

Effect of a teaching intervention on motivation, enjoyment, and importance given to Physical Education

Juan Antonio Moreno-Murcia¹, Elisa Huéscar Hernández^{1*}

ORIGINAL ARTICLE

ABSTRACT

This study sought to analyze how creating a task-oriented motivational climate through intervention affects various motivational variables, enjoyment, and the importance people attribute to physical education. A sample of sixth-grade elementary school students was used. Ages ranged from 11 to 12 years-old ($M = 11.53$, $SD = .50$). Groups were divided into an experimental group ($n = 20$), where a task-oriented climate was transmitted, and a control group ($n = 20$) that received no manipulation. A multivariate analysis of variance (MANOVA) was conducted on the data collected at the pretest. To detect intra-group differences between pre and posttest measures, a t-test for related samples was conducted in each group. Results revealed that the experimental group improved significantly more than the control group in social responsibility and social relationship goals, and scored higher on approach-mastery goals, basic psychological needs, intrinsic motivation, enjoyment, and importance attributed to physical education. They also exhibited lower external regulation and amotivation. The control group, conversely, had significantly lower intrinsic motivation posttest than the experimental group. We discuss the importance of transmitting a task-oriented motivational climate in physical education to accomplish positive motivational effects that favor enjoyment and interest in physical education.

Keywords: social development; early adolescence; education/school, intervention/prevention; positive youth development.

INTRODUCTION

For more than three decades, researchers have strived to understand the web of interconnected stimuli that determine students' success or failure in Physical Education (PE). In this context, the teacher is seen to be a key player in managing what has come to be known as "motivational climate" (Gutiérrez, Ruíz, and López, 2011). Motivational climate is defined as the set of implicit and/or explicit signals from significant others such as teachers or parents. For example, a teacher can indirectly design practical activities through groupings or by involving students in the evaluation system. Or, directly, he can guide his students during their executions to provide them with information about their learning process and to receive information about their success or need to improve (Ames, 1992). Most studies in this area to date have analyzed variables involved in motivational climate by looking at correlation (Chacón et al., 2017; García

Calvo, Leo, Martín, and Sánchez, 2008), far fewer have experimentally confirmed the impact of intervention on PE students' motivation levels in situ (Viciano, Cervelló, Ramírez, San Matías and Requena, 2003).

Studies conducted in physical activity and sport settings based on achievement goal theory (Ames, 1992) have suggested that promoting a task-oriented climate while focusing on students' personal growth, effort and learning correlates positively with the most adaptive outcomes for students; for example, higher performance, persistence, level of learning, effort and intrinsic motivation, among others (Castro, Zurita, Martínez, Chacón, and Espejo, 2016; Monteiro, et al. 2018). Achievement goal theory (Chen, 2001), and more recently, the 2 x 2 achievement goal framework (Elliot and McGregor, 2001) have shaped our understanding of the motivational mechanisms responsible for success in PE. Yet, certain social determinants in students'

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¹ Sport Sciences Department, Miguel Hernández University, Spain

Corresponding author: Health Psychology Department, Miguel Hernández University, 03202, Elche, Alicante (Spain)
E-mail: ehuescar@umh.es

development towards achieving well-being have made the ecological perspective on motivation (Siedentop, 1998) the most current complete view from which to analyze motivation in adolescent students.

Early childhood is a time of readjustment in several areas - physiological, cognitive, emotional, and social. However, although children cope with this readjustment adaptively, better planning and psychosocial interventions are needed (Ganiban, Saudino, Ulbricht, Neiderhiser, and Reiss, 2008). Some studies have been grounded in the research framework of 2 x 2 achievement goals: mastery-approach (based on task orientation); performance-approach (the person takes others as a reference to define their success or failure); mastery-avoidance (orientation to self-perceived task of incompetence); and performance-avoidance (the person perceives his incompetence with respect to other people), together with students' social goals (Guan, McBride, and Xian, 2006; Moreno, González-Cutre, and Sicilia, 2007).

