, University of Sfax, Tunisia

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ABSTRACT

The purpose of this work is double: 1) to develop a motivation profile of gymnastic in physical education and sport (PES) and, 2) to study the relationship between students' motivation to gymnastic exercises in educational setting and their performance during the competition of PES. The study population consists of 70 boys and 109 girls with an age ranging between 15 and 19, from physical education classes of the secondary school of Sbeitla (Tunisia). The diagnostic study was performed during a teaching cycle of gymnastic to 13 sessions, where we measured the motivation of our students, using a questionnaire. This questionnaire is composed of seven scales measuring students' motivation to practiced gymnastics activity. Exploratory and confirmatory factor analyzes determine the validity and fidelity of the questionnaire on motivation in gymnastic. Motivational profile of students in gymnastic activities as well as the level of motivation on the continuum of self-determination could be a mediator of performance. Students with a self-determined motivational profile show a better performance in gymnastic exercises (motivation to accomplishment, motivation to knowledge, motivation to sensations and identified regulation). However, those supporting a non-self-determined motivational profile (external regulation and amotivation) are performed lower compared to the most self-determined motivated ones. The motivational profile could predict performance in gymnastic for students attending PE classes.

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INTRODUCTION

Recent socio-cognitive approaches state that motivation is based on the interaction between the behavior of an individual, individual characteristics and the environment in which it operates (Viau, 1997). Roberts (2001) considers motivation as a socio-cognitive process in which an individual becomes motivated or unmotivated that being based on its assessment of competence within the context of performance and representation. In the field of physical education and sports, we adopt the concept of motivation as a hypothetical product used to examine the internal and / or external forces constructing the trigger, management and continuity of behavior (Vallerand and Thill, 1993). In this context, the study of motivation in sports and physical activity is based on three main theories: the theory of achievement goals (Ames, 1992; Dweck, 1986; Nicholls, 1984), the theory of self-efficacy (Bandura, 1986) and the self-determination theory (SDT; Deci and Ryan, 1985b, 1991, 2000; Matosic et al., 2017).

*Corresponding author: Chawki Derbali

High Institute of Physical Education and Sport of Kef, University of Jendouba, Tunisia.

This research was based on the SDT which distinguishes several forms of motivation based on their level of self-determination. This differentiation can proceed the dichotomy of intrinsic motivation (IM) / extrinsic motivation (EM). Then the SDT, as any theory of motivation, may include the motivational consequences as it concerns different social contexts, such as physical exercise and sport (Deci and Ryan, 1985b; Recascino Frederick, 2002; Vallerand, Deci and Ryan, 1987; Vallerand and Losier, 1999). Self-determination is described by Deci and Ryan (1985b) as an organism quality to achieve autonomy and feel as the main representative of the cause of his behavior. To be self-determined is to have a free choice and be responsible for his choices. However, self-determined behaviors do not correspond to those caused by external rewards or pressures, or impulses. To be individually self-determined is mainly seen as a psychological need but it can also be supported or hindered by the social context. It is seen that it derives from the satisfaction of a set of three basic psychological needs (achievement, competence and support). SDT assumes that every individual is driven by an innate skill. Deci (1975) states that the need of competence encourages people to set achievable challenges in relation to abilities, and

