ORIGINAL

SPORT EDUCATION MODEL VERSUS TRADITIONAL MODEL: EFFECTS ON MOTIVATION AND SPORTSMANSHIP

MODELO DE EDUCACIÓN DEPORTIVA VERSUS MODELO TRADICIONAL: EFECTOS EN LA MOTIVACIÓN Y DEPORTIVIDAD

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ABSTRACT

The goal of the present project was to compare the effects of three different instructional models: (Traditional, Sport Education and Sport Education with Self-Made Materials) on physical education students' motivation and sportsmanship. A quasi-experimental design with three levels of treatment was used. Pre-test and posttest scores on achievement goals, friendship, psychological needs and sportsmanship were obtained after the implementation of a learning unit of Ultimate-Frisbee in a school in the northern part of Spain. A total of 295 secondary school students, ages 12-17, agreed to participate. Results showed significant increases in performance-avoidance goals, friendship goals, basic psychological needs and sportsmanship in both Sport Education groups. Sport Education seems to offer more advantages than a traditional teaching method to develop adolescents achievement and social goals, as well as sportsmanship, in physical education.

KEY WORDS: Motivation, Sportsmanship, Secondary Education, Approach-Avoidance, Self-made material, Values

RESUMEN

El objetivo de este trabajo fue comparar los efectos que provocan los modelos de enseñanza Tradicional y de Educación Deportiva en la motivación y deportividad del alumnado de educación física, incluyendo también un tercer nivel de tratamiento, variante del modelo de Educación Deportiva, en el que se empleó material autoconstruido. Se realizó un diseño cuasi-experimental con tres niveles de tratamiento y medidas pretest y postest de cuatro variables dependientes: metas de logro, metas de amistad, necesidades psicológicas básicas y la deportividad durante la enseñanza del *ultimate*. Accedieron a participar un total de 295 estudiantes de secundaria y bachillerato cuyas edades oscilaban entre los 12-17 años. Los resultados indicaron mejoras significativas en las metas de evitación del rendimiento, metas de amistad, necesidades psicológicas básicas y subescalas de deportividad en ambos grupos de Educación Deportiva.

PALABRAS CLAVES: Motivación, Deportividad, Enseñanza Secundaria, Aproximación-Evitación, Material autoconstruido, Valores

INTRODUCTION

One of the instructional models used in physical education settings, that it is receiving greater attention by researchers is Sport Education (SE). It was designed and developed by Siedentop and his colleagues (Siedentop, 1994; Siedentop, Hastie y van der Mars, 2004). Basically, SE holds six structural elements of institutionalized/adult sport that Siedentop adapted for educational contexts: seasons, affiliation, formal competition, record keeping, festivity and culminating event. Regarding seasons, the learning unit should represent a true season and last longer than traditional sport units. The reason is that students need time to learn multiple contents (skill, tactics, rules...) and experience the different roles that sport holds (15-20 lessons). To promote affiliation, students belong to small teams that last the whole season, which allows for multiple opportunities for social development. From the beginning of the unit, competition is intercalated among the different learning activities (exercises and modified games). Due to this, learning tasks are more relevant because they help students prepare the coming competition. Record keeping of students' performance during games (assists, steals, points...) motivates them, allows for feedback, assessment o build standards. The use of different roles besides player, such as observer, allows students to gather data and perform complex tasks such as shared assessment. The season should be festive. The goal is to celebrate the students' success. Finally, a culminating event (a mini-Olympiad) is highly recommended to end the unit and acknowledge students' achievements.

The Achievement Goal Theory (AGT) is a solid theoretical framework to explain and predict behaviours in the academic domain, as well as in physical activity contexts. Achievement goals refer to how individuals define competence or incompetence in an achievement setting. Originally, the AGT was designed as a dichotomous model and focused on how individuals define competence when they face a task (Dweck, 1986; Nicholls, 1989). Individuals that define competence as a self-referenced skill have task (mastery) goals, while those who define competence from a normative perspective have performance goals. Researchers believe that mastery goals are associated to adaptive motivational features, while performance goals are linked to maladaptive motivational facets (Dweck, 1986; Nicholls, 1989).