From the perspective of social goals, students might perceive themselves as having attained success by becoming responsible (responsibility goal) or belonging to a group of peers that mutually accept and respect one another (social relationship goal). In addition, Guan, Xiang, McBride, and Bruene (2006) reported a significantly positive correlation between these two goals (responsibility and social relationship) and certain achievement goals. For example, they found that high responsibility goals positively predicted students' effort and persistence.

Other studies have likewise focused on analyzing motivational climate in PE contexts, showing that satisfaction of the three basic psychological needs (autonomy, competence, and relatedness) positively correlates with students' intrinsic motivation, and negatively with amotivation (Cid, Lettnin, Stobäus, Monteiro, Davoglio, and Moutão, 2016). Self-determination theory posits that different types of motivation are determined by a set of social factors (e.g., motivational climate) and lead to different outcomes. Some researchers (for a review, see Vallerand, 2007) have specifically reported that a task-oriented motivational climate can satisfy the

needs for competence, autonomy and relatedness through their association with more self-determined forms of motivation, whereas ego-oriented climate is less self-determined. From this perspective, the positive outcomes in an individual can lead to a downward trend from intrinsic motivation to amotivation. Therefore, students with more self-determined motivation enjoy the activity more, which is because intrinsic motivation is positively related to positive affect and personal well-being (Ryan y Deci, 2017). Likewise, these factors have an impact on a person's psychological state, making it more balanced and healthy, and in turn, they derive greater enjoyment and advantage from activities and are less likely to become passive or bored (López-Walle, Balaguer, Castillo, and Tristán, 2012). According to Piéron, Castro, and González (2006), a student's attitude is another determining factor in motivation. Some studies have suggested a positive correlation between motivation and positive attitude on the part of the student (Behzadnia, Adachi, Deci, and Mohammadzadeh, 2018; Ryan and Deci, 2017). This also translates into the finding that students give more importance to physical education classes (Moreno and Llamas, 2007).

Motivational climate is one of the factors with the most significant impact on students' motivation, and the way the teacher carries out instruction is essential. To date, the studies reviewed have analyzed some of these variables in isolation (Cuevas, García-Calvo, and Contreras, 2013, Guan et al., 2006), focusing on correlational analyses. Furthermore, most studies have focused on extracurricular physical activity-sport (Balaguer, Castillo, Ródenas, Fabra, and Duda, 2015), and very few have focused on the educational field. An area which is fundamental for the establishment of adaptive behaviors in children in the context of motivation (Muñoz, Carreras, and Braza, 2004). Given this concern and based on the above-mentioned work, in this study, we aim to analyze how an intervention designed to establish a task-oriented climate affects social goals, 2 x 2 achievement goals, the motivation, the enjoyment and the importance attributed to their PE classes. Grounded in the conceptual framework described above, we

hypothesized that in the experimental group: i) The intervention would increase social responsibility and social relationship goals. ii) Mastery goals will increase in the experimental group, iii) The more self-determined forms of motivation (intrinsic motivation and identified regulation) will increase, iv) Enjoyment will increase, and v) the importance students attribute to their PE classes will increase.

METHODS

Participants

Forty PE students participated in this study. They were in the sixth grade of elementary school, and ages ranged from eleven to twelve-years-old ($M = 11.53$, $SD = 0.50$). Participants were divided into two groups: the experimental group had 20 students (10 girls and 10 boys); the control group also had twenty students (13 girls and 7 boys). All were middle class and came from two state schools located in an urban area of a Spanish city. Classes were coded and their content at the time of the study covered team sports and body expression.