more the task difficult, more important is the satisfaction once this accomplished. This perception, however, is in constant interaction with the environment and fluctuates according to life contexts. Previous works distinguished three forms of motivation: intrinsic motivation, extrinsic motivation, and amotivation (e.g. Deci and Ryan, 1985b). The first developed form in the SDT remains the most attractive form of motivation and represents the highest level of self-determination. It refers to the performance of an activity for its own sake and for the enjoyment and satisfaction that it provides (Deci, 1975; Deci and Ryan, 1985b; Derbali et al., 2015b; Lepper, Greene, and Nisbett, 1973). The second form describes the individual as acting not for the pleasure and interest generated by the activity, but as to get something pleasant or avoid something unpleasant once the activity is completed, such as rewards, constraints or sanctions (Deci, 1975). Hence, the behavior is guided by external forces over which he has no control in return. For Deci and Ryan (1985a) and (Pelletier and Vallerand, 1993) the third form of motivational constructs (amotivation) describes the unmotivated individual as receiving no relationship between actions and outcomes. In this case, the individual has the perception that his behavior is caused by the independent factors of his will power. Thus, that he can perform any task mechanically; it is neither intrinsically nor extrinsically motivated. Several studies have investigated the value of the motivation in sport context; however studies analyzing students performance as a result of their motivation are still few and sometimes contradictory (Mahoney et al., 1987; Pelletier et al., 2003; Mageau and Vallerand, 2003; Derbali et al., 2017a). This work aims to present the motivation topic in the context of physical education and sport. Based on self-determination theory (Deci and Ryan, 1985a, 2008; Ryan and Deci, 2000a) and the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997), the interest of this work is to understand the nature of the relationship between motivation and performance in educational settings. It tries to analyze the performance of a student population in terms of their motivations, more or less self-determined, by identifying the most significant motivational variables in predicting their performance. We also discuss motivational forms characterized by high levels of self-determined motivation and attempt to identify the relationship between motivation and athletic performance and the variation of the student performance in physical education in relation to the motivational levels.

MATERIALS AND METHODS

Participants

The study population consists of 70 boys and 109 girls, of an age ranging between 15 and 19 years have been examined. They attend physical education classes at the secondary school of Sbeitla from Tunisia.

Materials and procedures

During a cycle of gymnastic exercises teaching (13 sessions), a questionnaire on motivation was used. Before the first session, students completed this questionnaire measuring their motivation for practicing gymnastic in physical education. Responses were made on a five-point scale as adapted from a Likert scale form, ranging from (1): "not agree at all to (5): "completely agree". The global motivation level is considered

as a major self element so that the measurements tend to express the most stable individual behavior. The questionnaire is based on the work of Deci and Ryan (1985b) on intrinsic motivation and self-determination in human behavior. Seven sub-scales measuring the students' motivation to the practiced activity, are adapted from the Global Motivation Scale (GMS35, Guay, Blais, Vallerand and Pelletier, 1999), level of motivation towards sports (EMS, Brière et al., 1995) and the scale of motivation toward education (HES, Vallerand et al., 1989). They can be summarized as follows figure and example of subscale's motivation (see Figure 1).

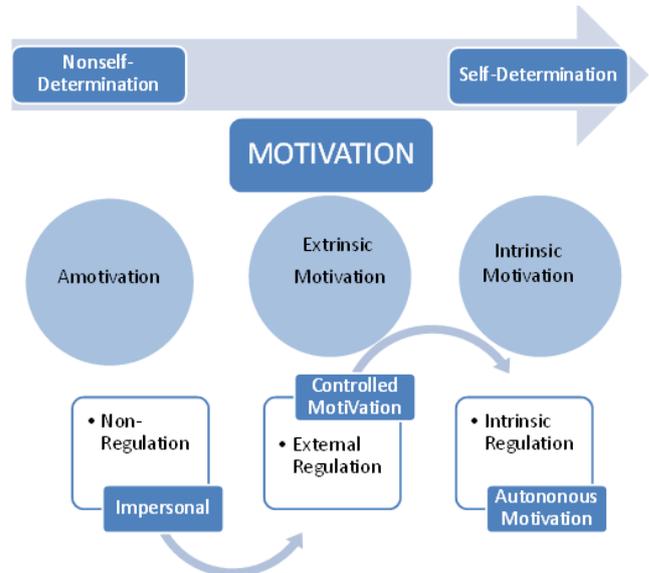


Figure 1. The Self-Determined continuum of Motivation

Scale of motivation: *Intrinsic motivation to knowledge* can be defined as engaging in an activity for the pleasure and satisfaction. He participates in practice because he likes to learn new tactics demonstrated intrinsic motivation to knowledge. ("I engage myself in the gymnastic exercises, to learn new technical gestures");