Elliot and McGregor (2001) modified the initial model incorporating avoidance goals and developing the 2x2 achievement goals framework. Individuals not only approach goals. Sometimes, they also try not to do things worse than others (mastery-avoidance) or they try not to be outperformed by others (performance-avoidance). Therefore, the resulting four types of achievement goals of this framework are: mastery-approach, mastery-avoidance, performance-approach and performance-avoidance. Guan, Xiang, McBride and Bruene (2006) examined this structure in physical education settings and they found that mastery-approach, mastery-avoidance and performance-approach were positive predictors of effort and persistence. Performance-avoidance goals

were negative predictors of effort and persistence, supporting the idea that this type of goals is maladaptive in physical and academic domains.

Recently, profiles have been incorporated into the 2x2 framework, providing a more holistic view of motivation and it is starting to show how these four goals interact. Wang, Biddle and Elliot (2007) identified four clusters in a sample of secondary education students labelled: "high achievement goals", "moderate achievement goals", "Low achievement goals" and "mastery goals". The first group (high achievement) included students with high scores in all four achievement goals (2x2), and they showed the most adaptive results (despite the fact that they had high avoidance scores), including effort and higher self-referenced physical activity. However, as predicted by Garn and Sun (2009), the ideal group (high scores on mastery and performance approach goals, and low scores on mastery and performance avoidance goals) was not found.

In recent times, the approach-avoidance framework has also been incorporated into the social motivation context and, more precisely, into the friendship motivation perspective (Elliot, Gable y Mapes, 2006). Friendship-approach goals are characterized by the effort of individuals to achieve social competence, while friendship-avoidance goals are characterized by the effort of individuals to avoid social incompetence. Elliot et al. (2006) informed that friendship-approach goals can be predicted by the hope of affiliation of individuals and they produce adaptive results with higher subjective well-being and satisfaction. However, approach-friendship goals are supported by individuals' fear to rejection and causes deeper feelings of loneliness. Elliot et al. (2006) highlighted the need to assess achievement and social domains altogether to better understand adolescents' motivation. The cross-fertilization of these two domains seems to be crucial to energize adolescents' behaviours. Adolescence is a period of life when friendship plays an important role in each individual's personal development.

A second framework used to study motivation is the Self-Determination Theory (SDT), which considers that motivation influences the fulfilment of three basic psychological needs (autonomy, competence and relatedness). This theory proposes that individuals show stronger intrinsic motivation (i.e. they participate because of they enjoy the activity), if they believe that they can take decisions, they are efficient and they establish a good relationship with their peers. If individuals do not fulfil these needs, they tend to be extrinsically motivated (the activity is not intrinsically valued) or amotivated. Wallhead and Ntoumanis (2004) showed a significant increase on enjoyment and effort in a group of students who experienced SE compared to a group that experienced traditional instructional methods. They also believe that SE promotes task learning climates and students' autonomy that reinforce secondary education students' intrinsic motivation. Perlman and Goc Karp (2010) also suggested that the structural elements of SE facilitate self-determined conducts because they promote relationship, competence and autonomy. Spittle and Byrne (2009) found that SE was able to maintain higher levels of intrinsic motivation, task orientation and mastery climate in secondary education students than a

traditional instructional approach. In another study, Perlman (2010) found that amotivated students which participated in a SE season showed significantly higher levels of enjoyment and relatedness than their peers that experienced a traditional teaching approach.

Research on SE has also showed an increase in socialization and cooperation among students (Grant, 1992; Hastie and Sharpe, 1999). However, the competitive aspect of SE can lead to certain negative social behaviour among students. Parker and Curtner-Smith (2012) found sexist and biased behaviours among participants in a SE experience. They warned that SE could reinforce, unconsciously, traditional hegemonic masculinity. Teachers' inexperience could have produced this effect.