Measures

Social goals

The Spanish version (Moreno, González-Cutre, and Sicilia, 2007) of the Social Goal Scale-Physical Education by Guan, Xiang et al. (2006) was used. This scale measures social responsibility goals using five items (e.g., "It's important to me that I follow class rules") and social relationship goals using six items (e.g., "I'd like to get along with most of the other students"). Each item is preceded by the phrase "In my physical education classes..." and uses a Likert-type response scale from 1 (not at all true for me) to 7 (very true for me). Cronbach's alpha values pre and posttest were .70 and .73 for social responsibility, and .71 and .82 for social relationship.

2 x 2 Achievement goals

The validated Spanish version (Moreno, González-Cutre, and Sicilia, 2008) of the 2 x 2 Achievement Goal Questionnaire (Elliot and McGregor, 2001) adapted for physical education settings (Guan, Xiang et al., 2006) was used. It

comprises 12 items, which fall into four factors (three items per factor): performance-approach (e.g., "My goal in this class is to get a better grade than most of the other students,"), mastery-approach (e.g., "I desire to completely master the material presented in this class"), performance-avoidance (e.g., "My fear of performing poorly in this class is often what motivates me"), and mastery-avoidance (e.g., "I worry that I may not learn all I possibly could in this class"). All items begin with the heading "In my physical education classes..." and are answered on a Likert-type response scale from 1 (*not at all true of me*) to 7 (*very true of me*). The pre and post measures for internal consistency were .79 and .81 for performance-approach, .66 and .60 for mastery-approach, .47 and .51 for performance-avoidance, and .60 and .67 for mastery-avoidance. Factors that obtained internal consistency measures between .60 and .70 were considered marginally acceptable (Taylor, Ntoumanis, and Standage, 2008) given the low number of items and the small sample size. The performance-avoidance factor, however, was not taken into consideration in the data analysis that followed because Cronbach's alpha values were below .60.

Basic Psychological Needs

The Basic Psychological Needs in Exercise Scale (Vlachopoulos and Michailidou, 2006), which was validated in Spanish and adapted for the PE context by Moreno, González-Cutre, Chillón, and Parra (2008), was used to measure the needs for autonomy, competence, and relatedness. The scale consists of 12 items starting with the phrase "In my physical education classes..." and divided into three factors: four items for autonomy (e.g., "I feel that I have the opportunity to make choices with regard to the way I do the exercises"), four items for competence (e.g., "I feel I perform the activities in my exercise class successfully"), and four items for relatedness (e.g., "My relationships with my classmates are very friendly"). The questions are closed-ended and respondents answer on a Likert-type scale ranging from 0 - *strongly disagree* with the statement, to 5 - *strongly agree* with the statement. Internal consistency at pretest and posttest in this study were .74 and .83

for perceived autonomy, .66 and .68 for perceived competence, and .87 and .83 for relatedness. Even though the competence factor obtained an alpha value of less than .70, its internal consistency was deemed marginally acceptable (Nunally and Bernstein, 1994) because so few items comprise each factor.

Motivation

The Spanish translation (Moreno, González-Cutre, and Chillón, 2009) of the Perceived Locus of Causality Scale by Goudas, Biddle, and Fox (1994) was used. It measures different forms of motivation per self-determination theory in the context of PE using 20 items: intrinsic motivation (e.g. “because PE is fun”), identified regulation (e.g. “because I can learn skills I might use in other areas of my life”), introjected regulation (e.g. “because I would feel bad about myself if I did not”), external regulation (e.g. “because I will get into trouble if I do not”), and amotivation (e.g. “but I really think that PE is a waste of my time”). Each item begins with the header “I take part in PE...” and is answered on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Its internal consistency in this study at pre and posttest was .82 and .65 for intrinsic motivation, .65 and .70 for identified regulation, .65 and .72 for introjected regulation, .69 and .66 for external regulation, and .75 and .73 for amotivation. As some alpha values factors were below the recommended .70, they were considered marginally acceptable because they included very few items (Nunally and Bernstein, 1994).