Intrinsic motivation to accomplishment refers to engaging in an activity for pleaser to accomplish, or to create something to surpass himself. The individual focuses on the process and not the outcome of this accomplishment. ("I engage myself in gymnastic exercises to achieve new goals");

Intrinsic motivation to stimulation corresponds to a participation in an activity for pleasant sensations that it produces. ("I engage myself in gymnastic exercises, because I forget myself when I practice this activity");

Extrinsic motivation of identified regulation: regulation identified corresponds to a self-determined behavior. The individual freely chooses to do the activity even if it is judged not interesting ("I engage myself in gymnastic exercises, because what I learn will be useful later");

Extrinsic motivation of introjected regulation: the introjected regulation characterizes the individual who internalizes the reasons for practicing the activity. However, internalized elements are influenced by anterior external pressures experienced now as internal pressures. In such cases, the athlete participates in training because he feels guilty if he does not invest there. ("I engage myself in gymnastic exercises,

because I am finding unbalanced at failure in this activity"); *Extrinsic motivation of external regulation*: external regulation refers to behaviors regulated by external factors such as rewards and constraints. A student who learns his lessons simply in order to get a good grade in to query external control demonstrated. ("I engage myself in gymnastic exercises, because I want the notes in PES"). The Subscale measuring amotivation, little used in the literature, proposes to understand amotivation as due to a lack of skills and refers to individuals who do not engage in an activity simply because they feel they are not sufficiently talented to succeed with the presence of a feeling of incompetence and the perception of failure. ("I do not have any interest in getting involved in gymnastic exercises, and I prefer to be not taught in this activity"). Students are asked to complete the questionnaire as to determine their motivational profiles. Responses were made on a five-point scale ranging from (1) "Totally disagree" to (5) "Strongly agree".

above-mentioned seven subscales with a clear highlight of intrinsic motivation to knowledge, stimulation, accomplishment, extrinsic motivation of identified regulation, introjected regulation, external regulation (to achieve or avoid something) and amotivation in gymnastic practice (see Table 1). Table 2 shows the average results indicate that there is no ceiling effect (value of 5). Index values of normality distribution are close to zero and do not exceed (+ or-) 2, Bentler P.M (1983), (see Table 2). Furthermore, the results of flattening indices (kurtosis) and asymmetry (skewness) falls acceptable values, indicating a proper distribution of normality. The internal consistency of the seven subscales (Motivation Questionnaire) was tested using Cronbach's alpha (1951). In this work, each of the subscales exhibit adequate internal consistency ($\alpha > 0.70$) and so do the index mean of the items. Aiming a composite indicator for the self-determination degree of each student motivation to the activity, the index proposed by Grolnick and Ryan (1987); Vallerand (1997) was

Table 1. Results of standardized saturations of the exploratory factor analysis on the Motivation

Subscales of motivation	Factors						
	F1	F2	F3	F4	F5	F6	F7
Intrinsic motivation to knowledge	.554 .963 .918						
Intrinsic motivation to achievement		.847 .717 .959					
Intrinsic motivation to stimulation			.815 .958				
Extrinsic motivation of identified regulation				.880 .947 .657			
Extrinsic motivation of introjected regulation					.627 .532		
Extrinsic motivation of external regulation						.892 .642	
Amotivation							.718 .906 .796

Note. Eigen value upper than 1; variance higher than 57%

Tableau 2. Mean, standard deviation, distribution indices and cronbach's alpha values

Subscales of motivation	M	S.D	Skewness	Kurtosis	Alpha
Intrinsic motivation to knowledge	3.24	.972	.058	.155	.917
Intrinsic motivation to achievement	3.20	1.013	-.479	-.091	.872
Intrinsic motivation to stimulation	3.31	1.062	-.191	-.579	.858
Extrinsic motivation of identified regulation	3.41	1.048	-.215	-.592	.844
Extrinsic motivation of introjected regulation	1.74	1.067	1.356	.888	.826
Extrinsic motivation of external regulation	3.39	1.075	-.261	-.510	.839
Amotivation	3.25	1.095	-.167	-.448	.879

Note. Skewness = asymmetry index; Kurtosis = flattening index.