To promote pro-social behaviours, Ennis (2000) and Hastie and Buchanan (2000) suggested the hybridization of SE and Hellison's Personal and Social Responsibility model (1995). Brock and Hastie (2007) indicated that 6th grade students' conceptions on fair play changed as the season progressed. Initially, they identified it with being nice to other teams and do not argue with the referees. They also thought that all team members should play the same amount of time. At the end of the experience, participants justified that high skilled team members should play more time, especially in certain playing positions (Goalie) or in closed matches. Authors concluded that it is very important to put emphasis on the model's essence to change students' perceptions that success equals winning. Vidoni and Ward (2009) showed that a specific intervention called *instruction on fair play* helped increase students' active participation and decrease passive time. Authors also reported a significant decrease in harmful behaviours after the intervention.

Stuntz and Weiss (2003) found that, in certain contexts, social goal orientations (friendship or peer acceptance) can influence fair play more than task or performance achievement goals. Students with a high performance goal orientation scored higher in the intention of using unsportsmanlike behaviours in different contexts. A high task goal orientation was linked with a lower intention of using unsportsmanlike behaviours. Adolescents who defined success using the highest task-ego-social and friendship orientations and the lowest performance orientations showed the most adaptive responses (higher competence, enjoyment and intrinsic motivation). Fernández-Río, Méndez-Giménez, Cecchini and González (2012) found that performance goals are positively linked to hard play and victory, while mastery approach and avoidance goals are positively linked to diversion.

Finally, several research works promote the use of recycled materials as valued tools to develop physical education goals (Moss, 2004). They trust the pedagogical potential that drives from engaging the students in the transformation of their own resources that later are going to use in class. Advantages such as increased active participating time, developmentally appropriate resources, lower economic costs, higher respect for the resources, multidisciplinarity or creativity are highlighted. However, research-based

evidence on the effects of self-made materials is still scarce. Méndez-Giménez, Fernández-Río and Méndez-Alonso (2010) found high levels of interest, enjoyment and motivation among secondary students after experiencing self-made materials in a unit of SE. Its use was considered fun, attractive and motivating by younger (7th grade) than older students (10th grade). There is no evidence of the effects of self-made materials in social skills or values such as fair play. We hypothesize that building and sharing materials in class can promote two of the dimensions of responsibility: personal effort and relatedness. Self-made materials can supplement SE maximizing social goals and fair play.

GOALS

The main goal of this research work was to assess how three instructional approaches: Traditional (TRAD), SE (SE-MC), and SE with self-made materials (SE-MA) affect achievement and social goals (approach-avoidance), basic psychological needs and fair play in an Ultimate-Frisbee learning unit in physical education. No study has used cross-fertilization to understand the effects of these instructional models. Our hypothesis is that both SE treatments will be more effective developing friendship goals, basic psychological needs and fair play compared to a traditional method of instruction. Furthermore, the use of self-made materials could supplement SE stimulating friendship goals and respect for opponents.

METHOD

Participants

The school where the participating teachers worked was selected for this project. Both had enough experience and training. 295 students from a school in northern Spain participated: 159 males (53.9%) and 136 females (46.1%). They belonged to different class groups from 7th to 11th grade: 66 in 7th, 69 in 8th, 65 in 9th, 58 in 10th, and 37 in 11th. Age range was 12-17 years (M= 14.2 years, SD= 1.68). All grade levels had three class groups. In each level, one group has randomly assigned to one type of treatment for a total of: TRAD: N=110, SE-MC: N=107, and SE-MA: N=78.

Instruments

Achievement goals. The 2×2 Achievement Goal Scale (*2x2 AGS-PE*; Elliot and McGregor, 2001) was adapted by Guan et al. (2006) to PE settings. It was validated for Spanish contexts by Moreno, González-Cutre y Sicilia (2008). This scale contains the four achievement goals: mastery approach (e.g., "I want to learn as much as I can…" , performance approach (e.g., "It is important for me to outperform others", performance avoidance (e.g., I try not to perform worse than others", and mastery avoidance (e.g., "I worry not to learn as much as I can"). Each goal includes three items.

Friendsgip goals. The *Friendship Goals Questionnaire–Physical Education* (FGQ-PE; Garn and Sun, 2009) was validated for Spanish contexts by Méndez-Giménez, Fernández-Río and Cecchini (2014). This scale has 8 items grouped in two factors: friendship-approach (e.g., "In PE classes I try to deepen relationships with my friends") and friendship-avoidance goals (e.g., "In PE classes, I try to avoid disagreements and conflicts with my friends".). Cronbach alphas were .86 and .80 for each subscale, respectively, showing acceptable internal consistency.