Enjoyment

The enjoyment sub-scale for PE students in the Intrinsic Motivation Inventory (Ryan, 1982; McAuley, Duncam, and Tammen, 1989) was employed to determine students’ perceived level of enjoyment of their classes. It includes five items (e.g., “I enjoyed playing very much”) that follow the stem phrase “In physical education class...”. Responses are given on a Likert-type scale with scores ranging from 0 - *strongly disagree* to 7 - *strongly agree*. In this study, its internal consistency at pre and posttest measurement were .77 and .81, respectively.

Importance of PE

The *Physical Education Importance* (Moreno, Llamas, and Ruíz, 2006) scale’s purpose is to determine the level of importance students attribute to their PE classes. The scale is made up of three items (e.g., “I think the things I learn in PE class will be useful later in life”). All are preceded by the stem phrase “regarding PE class...” Questionnaire responses are closed-ended and are scored on a Likert-type scale ranging from 0 - *strongly disagree* to 4 - *strongly agree*. This study yielded internal consistencies at pre and posttest of .64 and .71, respectively. Although this factor obtained an alpha value below the recommended .70, the value can be considered marginally acceptable given that it comprises a low number of items (Nunally and Bernstein, 1994).

Design and procedure

A quasi-experimental nonequivalent control group design (Campbell and Stanley, 1966) was applied because schools had previously determined who would be in each class, in which case randomization was not possible. Each group consisted of elementary school sixth graders: one experimental group made up of 20 students and one control group of 20 students, each with a different teacher. In the experimental group, the teacher transmitted a task-oriented motivational climate, while in the control group, no manipulation was used, and the teacher used the usual methodology in class. The intervention was carried out between March and June 2010, spanning a total of 24 classes with two weekly sessions of 50 minutes each. It covered two units: team sports and body expression. The same content was taught in the control group.

Before the intervention, the questionnaires described in the Instruments section were administered. Next, the experimental group teacher was trained to transmit a task-oriented climate. To do so, the teacher attended several teaching seminars that explained how to conduct classes in such a way as to foment a task-oriented motivational climate. The seminars focused on describing Ames’s premise (1992), following the acronym TARGET (Task, Authority, Recognition, Grouping or sorting,

Evaluation, and Time). After the intervention was complete, the questionnaires were administered again to both the control and experimental groups to ascertain what changes, if any, had occurred.

Below are some examples of how the experimental group teacher applied the TARGET premises to PE classes. In relation to the task dimension, he designed activities based on variety and novelty, such as different warm-up games every day and group games with different types of balls and goals so as to provide them with multiple success opportunities. He sought personal challenge through individualization, applying teaching styles according to group level within the didactic unit of sports gymnastics. The authority dimension involved the students in the decision making process, for example, after a series of global group sports sessions, they were allowed to decide which sport they wanted to do in more depth. As for rewards, he tried to reinforce effort and personal improvement in each student at all times, emphasizing that they were different from one another and that they should not make comparisons. He was very motivated to demonstrate that skill can always be improved by working for it. He provided different types of feedback: evaluative - telling the student how he had done the activity; explanatory - analyzing any possible failure; and prescriptive - proposing how it should be done the next time. The grouping dimension was flexible and heterogeneous, allowing multiple forms of grouping. In some sessions, the teacher established the groups so that they were of a similar level, and in other sessions, free grouping was allowed. Evaluation focused on personal progress and mastery of the task. It was private and meaningful, telling each student their mark in private, why they had received that mark, what they had done well and what had to be improved, and lastly, what he thought of it. Finally, sufficient time was allowed for the acquisition of different concepts, procedures and attitudes, so that students were not perceived as having low competence due to lack of time for learning. A balance was sought between the duration of activities and the variety of activities to positively influence motivation.