RESULTS

A first check of the, data distribution interested the degree of kurtosis and symmetry, the mean, standard deviation and correlation between statements (Tabachnick and Fidell, 1989). Hence, 11 items were excluded; those not normally distributed and low correlated with the whole statements. Subsequently, an exploratory factor analysis was performed. Tables 1 and 2 present the coefficients saturations higher than 0.50 (values ranging between 0.51 and 0.97). The results show that the 7 factors of motivation have their eigen value greater than 1. The obtained factorial structure supported seven factors, with two to three statements each, allowing to explain 57% of the variance. The seven factors are considered to correspond to the

calculated by weighting the scores for each subscales, depending on their position on the self-determination continuum (Ryan and Deci, 2000), using the following formula: $[(2 * (MIS + MIC + MIA) / 3) + MEID] - [(MEIN + MERE) / 2] + (2 * A)$. Our choice is supported by the fact that in previous studies, this index has shown very satisfactory psychometric properties and predictive validity (Vallerand, 1997). Whether at school (Vallerand and Bissonnette, 1992), in sport (Sarrazin *et al.*, 2002) or PES (Ntoumanis, 2001), more the self-determined motivation was (as confirmed by a high score on the index), more the individual effort was persevered and prolonged. The values of Cronbach's alpha for intrinsic motivation (0.86), self-determined extrinsic motivation (0.82), non-self-determined extrinsic motivation (0.89) and amotivation (0.83) as well as the moderately high total-items

correlations reflect a good homogeneity of the subscales (see Tables 2 and 3). The calculated Cronbach's alpha for internal consistency of the subscales ranged from 0.82 to 0.91. Inter-items correlations show a pattern supporting the self-determined continuum ranging from amotivation to intrinsic motivation (positive correlations between the adjacent continuum motivations and negative motivations between the extremes of the continuum). Concerning temporal stability, the test-retest correlations (interval of 21 days) ranged from 0.61 to 0.76. Internal consistency or homogeneity at the first meeting extends from 0.70 to 0.92 and from 0.74 to 0.96 for the re-test. Inter-scale correlation coefficients correspond to those approved by Deci and Ryan (1985). Furthermore, results in Table 4 highlight the relationship between motivation and performance in gymnastic exercises through crucial factors of motivational profile (see Table 4). Participants of highly motivated group can be identified during the observation step 28% from experimental students. Hence, this group should perform better task than other groups.

ecological maintenance), because they feel that it is too demanding in terms of effort. The effort quality ultimately required discourage these people to engage in this program type.

Finally, the fourth type of amotivation called learned helplessness is the individual overall perception that everything he tries is doomed to failure (Abramson, Seligman and Teasdale, 1979).

Regression analysis

In order to determine which constructs within the Self-Determined Motivation was significant predictors of the athletes' performance for boys and girls students, a chain of regression analysis with walkthrough were carry out. Data of *F*-value and β -index recapitulate the results obtained of the analysis recapitulate the results obtained of the analysis. When performance was placed as dependent variable, the regression analysis reported that intrinsic motivation, amotivation and

Tableau 3. Pearson correlation coefficient between subscales of motivation

Subscales of motivation	1	2	3	4	5	6	7
Intrinsic motivation to knowledge	-						
Intrinsic motivation to achievement	.827**	-					
	.000						
Intrinsic motivation to stimulation	.725**	.816**	-				
	.000	.000					
Extrinsic motivation of identified regulation	.695**	.695**	.756**	-			
	.000	.000	.000				
Extrinsic motivation of introjected regulation	.243*	.356**	.197*	.561**	-		
	.006	.000	.006	.000			
Extrinsic motivation of external regulation	-.189*	-.196*	-.341**	.460**	.486**	-	
	.009	.008	.000	.000	.000		
Amotivation	-.611**	-.627**	-.590**	-.562**	-.405**	.242*	-
	.000	.000	.000	.000	.000	.000	

