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Clarifying the influence of sport education on basic psychological need satisfaction in high school students

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ORIGINAL ARTICLE

ABSTRACT

Based on Self-Determination Theory, this research aimed to examine la influence of Sport Education on basic psychological need satisfaction in the sport teaching-learning process that takes place in Physical Education. The participants were 44 high school students (22 men and 22 women; M_{age} = 16.32, SD_{age} = 0.57) and 2 Physical Education pre-service teachers. The design was a quasi-experimental study with, a priori, non-equivalent control group using pre- and post- intervention measures and intra- and inter-analyses. The intervention consisted of 12 basketball sessions both for the experimental group (n = 22), which developed Sport Education, and for the control group (n = 22), which developed the traditional teaching. The results showed that Sport Education significantly improved the levels of autonomy, competence and relatedness need satisfaction in the inter-group analysis and in the intra-group analysis. In its conclusion, the suitability of Sport Education to contribute developing students' basic psychological need satisfaction in the sport teaching-learning process in Physical Education was indicated.
Keywords: autonomy, competence, relatedness, sport instruction model, model-based practice, skill-drill-game approach.

INTRODUCTION

Research on Physical Education (PE) pedagogy has mainly focalized on how to find efficacy in the teaching-learning process, paying special attention to the pedagogical model used by PE teachers (Meroño, Calderón, & Hastie, 2015). In this sense, over the last decades, the pedagogical models have evolved from instructional methodologies labelled as skills-based approaches, reproductive teaching styles or teacher-centred models up to tactics-based approaches, productive teaching styles or student-centred models (López-Ros, Catejón-Oliva, Bouthier, & Martí-Llobet, 2015; Metzler, 2011). This change in the mode of understanding the instructional process intends to achieve specific goals of the subject of PE such as promotion and adherence to regular physical activity and sports initiation through positive educational experiences and the development of motivation in PE class (Evangelio, González-Víllora, Serra-Olivares, & Pastor-Vicedo, 2016; Perlman, 2015).

On the one hand, in order to understand the motivational processes that take place in the teaching-learning process in PE class, Self-Determination Theory (SDT, Deci & Ryan, 2000) could be an useful and powerful theoretical framework to explain the interactions between the pedagogical model and student motivation from basic psychological need satisfaction (Deci & Ryan, 2000). In this regard, basic psychological needs constitute the psychological mediators between social context and individual motivation, acting as underlying factors that regulate motivation of behaviour (Vallerand & Lalande, 2011). This theory assumes the existence of the need for autonomy (desire to be causal agent), for competence (desire to experience efficacy in interactions with context) and for relatedness (desire to stablish stable and positive connections with others). The literature, through cross-

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section studies, has showed that basic psychological need satisfaction negatively predicted controlled motivation and amotivation and, it positively predicted autonomous motivation (Haerens, Aelterman, Vansteenkiste, Soenens, & van Petegem, 2015) and adaptive consequences such as cooperation, valuation of effort, respect for the classmates and classroom materials (Sánchez-Oliva, Viladrich, Amado, González-Ponce, & García-Calvo, 2014) in PE students.

On the other hand, Sport Education is one of the models-based practice that, currently, is receiving higher attention by researchers in PE (Hastie & Wallhead, 2016). This pedagogical model was introduced by Siedentop (1994) for the purpose of developing students who are competent, literate and enthusiastic sports players as a result of authentic, meaningful and educationally enriching sport experiences for boys and girls. Its methodology is based on a student-centred approach and, cooperative and constructivist pedagogy, focalized on small group work and on small-sided game adapted to the student's level of skill (Siedentop, 1994, 2002). In addition, it is characterised by a series of structural features extracted from the current federated sport (planning of season, constant team affiliation, formal competition, record keeping, culminating event, festivity and completion of roles) that are applied to PE class (Siedentop, Hastie, & van der Mars, 2011).