Three classes were videotaped so that we could establish to what extent a task-involved climate was transmitted to each of the two groups through observation. The objective was to demonstrate that a task-oriented climate was highly present in the experimental group and less so in the control group (since there was no manipulation). One class was taped at the beginning of the research, another in the middle, and another at the end. Teacher behavior was analyzed using an adaptation of the Coaching Behavior Assessment System (CBAS; Smith, Smoll, and Hunt, 1977). This instrument measures 12 categories of teacher behavior, organized into two dimensions: (a) teachers' general behavior and (b) teachers' behavior in response to student performance. The first dimension includes organization, technical information, general communication, and instructions regarding overall tone and delivery. The second dimension evaluated teachers' responses to correct execution versus error, including feedback, words of encouragement, punishment, and lack of response. This instrument was used because there are no observational instruments available to assess TARGET's different areas. This is in line with previous studies (González-Cutre, Sicilia, and Moreno-Murcia, 2011) on teaching styles and motivational climate using CBAS, which establishes that it could be used to measure the consistency of a teacher's behavior in different task-oriented intervention programs.

An observational analysis was conducted by the first author and a person not involved in this research. Both were previously trained to assess how the teacher puts a task-oriented climate into practice. Different criteria were proposed for each category. Various training sessions were needed to achieve an inter- and intra-observer reliability of 90%. To assess the intervention's reliability, we established the following task-oriented dimensions: positive reinforcement, encouragement, technical feedback, maintaining control, general technical instruction, overall encouraging instruction, organization, and general communication. Meanwhile, the ego-involved dimensions considered were: non-reinforcement, punishment, hostile technical

feedback, ignoring errors, maintaining control in a hostile way, lack of control, lack of information, general communication, and lack of organization. The teacher's performance elicited a task-oriented climate 95.11% of the time in the experimental group and 62.51% of the time in the control group.

Data analysis

First, a multivariate analysis of variance (MANOVA) was conducted on the data collected at the pretest in order to analyze whether or not the two groups had any statistically significant differences prior to the intervention in terms of

motivational variables. The independent variables established to carry out the research were the methodology used in the development of physical education contents (the experimental group applied a methodology based on the climate task). Dependent variables were the social goals of responsibility and relationship, mastery goals, motivation, enjoyment, and the importance the student gives to physical education classes. To ensure the homogeneity of all dependent variables, a Levene test was carried out. Next, to detect intra-group differences between pre and posttest measures, a t-test for related samples was conducted in each group.

Table 1.

Multivariate Treatment to Determine Group Effect

		Control group (N = 20)			Experimental group (N = 20)		
		M	SD	P	M	SD	P
Social Responsibility	PRE	6.56	.30	.59	5.54	.61	.01
	post	6.51	.54		5.99	.54	
Social Relationship	PRE	6.35	.48	.89	5.55	.46	.01
	post	6.35	.56		5.98	.50	
Performance Approach	PRE	3.60	1.55	.41	4.76	.81	.95
	post	3.36	1.97		4.75	1.39	
Performance Avoidance	PRE	4.55	1.40	.06	4.46	.99	.53
	post	4.86	1.60		4.56	1.07	
Mastery Approach	PRE	6.26	.93	.29	5.35	.78	.00
	post	6.05	1.31		5.78	.98	
Mastery Avoidance	PRE	5.11	1.34	.24	3.73	.51	.82
	post	4.91	1.70		3.80	1.47	
Autonomy	PRE	3.77	.66	.08	3.13	.40	.00
	post	3.96	.73		3.52	.53	
Competence	PRE	4.25	.54	.53	3.51	.50	.00
	post	4.31	.65		3.77	.53	
Relatedness	PRE	4.37	.40	.59	3.46	.43	.02
	post	4.32	.59		3.76	.59	
Intrinsic Motivation	PRE	6.15	.65	.02	5.05	.33	.00
	post	5.85	1.06		5.60	.77	
Identified Regulation	PRE	6.17	.69	.47	5.21	.38	.04
	post	6.08	.99		5.66	.92	
Introjected Regulation	PRE	5.38	.65	.35	4.02	.75	.21
	post	5.18	1.27		4.20	1.1	
External Regulation	PRE	4.68	1.22	.36	4.46	1.04	.00
	post	4.56	1.37		3.72	1.54	
Amotivation	PRE	2.83	1.55	.06	3.07	1.04	.00
	post	3.02	1.80		2.36	1.33	
Enjoyment	PRE	5.49	.76	.26	4.78	.84	.00
	post	5.37	.96		5.21	.88	
Importance	PRE	3.61	.34	.85	2.93	.55	.01
	post	3.60	.45		3.30	.64	