Basic Psychological Needs. The Spanish version of the Basic Psychological Needs in Exercise Scale (BPNES) validated by Moreno, González-Cutre, Chillón and Parra was used. It includes twelve items grouped in three subscales (four items each) to assess Autonomy (e.g., "The way I exercise is in agreement with my choices and interest"), Competence (e.g., "I feel I perform successfully the activities of my exercise program") and Relatedness (e.g., "My relationships with the people I exercise with are close"). The header sentence was "In my physical education classes…"

Fair play. The Spanish version of the *Multidimensional Sportspersonship Orientations Scale (MSOS;* Vallerand, Brière, Blanchard y Provencher, 1997) was used. It was validated for Spanish contexts by Martín-Albo, Núñez, Izquierdo and González (2006). It includes 25 items in 5 subscales of fair play (five items each one). Subscales Compromise and negative approach were not used.

All items were answered using a 5-point likert scale from 1 (strongly disagree) to 5 (strongly agree).

Procedure

Permission from the Ethics Committee of the researchers' University of Oviedo, the participating school and the parents was obtained. Participants anonymously completed pre-test and post-test questionnaires in two 30-minute sessions prior and after the completion of the intervention program. To minimize the tendency of students to provide socially desirable answers, researchers encouraged students to answer truthfully. They also guaranteed students that their answers would not affect their grades.

Two qualified physical education specialist teachers, both with more than 10 years of teaching experience, taught all the lessons of three instructional approaches. One was randomly assigned to teach 1º-2º ESO (grades 8-9) and the other one 3º ESO-1º Bachillerato (grades 10-11-12). Prior to the intervention, they attended a 10-hour course where the basic elements of all instructional approaches were reviewed. The design of all the sessions of the intervention program was also analyzed. Additionally, the two main researchers met weekly with the participant teachers to monitor the process. The whole research process followed a cuasiexperimental design. Treatment groups were

randomly assigned in each level. The intervention program lasted the same in all groups: 12 sessions of 50 minutes each.

Traditional Model. It was put into practice following the teaching format: skill-task-game. Every lesson was divided in three parts: warm-up, skills' task practice and final game. Teachers provided feedback to the students to help them improve their skills and tactics. Teachers tried to make the class appealing to the students motivating them. Games reflected the traditional setting of the sport (5 x 5) and teams were changed after every class. Several tasks included modified games to work on skills. Teachers acted as referees during all games.

Sport Education with conventional resources. It included the 6 structural elements of the model. To foster affiliation, heterogeneous groups of 4-5 players were formed at the beginning of the unit and they were never modified. Formal competition was promoted through a calendar of games which took place along the whole unit. Record keeping was done during the games using observation sheets of the main technical-tactical skills. Each team selected a colour, identity marks (flag, cap...), initial salutation... Therefore, festivity was encouraged. During the "competitive" season, strategies to foster fair play were implemented, such as students playing different roles: referee, coach, manager..., individual and group reflections about respecting the rules, co-assessment activities, or extra points for sportsmanlike behaviours. A culminating event, where every team played against each other, was also organized. Regular Frisbees (weight: 165 grams) were used during the unit.

Sport Education with self-made materials. The only difference between this approach and the previous one was the use of self-made flying rings shared by all students instead of traditional Frisbees. One week prior to the beginning of the intervention program, all students receive a 20-minute seminar and an information sheet with instructions on how to build a flying ring using cardboard, plastic with bubbles and masking tape. Some already built rings were showed to the students as examples. In each session, team captains selected the rings built by their team to be used in the tasks and the competition.

Preliminary data analysis

All data was analyzed using SPSS 19.0 (IBM, Chicago, IL). Exploratory analyses were conducted to establish whether data met parametric assumptions. The Kolmogorov–Smirnov test showed that most dependent variables were not normally distributed in any of the study groups of all the courses/levels included in this project (*Sig.* < .05). Therefore, from this point, non-parametric tests were used to analyze gathered data. Table 1 shows Cronbach's alphas of all subscales used as dependent variables. All results were above .70, which is considered acceptable.