Literature has showed that the implementation of a Sport Education season improved in the students a myriad of key variables involved in the sport teaching-learning process that takes place in PE class (Araujo, Mesquita, & Hastie, 2014; Hastie, Martínez de Ojeda, & Calderón, 2011; Hastie & Wallhead, 2016). Specifically, the previous studies, that used the SDT to understand the effects that Sport Education could have on student behaviour in PE, have observed that this model-based practice fostered high levels of autonomy support perceived by students in the sport teaching-learning process (Ginciene & Matthiesen, 2017; Medina-Casaubón & Burgueño, 2017; Wallhead & Ntoumanis, 2004). With respect to motivational regulation, the studies reported that Sport Education contributed to develop intrinsic motivation (Burgueño, Medina-Casaubón, Morales-Ortiz, Cueto-Martin, & Sáchez-Gallardo, 2017; Cuevas, García-López, & Serra-Olivares, 2016) and, in turn, to reduce amotivation (Burgueño et al., 2017), which favoured the development of a more self-determinedly motivated behaviour in students during PE class (Perlman, 2011, 2012; Sinelnikov, Hastie, & Prusak, 2007). In reference to basic psychological need satisfaction, the qualitative studies as the work by Perlman and Karp (2010) revealed that Sport Education contributed to enhance autonomy, competence and relatedness satisfaction; meanwhile the study by Brock, Rovegno, and Oliver (2009) discovered that Sport Education could have a negative influence on basic psychological need satisfaction. On the other hand, the studies of both quantitative and qualitative character showed an increase of competence need satisfaction (Calderón, Hastie, & Martínez-de-Ojeda, 2010; Gutiérrez, García-López, Chaparro-Jilete, & Fernández-Sánchez, 2014; Kirk, 2013; Mesquita, Rodrigues-Pereira, Araújo, Farias, & Rolim, 2016) after the implementation of a Sport Education season. Specifically, the students were more competent in the single game as well as in the team game (Gutiérrez et al., 2014). Nevertheless, the work by MacPhail, Gorely, Kirk, and Kinchin, (2008) showed, from quantitative approach, that the competence did not increase after the implementation of Sport Education, although, from qualitative approach, it was suggested an improvement on this. While the quantitative studies have indicated that the implementation of Sport Education, in relation to a traditional teaching, improved relatedness need satisfaction, but autonomy and competence need satisfaction did not improve (Perlman, 2011). However, Gutierrez, Garcia-Lopez, Hastie, and Calderón (2013) reported a rise on competence need satisfaction after a Sport Education season. By contrast, Cuevas, García-López, and Contreras (2015) indicated an increase on competence need satisfaction after the implementation of Sport Education, but not on autonomy and relatedness need satisfaction Méndez-Giménez, Fernández-Río, and Méndez-Alonso (2015) have obtained an

improvement on autonomy need satisfaction after the implementation of Sport Education, in relation to the traditional teaching, but not in competence and relatedness need satisfaction.

The results found in the literature about the influence exerted by Sport Education on basic psychological need satisfaction have been inconsistent and inconclusive. Specifically, one of the main educational goals of Sport Education such as the development of competent students in PE class for sport practice has been questioned by determined works that have not observed this fact (Brock et al., 2009; Méndez-Giménez et al., 2015; Perlman, 2011; Spittle & Byrne, 2009). Likewise, SDT postulates that the satisfaction of the three basic psychological needs function as one basic psychological need in natural situations (Gagné, Ryan, & Bargmann, 2003). This would imply that when the level of satisfaction of the need for autonomy (i.e., by the teacher's action) increases, it is likely that the greater number of options to act produces an improvement in the level of motor skill (need for competence) and, consequently, the relationship with the classmates improves (need for relatedness). Nevertheless, the previous research has not found this relation and homogeneous behaviour of the three psychological needs proposed by SDT after the implementation of Sport Education. These findings would suggest a probable contradiction regarding the beliefs abovementioned. Therefore, there is a need for a new research to illumine the influence of Sport Education on student basic psychological need satisfaction in the sport teaching-learning process that takes place in PE class using an unexplored sample up to this moment, as the high school students.