RESULTS

Preliminary analysis

The Levene test with the dependent variables indicated the non-equality of variances between the groups ($p < .05$). Statistically significant

differences were found (Wilks' $\Lambda = .12$, $F(1,19) = 7.45$, $p < .001$). The control group scored higher than the experimental group in the following variables at pretest: social

responsibility goal ($F(1,19) = 43.46, p < .001$), social relationship goal ($F(1,19) = 27.96, p < .001$), performance approach ($F(1,19) = 8.8, p < .05$), mastery approach ($F(1,19) = 11.13, p < .05$), mastery avoidance ($F(1,19) = 18.5, p < .001$), competence ($F(1,19) = 19.5, p < .001$), autonomy ($F(1,19) = 13.3, p < .05$), relatedness ($F(1,19) = 46.2, p < .001$), intrinsic motivation ($F(1,19) = 44.8, p < .001$), introjected motivation ($F(1,19) = 37.03, p < .001$), enjoyment ($F(1,19) = 7.79, p < .05$), and importance of PE ($F(1,19) = 21.65, p < .001$).

Intervention effects

The data analysis indicated that after intervention the experimental group scored higher in social responsibility and social relationship goals ($p < .05; \eta^2 = .12$), mastery-approach ($p < .01; \eta^2 = .27$), autonomy and perceived competence ($p < .01; \eta^2 = .18$), relatedness ($p < .05; \eta^2 = .21$), intrinsic motivation ($p < .01; \eta^2 = .22$), identified regulation ($p < .05; \eta^2 = .14$), enjoyment ($p < .01; \eta^2 = .09$), and importance attributed to PE ($p < .05; \eta^2 = .10$). In addition, average scores in external regulation ($p < .01; \eta^2 = .22$) and amotivation ($p < .01; \eta^2 = .18$) decreased. In the control group, significant differences only occurred between the pre and posttest measures of intrinsic motivation ($p < .05; \eta^2 = .21$), the posttest being lower (Table 1).

DISCUSSION

This study aimed to analyze how a task-oriented motivational climate intervention affects different motivational variables, enjoyment, and the importance students attribute to their PE classes. The present research is a first attempt to assess the impact on social goals, 2 x 2 achievement goals, self-determined motivation, enjoyment, and importance attributed to PE using a quasi-experimental design. Previously, quasi-experimental studies conducted in this field had examined some of these variables, but not all (González-Cutre et al., 2011).

The intervention did not set out with two homogeneous groups. The preliminary analysis revealed motivational differences between groups, the control group exhibiting more

beneficial motivational patterns than the experimental group. However, the experimental group's motivation was expected to improve. The control group scored higher at first in social responsibility and social relationship goals, mastery-approach goals, mastery-avoidance goals, basic psychological needs, intrinsic motivation, identified motivation, external regulation, enjoyment, and importance attributed to physical education, while the experimental group was more amotivated.

Generally speaking, the teaching intervention, which focused on transmitting a task-oriented motivational climate, was effective. In line with studies based mainly on correlation analyses, where they suggest that a task-oriented climate can positively influence social responsibility and social relationship goals (González-Cutre et al., 2011), this study successfully elicited score increases in both of those goals in the experimental group. With regard to achievement goals, the experimental group increased their mastery-approach goals. Cecchini, González, Méndez, and Fernández (2011) have suggested mastery approach goals are the most significant contributor to self-determination levels. Other previous studies (González-Cutre et al., 2011) have employed research designs similar to this one and reported that an increase in mastery-approach goals is elicited by creating a task-oriented climate. Nevertheless, some such studies did not take into account the division of achievement goals classified in approach and avoidance (Elliot and McGregor, 2001), although later studies have drawn that distinction (Cecchini et al., 2011).