Table 1. Cronbach alphas of all dependent variables in pre-test and post-test

Questionnaire	Subscale	Alfa Pre-test	Alfa Post-test
AGQ-PE	Mastery-Approach	.79	.73
	Mastery-Avoidance	.80	.79
	Performance-Approach	.84	.81
	Performance-Avoidance	.71	.73
FGQ	Friendship-Approach	.87	.86
	Friendship-Avoidance	.83	.79
BPNES	Autonomy	.78	.76
	Competence	.78	.74
	Relatedness	.83	.79
MSOS	Social conventions	.89	.85
	Rules and officials	.83	.78
	Opponent	.79	.77

RESULTS

Table 2 shows pre-test and post-test descriptive statistics on each of the treatment levels. First, initial homogeneity among treatment groups was assessed using the Kruskal-Wallis test on the dependent variables in the pre-test. No significant differences were found among treatment groups on any of the subscales used (p>.05), which confirms initial homogeneity among groups prior to the implementation the intervention program.

Second, comparisons intra-groups across time were performed through the Wilcoxon Rank test in the subscales goal achievement, friendship goals, basic needs and fair play. Table 3 shows the sum of ranks of the subscales where significant differences were found (p<.05).

Third, to study the differences among treatment groups at the end of the intervention program, the Kruskal-Wallis test was used on all the post-test results. No significant differences were found in any of the achievement goal subscales. However, significant differences were found in the Friendship-avoidance subscale (*Chi-square*=9.07, *df*= 2, Asint. *Sig.* =.011). The Mann-Whitney U test was used to determine those differences between treatments: Traditional and SE-MA (*U*= 3067.5, *Z*= -3.002, *Asint. Sig.* =.003). The Sum of Ranks was larger in the SE-MA group.

Table 2. Descriptive statistics of dependent variables in pre-test-post-test

	Subscale	Pre-test		Post-test		Treatment	Pre-test		Post-test	
		M	*SD*	*M*	*SD*		*M*	*SD*	*M*	*SD*
AGQ-PE	Mastery-Approach	4.24	.74	4.35	.63	Traditional	4.21	.71	4.31	.58
						SE-MC	4.22	.73	4.34	.66
						SE-MA	4.33	.81	4.44	.67
	Mastery-Avoidance	3.36	1.03	3.50	.99	Traditional	3.24	1.04	3.40	1.01
						SE-MC	3.49	.94	3.62	.91
						SE-MA	3.35	1.14	3.48	1.06
	Performance-Approach	3.13	1.07	3.26	.98	Traditional	3.04	1.00	3.24	.93
						SE-MC	3.20	1.10	3.21	.99
						SE-MA	3.18	1.13	3.38	1.05
	Performance-Avoidance	2.96	1.02	3.14	.99	Traditional	2.99	.93	3.09	.98
						SE-MC	2.99*	1.05	3.18*	1.09
						SE-MA	2.87*	1.09	3.15*	.86
FGQ	Friendship-Approach	3.91	.83	4.14	.72	Traditional	3.92*	.78	4.17*	.69
						SE-MC	3.87**	.82	4.06**	.75
						SE-MA	3.94*	.91	4.22*	.72
	Friendship-Avoidance	4.27	.72	4.41	.58	Traditional	4.20	.69	4.30	.61
						SE-MC	4.32*	.71	4.44*	.58
						SE-MA	4.29*	.77	4.55*	.49
BPNES	Autonomy	3.20	.90	3.49	.80	Traditional	3.29*	.88	3.55*	.79
						SE-MC	3.13**	.80	3.34**	.75
						SE-MA	3.19**	1.1	3.62**	.85
	Competence	3.77	.81	3.92	.70	Traditional	3.85	.68	3.94	.65
						SE-MC	3.74*	.77	3.88*	.69
						SE-MA	3.69*	1.02	3.97*	.79
	Relatedness	3.99	85	4.15	.68	Traditional	4.06	.77	4.18	.67
						SE-MC	4.02*	.78	4.16*	.66
						SE-MA	3.86*	1.04	4.13*	.72
MSOS	Social conventions	3.85	.98	3.99	.82	Traditional	3.88	1.01	3.95	.90
						SE-MC	3.80*	1.00	3.93*	.87
						SE-MA	3.88*	.89	4.16*	.59
	Rules and officials	3.60	.88	3.86	.71	Traditional	3.52*	.97	3.72*	.81
						SE-MC	3.66**	.79	3.90**	.65
						SE-MA	3.65*	.86	4.01*	.62
	Opponent	3.36	.90	3.56	.83	Traditional	3.33	.92	3.44	.91
						SE-MC	3.32**	.96	3.52**	.78
						SE-MA	3.47*	.78	3.80*	.74