The present research aimed to examine the influence of a Sport Education intervention on basic psychological need satisfaction in high school students in the sport teaching-learning process that takes place in PE class. In this regard, it was hypothesized that the Sport Education intervention would significantly improve the level of autonomy, competence and relatedness need satisfaction in the students in the Sport Education group. It is also expected that the traditional teaching intervention would keep the same level of autonomy, competence and relatedness need satisfaction in the students in the Traditional Teaching group before and after the intervention programme.

METHOD

A quasi-experimental study with, a priori, non-equivalent control group (Ato, López-García, & Benavente, 2013) was designed. Additionally, pre- and post- intervention measures and inter- and intra-group analyses were performed. As it is a question of educational context, it was impossible to randomise the participants according to the independent variable (pedagogical models), due to the groups were pre-established by the educational centre. For this circumstance, a randomly assigning was carried out to select which group would develop each one of the two pedagogical models. Thus, a group was randomly assigned as the experimental group or Sport Education group (n = 22 of who 9 were men and 13 women), while the other group constituted the control group or traditional teaching group (n = 22 of who 13 were men and 9 women).

Participants

The participants were 44 high school students (22 men and 22 women), aged between 16 and 18 years (M_{age} = 16.32, SD_{age} = 0.57) of a public educational centre from a city in the Spanish south-eastern. In relation to the educational background, all theses students have addressed basketball as a curricular content in previous educational stages, although none of them was previously instructed with Sport Education in their PE classes. With respect to the sports practice, 34 students (18 men and 16 women) claimed to practice physical activity and sport outside the educational context, with a weekly frequency comprised between 1 and 6 days ($M_{frecuency}$ = 3.61, $SD_{frecuency}$ = 1.50). In addition, 2 PE pre-service teachers (2 men) who were studying the master's programme for teachers from middle and high secondary school, vocational education, and language teaching, in the specialisation of PE, participated. The 2 PE pre-service teachers claimed to have had previous experience related to both Sport Education and

the traditional teaching model during an academic year in the teaching practicum carried out in the degree's programme in physical activity and sport sciences. The sample of this study represents a convenience sample given the ease of access to this educational centre.

Measures

Basic Psychological Needs in Physical Education

The Spanish version adapted to PE (Moreno, González-Cutre, Chillón-Garzón, & Parra-Rojas, 2008) of the Psychological Needs in Exercise Scale (Vlachopoulos & Michailidou, 2006) was used. The instrument consists of 12 items, grouped at 4 items by factor, to measure autonomy, competence and relatedness need satisfaction. Each item was measured by means of a 7-point Likert-type scale, ranging from 1 (totally disagree) to 7 (totally agree). In this study, the internal consistency analysis revealed a Cronbach's alpha value of .93 and of .94 for the total scale of this measurement instrument at pre-test and at post-test, respectively.

Procedures

The present research has the approval of the Ethics Committee of the University corresponding, as well as, the authorization of the educational centre and the informed consent from the student's parents or legal guardians. Then, interventions both for Sport Education and for the traditional teaching were planned. Subsequently, the pre–test was conducted through the administration of the questionnaire to the students. Next, the experimental group developed the intervention based on Sport Education, while the control group developed the intervention based on the traditional teaching. Having finished the intervention, the post-test was conducted through the administration of the questionnaire to all students. For the administration of the questionnaires in the pre– and post– test, the research staff explained that its completion was volunteer and anonymous and, also, they explained that there were no right or wrong responses wanted to know their perceptions about PE class. Additionally, the research staff solved each arising doubt during the administration of the questionnaire.