* p<0.05; ** p<0.01

Tableau 4. Pearson correlation coefficient between motivation and performance

Scales	Performance	Cronbach's Alpha
Intrinsic motivation	.606**	0.86
	.000	
Extrinsic motivation	.175*	0.89
	.019	
Amotivation	-.446**	0.83
	.000	

* p<0.05; ** p<0.01

Participants from the moderately motivated group are, during the gymnastic activity, less successful than the previous one (the more motivated) but with a moderate performance 43%. Participants of the amotivated group have no motivation for the task and show a lower performance than those of the moderately motivated group. Amotivated group participants represent 29% of the total population. Students of a grade lower than the average (10/20) represent 19% of the population which is a significant percentage indicating the orientation of amotivated students to be exempt from gymnastic, or to be afraid of showing their incompetence. In fact, the amotivation due to a lack of skills refers to individuals who do not engage in an activity, because they estimate they are not enough talented to succeed. The subjective belief of a skills' lack drives the pupil to bypass this test to avoid an incompetence feeling. The second form of amotivation refers to the belief that one can show not to be in possession of the strategic qualities to achieve the fixed goal. More frequently, some people do not engage in activities program (physical or

Extrinsic motivation significantly predicts students' performance, $F(3,7) = 28.40, p < .001$, explaining a 18% of total variance. The intrinsic motivation is the predictor that the stepwise analysis reported as first, $\beta = .18, p = .001$, followed by the negative effect of amotivation to gymnastic exercises, $\beta = -0.24, p < .001$) witch partially predict the negative effect of amotivation in students' performance to this sports' activity. When performance of gays and girls students was placed as dependent variable, the regression analysis reported that self determined motivation (intrinsic motivation and identified regulation) significantly predicts athletes' perception of his and her gymnastics' performance in educational setting, $F(2,10) = 46.80, p < .001, F(2,6) = 54.70, p < .001$, respectively, explaining a 17.3% of total variance. Intrinsic motivation (motivation to accomplishment, motivation to knowledge and motivation to sensations) is the best predictor of gymnastic exercises performance, $\beta = .29; p < .001, \beta = .18, p < .001, \beta = .19, p < .001$, respectively. Finally, when performance was placed as dependent variable, the regression analysis reported

that, athletes' commitment was partially predicted by the positives effect of intrinsic and extrinsic motivation and the negative effect of amotivation, $\beta = .36, p < .001, \beta = .20; p < .001, \beta = -0.27, p < .001$, respectively. Being similar the role of self-determined motivation and non self-determined motivation in predicting performance in PE setting, the main difference came out in the different contribution of intrinsic motivation which predicts motor behavior in a higher way than external regulation and amotivation.

DISCUSSION

Our work tries to investigate the relationship between students' motivation to practice sport and physical activity in educational environment and their performance during the competition. The global measurement of athletes' motivation supports the validity and reliability of the gymnastic motivation scale. The results have been proven through exploratory and confirmatory factor analyzes, respectively and three factor structure of the motivation scale was maintained. In this context a very satisfactory adequacy index was obtained. Additional confirmatory factor analyzes show the invariance of the factor structure for boys and girls. seven subscales (three of intrinsic motivation, three for extrinsic motivation and one for amotivation) are also valid for both boys and girls. In addition, the results of internal consistency analyzes reveal that the seven subscales were all faithful. Analyzes of test-retest correlations show a very satisfactory temporal stability level for the various subscales. All converge to the fact that the level of motivation to practice gymnastic shows an interesting fidelity level. Students with a moderate level of self-determined motivation (intrinsic motivation and identified regulation) and a low level of external regulation and amotivation have a moderate performance as well as those with higher levels of introjected regulation. Students with high performance, show a level of self-determined motivation and controlled rate (introjected and external regulation), but they are characterized by a low level of amotivation.