Note: significance level in pre-test-post-test differences (*p <.05, **p <.001)

Regarding the basic psychological needs, significant differences were found in the subscale Autonomy (*Chi-square*=8.59, *df*= 2, *Asint. Sig.*= .014). The Mann-Whitney U test was used to determine those differences between treatments: SE-MC and SE-MA (*U*=3085.5, *Z*= -2.58, *Asint. Sig.*= .01). The Sum of Ranks was larger in the SE-MA group.

Finally, regarding fair play, significant differences were found in the subscale Opponent (*Chi-square*= 6.73, *df*= 2, *Asint. Sig.*= .035). The Mann-Whitney U test was used to determine those differences between treatments: Traditional and SE-MA (*U*= 3301, *Z*= -2.31, *Asint. Sig.*= .021), and between SE-MC and

SE-MA (*U*= 3119.5, *Z*= -2.28, *Asint. Sig.* = .022). The Sum of Ranks was larger in the SE-MA group.

Table 3. Ranks of all subscales where significant differences were found using Wilcoxon test (*p*<.05).

Treatment	Subscale	Sum of Negative Ranks	Sum of Positive Ranks	Asymptotic Bilateral Signification	Z
Traditional	Friendship-Approach	1259.00	2836.00	.001	-3.193
	Rules and Referees	1371.50	2544.50	.014	-2.448
	Autonomy	1288.00	2807.00	.002	-3.070
SE-MC	Performance-Avoidance	504.00	1149.00	.010	-2.593
	Friendship-Approach	391.50	1261.50	.000	-3.493
	Friendship-Avoidance	379.50	845.50	.019	-2.350
	Social conventions	648.50	1242.50	.032	-2.150
	Rules and officials	669.50	2031.50	.000	-3.767
	Opponent	368.50	1342.50	.000	-3.789
	Autonomy	442.50	1387.50	.000	-3.502
	Competence	389.50	1095.50	.002	-3.082
	Relatedness	752.50	1458.50	.023	-2.277
SE-MA	Performance-Avoidance	550.00	1161.00	.017	-2.379
	Friendship-Approach	391.00	935.00	.010	-2.563
	Friendship-Avoidance	252.50	875.50	.001	-3.329
	Social conventions	463.50	1021.50	.016	-2.410
	Rules and officials	492.00	1461.00	.001	-3.408
	Opponent	541.50	1349.50	.004	-2.913
	Autonomy	276.00	1050.00	.000	-3.644
	Competence	372.50	953.50	.006	-2.750
	Relatedness	366.00	762.00	.035	-2.110

DISCUSION AND CONCLUSIONS

Results showed that mastery-approach and friendship-avoidance goals obtained the highest scores (congruent with Garn and Sun, 2009), while both performance goals obtained the lowest scores in this group of students. Friendship-avoidance high scores suggest that the fear to be rejected is very relevant for adolescents' motivation in physical education settings. Regarding achievement goal profiles, results from Wang et al. (2007) and Méndez-Giménez, Fernández-Río, Cecchini and González (2013) support the idea that high mastery scores are related to more adaptive behaviours (cluster "high mastery goals") such as effort, enjoyment and future intentions of practicing physical activity. Furthermore, when performance goals are linked to high mastery goals (cluster "high achievement goals") causes similar or stronger effects on adolescents. However, the groups "low achievement goals" and achievement goals moderately high were less adaptive with low scores on effort and future intentions of practicing physical activity, and high scores on amotivation and boredom. In our study, participants showed higher levels of achievement goals. Medium-high scores on mastery-approach, mastery-avoidance and performance-approach and medium level scores on performance-avoidance suggest that this group of adolescents are close to the "high achievement goals" profile.