Intervention programme

Intervention for Sport Education

The research staff and the teacher in charge of the Sport Education group designed an instructional unit for the basketball learning, which complied with the guidelines and criteria stablished by Siedentop et al. (2011). It was constituted by twelve 55-minutes sessions, 2 sessions per week over a period of six weeks in regular PE schedule. This total duration was considered sufficient to examine the possible effects on the dependent variables as was indicated by the previous studies (Mahedero, Calderón, Arias-Estero, Hastie, & Guarino, 2015; Méndez-Giménez et al., 2015).

In concordance with Siedentop et al. (2011), the intervention or season was composed of three main phases: a) an initial phase, formed by an introductory session and a teacher-led practice sub-phase; b) a student-led practice or pre-season phase and, c) a final phase, formed by a formal competition sub-phase and a culminating event. The initial phase began with a first introductory session which consisted of explaining the Sport Education features, creating the teams and assigning the roles, symbols and slogan of each group. Thus, four teams of five or six components were formed, to this end, each student was randomly assigned to a team, trying to respect equality between girl and boys and, level of motor skill. Afterward, each team designated each of five or six roles to its members freely: a) coach, communicated the information of the teacher concerning task to the team; b) physical trainer, led the warm-up; c) sports journalist, registered data, and elaborated statistical and reports; d) referee, arbitrated the matches; e) equipment manager, organised the material; f) second coach, helped the coach in his/her tasks, exclusively for the teams of six members. After that, each team selected a symbol, a slogan and a colour for its clothes. The teacher-led practice sub-phase was the second and third session, destined for familiarisation of the students with Sport Education and teaching of the basic technical-tactical skills in basketball. From the fourth to eighth session corresponded to the student-led practice phase, specifically, in this phase, the coach directed the training of his/ her team with

the information provided by teacher for the learning of the basic technical-tactical skills in basketball. Additionally, "*duty team*" started at the fourth session, implying that the referee and sport journalist exerted his/her role in 2 *versus* 2 competitions in his/ her team. In both phases, the sessions consisted of a warm-up of 10 minutes, a main part of 40 minutes, in which activities and small-side games, as well as, friendly matches in 2 *versus* 2 competitive situations were developed and, a cool down of 5 minutes, in which stretches were developed. Finally, the regular competition phase began with the formal competition sub-phase, which was developed from ninth to eleventh session, where each session was organised into a warm-up of 10 minutes, a main part of 30 minutes to play the matches, a part to fill the reports of 10 minutes and, a cool down of 5 minutes. And, it finished with a culminating event carried out in the twelfth session, where the final and the match for third and fourth place were played and, in turn, the reward and diplomas were handed in to all students.

Intervention for the Traditional Teaching

The research staff and the teacher in charge of the traditional teaching designed a basketball intervention using the skill-drill-game approach (Browne, Carlson, & Hastie, 2004; Medina-Casaubón & Burgueño, 2017; Méndez-Giménez et al., 2015; Spittle & Byrne, 2009). This intervention was composed by twelve 55-minutes sessions, 2 sessions per week over a period of six weeks in regular PE schedule. From the first to the ninth session, the learning was focused on the teaching of the basic technical-tactical aspects in basketball. For this end, the session was structured in 10 minutes of warm-up; 40 minutes of main part, consisting of a first phase of exercises for the improvement of skill, a second phase of practices related to modified games between teams, in which the teams were randomly formed and daily changed and, a third phase of matches; and 5 minutes of cool down, through stretches. The last three sessions were competitions between teams, in which the teams were randomly formed by the teacher in each session, who also refereed the matches, moving on the football courts and checking that the game rules were met and followed.