Therefore, the high motivational profile was characterized by a low level of amotivation and by moderate to high levels of other motivational variables as well as contextual situational levels. In this same line, more the motivational profile is high, better is the athletic performance and more the motivational profile decreases, less is the performance. These results fit the postulates of the self-determination theory (Deci and Ryan, 1985a) stating that the forms of the less self-determined motivation (external regulation and amotivation) are associated with negative consequences (distraction). They also agree previous works in the education field and highlight a positive relationship between self-determined motivation for school and school performance (Boiché *et al.*, 2008; Fortier *et al.*, 1995; Guay and Vallerand, 1997; Wang, 2016). However, they are not in agreement with the results obtained by Chantal *et al.* (1996) who stated that the most performed athletes are those of the highest levels of non self-determined motivation. Two main reasons may explain these differences: (1) athletes in our study were students practicing gymnastic at a school level, whereas those in the work of Chantal *et al.* (1996), were high-level athletes, and the high-level sport highlights an extrinsic aspect because it is a way for athletes to earn a lot of money but the benefits of engagement in school practice are clearly less important because they are limited to rewards such as grades and gains; (2) the social and cultural differences between the two studies as the social context could influence

the motivation of our students. Our results show that self-determined motivational profile is favorable to achieve better performance. It appears therefore that intrinsic motivation is essential in predicting performance in physical and sports activities. Students of high levels of contextual intrinsic motivation show high scores of situational motivation; whereas those with low levels of the contextual motivational variable (amotivation) were characterized by low scores on the gymnastic performance as well. The analysis of m performance regarding gender, as well as different level group performance demonstrated the importance of the scale to distinguish the motivations of different level groups. In fact, it has been shown that boys were more motivated to practice gymnastic exercises than girls. Similarly, the concerned by regular physical activity outside of school showed a motivation levels higher than students who practice sports only at school. Multiple regression analyzes revealed that the gymnastic motivation scales predict different levels of performance.

The interest of our students to practice gymnastic, is predicted especially through intrinsic motivation to knowledge, intrinsic motivation to stimulation and identified regulation. Thus, important distinctions were obtained regarding the weekly practice of physical activity. During the weekly practice of sport an identified regulation is added to the intrinsic motivation to knowledge. However, in the field of PES, in addition to experiential intrinsic motivation, external control to have a grade to succeed with fear of failure was obtained. It is therefore worth noting to suggest that the identified regulation seems to be associated with the use of the later practice however, external control is in the search of a grade. Of a particular relevance is the fact that these results are still preliminary; additional research should be carried out to support our interpretations. For instance, this work revealed that the motivation to practice gymnastic has satisfactory psychometric levels, supporting its reliability and validity. Future research will precise how to explore the validity and reliability of the motivation scale to gymnastic practice and assess its ability to predict gymnastic exercise performance.

As a whole, our results support the proposals of Roberts (1992) concerning the significant influence of motivation in achieving athletic performance. There is a lack of studies on motivation as a predictor of physical education performance. Nevertheless, it would be an exaggerated conclusion to consider motivation as the only factor in performance that the determinants of athletic performance in educational settings are enough numerous. There are other variables such as physical qualities and skills of the learner which may vary from an activity to another as well as the educator control and interpersonal variables that may influence physical and sport performance. The limit of this work concerns the comparison of the effect of intrinsic and extrinsic motivations on the performance of high-level athletes. In addition, of a particular importance remains the assessment of the effect of motivation on performance that can be repeated several times so as to understand the effect of motivation in a more advanced scale. This may be understandable considering that we deal with students we are looking primarily to their progression and learning development through performance and not necessarily high records. Thus, future researches may consider several factors and variables in the performance already achieved by students in order to better develop the effect of these variables on the next performances. Furthermore, our work raises that in the motivational profile of our students the moderate and high

levels of self-determined motivation can lead to high levels of performance in the gymnastic exercises. Hence, it will be interesting to develop intrinsic motivation the less self-determined to promote performance and learning in physical education and sport. Nevertheless, the generalization of results requires more detailed studies as to be consistent with other various sporting disciplines and specialties. A social factor assumed to influence motivation is the behavior of the teacher which has a crucial impact on student motivation. In fact, during interactions with the learner, the teacher provides some information, encourages, criticizes or reproaches, organizes some types of clustering among students.