Therefore, taking into account the limitation of sample size and the short intervention period, the results of this study confirm that conducting an intervention that prioritizes effort and personal breakthroughs can successfully lead students to focus more on mastery, emphasizing the importance of personal improvement and learning. It is important to bear in mind that the specialized bibliography indicates mastery-approach goals are linked to more positive outcomes, like self-determined motivation, low amotivation, satisfaction of the needs for competence and relatedness, enjoyment,

exercise, and low levels of boredom (Fernández, Méndez, Cecchini, and González, 2012).

With respect to the variables pertinent to the self-determination theory, we observed that the experimental group scored higher following the intervention on the three basic psychological needs (competence, autonomy, and relatedness), as well as the most self-determined forms of motivation (intrinsic motivation, identified regulation). These associations have been reported in PE settings before (Moreno, Jiménez, Gil, Aspano, and Torrero, 2011). Therefore, teachers are encouraged to satisfy their pupils' basic psychological needs in order to conjure up more positive motivation, which according to the literature, is also linked to more adaptive outcomes (Vallerand, 2007). Moreover, since the experimental group began with higher amotivation scores than the control group, the intervention yielded a statistically significant decrease in that variable, suggesting that by creating a task-oriented climate, students become more motivated to participate because they enjoy class, consider it important, and can glean things from it that will be useful later in life. This result is consistent with the outcome that the experimental group exhibited greater enjoyment at posttest measurement. This reflects the suggestion by Vallerand (2007) in his review that the most positive outcomes are associated with the most self-determined types of motivation. For example, self-determined motivation is positively linked, to vitality, positive affect, self-esteem, enjoyment, satisfaction, interest, concentration, effort, persistence, and adherence to an exercise plan (Behzadnia et al., 2018; Hashim, Grove, and Whipp, 2008; Monteiro et al., 2018; Texeira, Marques, and Palmeira, 2018). Grastén, Jaakkola, Liukkonen, Watt, and Yli-Piipari (2012) found that task-oriented motivational climate correlated positively with enjoyment, and suggest that competence and intrinsic motivation have a positively mediating influence.

Finally, as hypothesized, in the experimental group, the results denote a significant score increase in the importance attributed to PE. This result, which refers to the belief that education is worthwhile in itself, supports the findings of prior research in this area (Moreno and Llamas,

2007). Previous research has reported positive correlations between participants' involvement with a goal and their beliefs about the general purpose of education (Papaioannou and McDonald, 1993). That is to say, task involvement is associated with believing that success depends on effort and interest, as well as one's intention to learn new activities, all of which evoke positive emotions toward the class (assessment of PE), enjoyment, ability to cooperate, and social connectedness and responsibility. It would prove interesting to measure this variable at different moments in time, because it may change depending on how the class develops and on students' level of receptiveness.

Therefore, providing a task-oriented educational environment could help students perceive their personal progress more effectively and feel more autonomous, competent, and socially supported. Those factors would, in turn, enable them to accomplish intrinsically motivated tasks, which would create a positive psychological balance. That being said, we must emphasize that in this study, only one control group and one experimental group were used, and they were not very large. Hence, the results obtained should be interpreted with caution. To further support these findings, future research should try to use more control and experimental groups with a higher number of participants and should consider other variables, such as sex (Cecchini et al., 2011). In addition, these results would have to be contrasted with the measure of the teacher's opinion of his students' motivation. Another factor to consider is that there may be an overestimation of how well children execute activities. It would be interesting for future studies to carry out situational interventions at different points in time (longitudinal studies) to see how changes in situational motivation influence contextual motivation in PE.

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