Validity treatment

Both teachers received a theoretical-practical course of 10 hour concerning the specific theoretical and practical features of each pedagogical model. For the structure and content of this course, the research staff was based on the works developed by Sinelnikov (2009) and, Calderón, Martínez-de-Ojeda, and Méndez-Giménez (2013). Additionally, a mentoring was conducted by an expert researcher in Sport Education and by an expert research in traditional teaching, respectively. This mentoring consisted of: a) an examination session per session throughout the intervention programme; b) telephone conversations and e-mails in order to solve doubts, concerns and problems, and c) the expert researcher in each pedagogical model weekly visited the educational centre in a randomly manner and unannounced. Theses visits aimed to confirm the absence of mismatches between the planned content and the implemented one and, in turn, to verify that both pedagogical models were being applying with all its features (Hastie & Casey, 2014; Sinelnikov, 2009). An expert researcher in charge of the monitoring of the Sport Education intervention verified that the PE pre-service teacher met each one of the features for the implementation of Sport Education in accordance with the observational record sheet designed by Sinelnikov (2009) for this pedagogical model. In the same vein, an expert research was responsible for the monitoring of the traditional teaching intervention confirmed that the PE pre-service teacher complied with all the requirements for the implementation of this pedagogical model according to the observational record sheet developed by Cuevas et al. (2016) from the criteria stablished by Metzler (2011) for the skill-drill-game approach.

Statistical analysis

The Statistical Package for Social Sciences (IBM SPSS Statistics for Mac, version 20.0; Armonk, NY, USA) was used to analyse the data. Firstly, the normality of data was checked with

the Shapiro-Wilk test ($N < 50$), which indicated that the target study variables followed a non-normal distribution. Secondly, the mean, the standard deviation and the median for each one of the three dependent variables were estimated to inform about the descriptive statistics. Thirdly, the internal consistency for each one of the three dependent variables was examined with the Cronbach's alpha (α) coefficient, which is acceptable with values higher than .70 (Viladrich, Angulo-Brunet, & Doval, 2017). Fourthly, the inter-group analysis was performed with the Mann-Whitney U test, while the intra-group analysis was conducted with the Wilcoxon signed-rank test. Fifthly, according to Field (2013), the effect size was expressed in terms of Pearson's correlation (r). Field (2013) considers values less than |.30| as a small effect size, values between |.31| and |.49| as a medium effect size and, values higher than |.50|as a large effect size. The level of statistical significance was set at $p < .05$.

RESULTS

Table 1 shows the descriptive statistics for each variable analysed, being observed changes on the satisfaction of the three basic psychological needs between pre-test and post-test in both groups. The values of internal consistency were suitable (Viladrich et al., 2017) for autonomy, competence and relatedness need satisfaction, respectively.

Table 1

Descriptive Statistics and Internal Consistency of Basic Psychological Need Satisfaction for Sport Education (n = 22) and the Traditional Teaching (n = 22)

	Sport Education							
	Pre–test				Post–test			
	α	M	SD	Mdn	α	M	SD	Mdn
S.N. for Autonomy	.73	4.22	1.44	4.25	.81	6.27	1.95	6.33
S.N. for Competence	.72	5.07	1.05	4.95	.87	6.15	1.45	6.35
S.N. for Relatedness	.77	5.04	1.43	5.25	.89	6.13	0.87	6.25
	Traditional Teaching							
	Pre–test				Post–test			
	α	M	SD	Mdn	α	M	SD	Mdn
S.N. for Autonomy	.89	4.38	1.70	4.50	.86	4.47	1.20	4.15
S.N. for Competence	.90	4.89	1.60	5.13	.78	5.07	1.00	4.90
S.N. for Relatedness	.92	5.27	1.68	5.50	.80	5.09	1.01	5.00

Note. S.N. = Satisfaction of the Need; SE = Sport Education; TT = Traditional Teaching

Table 2 presents the results obtained for the inter-group analysis. In this regard, the Mann-Whitney U test showed that, at pre-test, there was no statistically significant difference ($p > .05$) in autonomy, competence and relatedness need satisfaction between the Sport Education group and the traditional teaching group. These findings reflected the homogeneity with respect to the levels of dependent variables between both groups at the beginning of the intervention programme. However, statistically significant differences along with a large effect size were found in autonomy ($Z = -3.33$, $p = .001$, $r = -.50$) and relatedness ($Z = -3.42$, $p = .001$, $r = -.51$) need satisfaction. There was also statistically significant difference together with a medium effect size in competence ($Z = -2.60$, $p < .010$, $r = -.39$) need satisfaction between the Sport Education and traditional teaching groups at post-test.