The improvements in performance-avoidance goals of both SE groups could lead to believe that this instructional model negatively affects students and produce maladaptive outcomes. However, if we discuss these results from the goal profiles we could say that these improvements in performance-avoidance goals are leading these adolescents towards a "high achievement goal" profile, which previous studies have showed to be more adaptive. Social goals' results can give some "light" to our findings. Garn and Sun (2009) found an interaction between 2x2 achievement goal and approach and avoidance friendship goals in physical education settings. Our results showed that all interventions were able to increase friendship-approach goals. However, only both SE programs were able to increase friendship-avoidance goals. Cecchini, González, Méndez-Giménez and Fernández-Río (2011) found a positive link between performance-avoidance goals and relationship goals. In our study, both SE groups showed significant increases in approach-avoidance goals and both friendship goals (approach and avoidance). These results show that approach goals lead to positive results, whereas avoidance goals lead to negative results. However, Garn and Sun (2009) concluded that adopting high achievement and social goals can lead to positive results. In this study, the group named "high goals" (high Z scores in all motivational subscales) reported stronger efforts to prepare a conditioning test. In our intervention program, several features of the SE treatment could have activated the friendship-avoidance goals, including fear to be rejected in a team while performing one of the roles or trying to avoid disagreements and conflicts with friends to obtain more points for the team. Teams had the possibility to score more points during the season if the teacher believed that the members have showed fair play, teamwork, autonomy, played the role of referee or assessed their classmates correctly. This strategy could

have influenced the students' self-control to avoid conflicts and benefit the team. Moreover, in the SE-MA group, taking care of other students' self-made material to avoid conflicts because of its use and possible wear could have promoted friendship-avoidance goals. Significant post-test differences in friendship-avoidance goals between SE-MA and Traditional groups suggest that students in the first group were willing to try harder to keep their friends, which could have effects on their learning and school performance.

Congruent with the Perlman and Goc Karp (2010) study, both SE groups reported improvements in autonomy, competence and relatedness, while students in the Traditional group improved only in autonomy. According to SDT, those subjects whose needs were satisfied will show higher intrinsic motivation, and, consequently, they will show more adaptive attitudes such as effort, future intentions of practicing physical activity and enjoyment. Students in the SE-MA scored significantly higher than students in the SE-MC in autonomy. Self-constructing materials forces each individual to take decisions regarding weight, shape or colour of the object to be created, which could stimulate decision-making in class while students interact and use those objects. Teachers in these groups reported a broader range of throwing and catching skills with the self-made flying rings in games.

Regarding fair play, significant improvement were also found in those groups that experienced SE. The Traditional group only improved significantly the subscale Rules and Referees, while the SE groups also improved the Social Convention and Opponent subscales. Comparing post-test results among groups, the SE-MA were significantly better. In order to foster fair play in school sport, Valiente et al. (2001) believe that respect for one-self, the others, the adults and the rules should be promoted, but also the respect for the materials and resources, because its preservation will allow its use for a longer period of time. In our study, the SE-MA group showed higher scores on issues such as respect for others (including opponents). The construction and sharing of materials could have promoted that effect increasing students' emotional response to others, sharing their equipment or helping other students in a task.

Finally, adolescents with a motivational profile high on performance-approach and avoidance goals and low in mastery goals are linked to hard play and victory as the only goals (Fernandez-Rio et al., 2012). However, there is no information on how individuals with a motivational profile high on mastery goals and moderately high on performance goals relate to fair play.

In conclusion, the SE model has been proven more efficient that a Traditional teaching approach to develop the best valenced achievement goals and social goals, to fulfil students' basic psychological needs and to promote fair play. The construction and shared-use of self-made materials seems to enhance the SE model effects on social goals avoiding conflicts. Those processes seem to help students value more their resources and others' resources, respecting them.

One limitation of this study is its cuasiexperimental design. Class-groups previously created were used, because it is very difficult to randomly distribute students in a school setting. Future investigation should try to assess students' achievement and social motivational profiles while experiencing the SE and its hybridizations with other instructional models.

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