Two particular styles of behavior can influence motivation: a controlling style, where the teacher acts in a authoritative and binding, and a style that supports autonomy, where the teacher justifies its choice, encourages independence, and engages students in decisions. Data from the literature in the fields of education and sports corroborate our results (Pelletier and Vallerand, 1996; Vallerand, 1997, Pelletier *et al.*, 1995) justifying that the autonomy support produces an increased self-determined forms of motivation (intrinsic motivation and identified regulation), with a decrease of amotivation and external regulation. According to the achievement goal theory, the educator can create a goal of accomplishment in the task, when he brings great importance to learning, investment, and progress, and when he encourages cooperation between levels of the PE class. On the other hand, it can be created a goal of the ego involving, when he focuses on winning at any price, punishes mistakes and produce competition between the different levels of PES class by sorting the best. According to the achievement goal theory, the development of intrinsic motivation is accessible and susceptible when the engagement in physical activity or sport is done because the student is involved in the activity for the pleasure that it gives to itself (Nicholls, 1989). Conversely, when the self-engagement is encouraged, self-determined motivation decreases, because the goal of the activity practice is oriented towards achieving some goal (Nicholls, 1989).

Successes are also perceived as being under the control of the individual, and a sense of constraint to maintain certain perceived self-esteem (Ryan and Deci, 2000a). Several studies supported junctions between achievement goals and intrinsic motivation as assessed by the scale of Ryan (1982), or the satisfaction scale developed by Duda and Nicholls (1992). In general, these studies showed that the involvement of the task is positively related to intrinsic motivation, whereas that involvement of the ego is not (Ntoumanis and Biddle, 1999). Following the few studies that have found a conceptual link between the theory of achievement goals and that of self-determination, previous authors (Biddle, Soos, and Chatzisarantis 1999; Brunel, 1999) were able to assess that an environment favorable to an involvement in the activity can predict self-determined forms of motivation (intrinsic motivation and identified regulation), whereas the environment that leads to the ego involvement predicts forms of less self-determined motivations (amotivation and external regulation). Our case study raised that students with self-determined motivational profile achieved better performance in gymnastic exercises (motivation to accomplishment, motivation to knowledge, motivation to sensations and identified regulation). Those supporting a non-self-determined motivational profile (external regulation and amotivation) achieve performances lower than those of students with more self-determined

motivation. In this same line, other works (Deci and Ryan, 1985; Ryan and Deci, 2000; Vallerand, 1997; Vallerand and Losier, 1999) showed that self-determined forms of motivation (intrinsic motivation and identified regulation) are associated with positive consequences (higher learning, greater interest, better performance, more effort, a higher self-esteem, etc.), while the forms of the less self-determined motivation (external regulation and amotivation) are related to negative consequences. Similar results were obtained for school dropout (Vallerand and Gillet, 2016; Vallerand and Bissonnette, 1992; Vallerand *et al.*, 1997) and sport. In addition, some laboratory studies have shown that, compared to individuals intrinsically motivated, those who participated in an activity for extrinsic reasons (which are not motivated by self-determined goals) persevered less time in a task situation of free choice (Deci and Ryan, 1985). Our work concludes that the forms of intrinsic motivation, extrinsic motivation and amotivation are as predictors of gymnastic performance in PES. It fits results of studies on the theory of planned behavior (Ajzen and Driver, 1991; Ajzen and Fishbein, 1980; Derbali *et al.*, 2015a), stating that the intentions expressed by the individual are the most proximal predictor of concrete behavior. On the contrary, abandon intentions may serve as a mediating variable between self-determined motivation and the real behavior of abandonment. Therefore, I believe that this study should be applied on large population, as students and athletes of different sport disciplines, disabilities and nationalities, in order to agree on, in a high consistence, the relations which exist between the motivational profile and different behaviors.

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