Table 3 indicates the results concerning the intra-group analysis for the Sport Education and traditional teaching groups. In this sense, the Wilcoxon signed-rank test revealed that no significant statistical difference ($p > .05$) was found for each of the satisfaction of the three basic psychological needs in the traditional teaching group between the pre– and the post–tests. Whereas in the Sport Education group, there was statistically significant difference along with a large effect size for autonomy ($Z = -3.36$, $p < .001$, $r = -.50$) need satisfaction. In addition, statistically significant difference together with a medium effect size were found for competence ($Z = -2.21$, $p < .050$, $r = -.33$) and relatedness ($Z = -2.70$, $p < .010$, $r = -.40$) need satisfaction between the pre– and the post– tests.

Table 2
Inter-Group Analysis Through the Mann-Whitney U Test for Basic Psychological Need Satisfaction

		Pre-test				Post-test				
	Group	Mean Rank	Sum of Ranks	Z	*p*-value	Mean Rank	Sum of Ranks	Z	*p*-value	*r*
S.N. for Autonomy	SE	22.35	514.0	-0.34	.733	28.29	594.0	-3.33	.001	-.50
	TT	23.68	521.0			16.00	352.0			
S.N. for Competence	SE	22.83	525.0	-0.09	.928	27.10	569.0	-2.60	.009	-.39
	TT	23.18	510.0			17.10	377.0			
S.N. for Relatedness	SE	20.33	427.0	-0.85	.394	29.50	678.5	-3.42	.001	-.51
	TT	23.59	519.0			16.20	356.5			

Note. S.N. = Satisfaction of the Need; SE = Sport Education; TT = Traditional Teaching

Table 3
Intra-Group Analysis Through the Wilcoxon Signed-Rank Test for Basic Psychological Need Satisfaction

	Group	Test	Mean Rank	Sum of Ranks	Z	p-value	r
S.N. for Autonomy	SE	Pre	4.75	19.00	-3.36	.001	-.50
		Post	12.47	212.00			
	TT	Pre	12.60	126.00	-0.02	.986	-.01
		Post	10.58	127.00			
S.N. for Competence	SE	Pre	7.43	52.00	-2.21	.027	-.33
		Post	12.79	179.00			
	TT	Pre	10.36	114.00	-0.41	.685	-.07
		Post	12.64	139.00			
S.N. for Relatedness	SE	Pre	7.60	38.00	-2.70	.007	-.40
		Post	12.06	193.00			
	TT	Pre	11.38	148.00	-0.70	.485	-.11
		Post	11.67	105.00			

Note. S.N. = Satisfaction of the Need; SE = Sport Education; TT = Traditional Teaching. *** $p < .001$, ** $p < .01$, * $p < .05$.

DISCUSSION

The objective of the present study was to analyse the influence of a Sport Education intervention on basic psychological need satisfaction in high school students in the sport teaching-learning process that takes place in PE class. The results of this work revealed that a Sport Education season significantly improved the level of autonomy, competence and relatedness need satisfaction both the inter-group analysis and the intra-group analysis in the high school students.

The results of the present study showed that the implementation of a Sport Education intervention improved autonomy need satisfaction both in the inter-group analysis and the intra-group analysis. These findings are in consonance with the results obtained by Méndez-Giménez et al. (2015) and Perlman and Karp (2010). This fact could be explained because Sport Education is characterised by being a autonomy-supportive model (Ginciene & Matthiesen, 2017; Medina-Casaubón & Burgueño, 2017; Wallhead & Ntoumanis, 2004), which offers a higher accounts of choices to student to act during his/her sport teaching-learning process in PE class, as a result of small group work and small-side games in which the student is permanently making decisions and assuming responsibilities in his/her teaching-learning process, while teacher acts primarily as a guide in this process (Siedentop et al., 2011).

A second finding has also reflected that Sport Education increased competence need

satisfaction in the inter-analysis, as well as the intra-group analysis. Those results supported the results obtained by the literature (Calderón et al., 2010; Cuevas et al., 2015; Gutiérrez et al., 2014; Mesquita et al., 2016; Perlman, 2011), and clarified the inconsistent findings by MacPhail et al. (2008). Furthermore, those results would be sustained because Sport Education is a pedagogical model which is to foster the practice and the motor learning of students (Siedentop, 1994). In this regard, its structural features favour the cession to students of certain decisions in their sport teaching-learning process (Wallhead & Ntoumanis, 2004), which together with a well-structured environment of learning, with instructional situations adapted to the student's level of motor skill (Medina-Casaubón & Burgueño, 2017) and a motivational environment of mastery (Hastie, Sinelnikov, Wallhead, & Layne, 2014), they have probably enhanced the development of the motor competence of students. Furthermore, Sport Education offers to the student the possibility of choosing a role within a team which adjusts to their own personal peculiarities, what favours, in turn, the successful and responsible performance of instructional activities in class (Cuevas et al., 2015).

A third result has indicated that Sport Education has enhanced relatedness need satisfaction both in inter-group analysis and in intra-group analysis. These findings are in line with the results by Perlman (2011) and Perlman and Karp (2010). This could be due to Sport Education provides a learning climate that allows both positive social interactions between students and teacher (Perlman & Karp, 2010) and a comfortable communication with classmates and with the teacher (O'Donovan, 2003). It should be added that this models-based practice enables the use of constant team throughout the season and guidelines of fair play which could be instructional strategies that offer the opportunity to students to know their classmates, to create a sense of permanence and to improve the inclusion in class (Perlman, 2011).

Despite of the results, there are a series of limitations presented by this work. According to this, the small number of participants along with its non-randomization do not allow us to generalise those results and they should be interpreted with caution. In this way, future works which verify or discuss the findings presented by this study in relation to the influence of Sport Education are needed. Likewise, the present study has not controlled the possible effect exerted by determined co-variables such as gender, age or socio-economic status of those students who took part in this research. In this sense, future works should address these limitations in its respective statistical analyses in order to draw firmer conclusions about the influence of Sport Education on these student's psychological variables. This research has exclusively been carried out in high secondary school education, therefore, other studies that inquiry the impact of Sport Education on basic psychological need satisfaction in primary or middle secondary school education were required.

CONCLUSION

To conclude, sport-based PE experiences using Sport Education may facilitate a higher level of basic psychological need satisfaction in high school students during their sport teaching-learning process in PE. Whereas the traditional teaching has not showed to influence on this psychological variable. Therefore, it is raised the suggestion of the use of Sport Education for the teaching of curricular contents related to sport in PE class, due to that the satisfaction of the three basic psychological needs benefits the development of student self-determined motivation and well-being during his/ her teaching-learning process in the PE context according to Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand & Lalande, 2011). This may lead to regular practice of physical activity and sport in leisure (Wallhead, Garn, & Vidoni, 2013; Wallhead, Hagger, & Smith, 2010) and, thus, to help achieve determined goals of the PE subject. For this end, PE teachers could use the features of Sport Education as a structural template in providing support for each one the three basic psychological needs. In this same vein, it is

proposed that PE teachers should pay especial attention to the compliance of the rules that foster the equality of the members of the team as contemplates Siedentop (1994, 2002) for Sport Education (e.g. same time of active participation for all members of the teams in competitions). This would avoid that autonomy, competence and relatedness need satisfaction of certain students was limited by the action of other members of his/her team with higher social status.

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