

Article

From Students' Personal and Social Responsibility to Autonomy in Physical Education Classes

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Received: 7 November 2019; Accepted: 20 November 2019; Published: 22 November 2019



Abstract: The objective of this study was to analyze the effect that the application of the personal and social responsibility model has on students' perception of a teacher's interpersonal style and on the perception of autonomy. A quasi-experimental design was used with a control group (n = 60) and an experimental group (n = 60) to which the intervention was applied. Participants were aged between 10 and 13 years. As the main results, the experimental group saw improvements in support for the autonomous interpersonal style, in the need for autonomy satisfaction and also in the perception of personal and social responsibility. Perception of the controlling style decreased. In conclusion, the use of this type of program in educational centers is recommended for its benefits with regard to students' autonomy and personal and social responsibility.

Keywords: teaching development; pedagogy; education; learning

1. Introduction

Currently, the curriculums for primary and secondary school can take into account different instructional programmes that pursue the development of young people in school and education in values. Among these is Hellison's [1,2] Personal and Social Responsibility Model (TPSR), the main objective of which is the development of values such as respect, participation and effort, helping others and autonomy in young people.

While it is true that this was a program created for application within a context of social exclusion [3,4], in recent years there has been an increase in the number of studies in which the model is applied in schools, specifically in physical education classes [5,6]. The TPSR has shown to have good results in fair play and self-control [7], self-efficacy [8], quality of life [9], personal and social responsibility [10], autonomy [11], adherence to physical activity [12], perceptions of their basic psychological needs, motivation in physical education, athleticism and active lifestyle [13], self-efficacy, sport passion, responsibility and game performance [14].

The theory of self-determination (SDT) is known as a motivational theory related to the development of personality in social contexts [15]. It focuses on the degree to which human behaviors are self-determined [16]. SDT focuses on analyzing the origin of motivation and its consequences at the cognitive, behavioral and affective levels [17].

Moreover, as Vallerand's [17] model of motivation indicates, the impact of social factors (interpersonal style) is mediated by basic psychological needs, these being fundamental factors for the satisfaction of the need for autonomy, which is core as it reflects an inherent desire of individuals to be causal agents of their own behaviors [16,18]. Nowadays, the competence of autonomy is one of

the main objectives of education systems [19], which can entail greater intrinsic motivation and, in turn, greater adherence to physical activity, for example. Along these lines, Ntoumanis and Standage [20] point out that a teachers' autonomy support climate positively predicts students' basic psychological needs. Other studies [21,22] show that teachers' autonomy support leads to higher perceived autonomy in students. Support of autonomy refers to those aspects that allow students develop resources to improve aspects such as internal motivation or satisfaction of their personal goals [23].

In the educational context, one of the social factors playing a fundamental role in students' motivation is the interpersonal style that teachers use when giving instructions to their students [24].

The style adopted by the teacher may range from one extreme where extrinsic incentives are frequent (controlling style) to another where the student has a prominent role (support for autonomy), and participates in decision-making, thus acquiring greater responsibility [25]. In this way, Reeve [26] describes the autonomy supporting style as a coherent way to teach according to the behaviors and feelings of students, developing an appropriate learning climate that will promote self-determined motivation [27].

Teachers can improve the intrinsic motivation of their students using an autonomy-supportive teaching style in order to satisfy students' need for autonomy. This autonomy is positively related to a learning outcome like academic achievement [28]. Recently, Zhang, Bobis, Wu and Cui [29] concluded in their work that increased student exposure to autonomy-supportive teaching approaches has been linked to enhanced students' perceptions of their learning environment over time in terms of autonomy and satisfaction of autonomy needs. Experimental studies conducted by Edmunds, Ntoumanis and Duda [30] and Cheon, Reeve and Moon [31] found that physical education teachers who were trained in autonomy support were able to use more autonomy-supportive strategies. They had in their studies better results in terms of quality learning, satisfaction of basic psychological needs and motivation.

In fact, one of the main social demands for education is the promotion of students' autonomy and self-sufficiency [32,33], and the improvement of the learning environment [34] by reducing dependence on the teacher and increasing cooperative work with peers [35].

TPSR has as one of its main objectives the development of students' autonomy [36], and regulates their conduct by rules that arise from the students themselves; thus, teaching them to be independent and assume their own responsibility [37]. In this sense, physical education is a highly favorable field of action to foster personal and social responsibility as it is an ideal means to promote interpersonal relationships [38]. Existing studies show that students with greater personal and social responsibility are more active [39]. However, no studies on the TPSR and the interpersonal style have been found to date.

On the other hand, there are a few studies where the TPSR is related to student autonomy [40]. A series of studies have looked at the relationship between TPSR and autonomy [11,41–43], but there is still a lack of evidence to show its relationship with teachers' interpersonal style; only the study of Alcalá, Río, Calvo and Pueyo [44] found an increase in autonomy support perceived by the students.

The novelty of the present study is to look at the interaction between the interpersonal style and the personal and social responsibility model. Therefore, the main objective was to analyze the effect that the application of TPSR would have on the perception of teachers' interpersonal style and on the satisfaction of the need for autonomy. After the intervention, participants in the experimental group were expected to improve their perception of the autonomy supporting interpersonal style, decrease their perception of the controlling style and increase their autonomy satisfaction.

2. Materials and Methods

2.1. Participants

The study involved 120 primary school students in physical education classes from two different schools of a Spanish region. Participating schools had similar age and middle-level socio-demographic profiles, and they were selected based on accessibility and convenience. Students were enrolled in six

different classes: Two classes of Year 6 and four classes of Year 7 in primary education. The classes of each school (one of Year 6 and two Year 7) were assigned to an experimental group (60 students in the experimental group, 26 boys and 34 girls, aged between 10 and 13 years, $M = 11.00$, $SD = 0.74$) and to a control group (32 boys and 28 girls, $M = 12.00$, $SD = 0.55$). The goal was to conduct the study in intact classes. Inclusion criteria for participation in the study were: (a) Regular attendance at the physical education classes ($\geq 90\%$) and (b) completion of all the questionnaires. None of the participating students had any previous experience with TPSR.

Two male teachers (29 and 36 years old), permanent staff members of the participating schools with more than six years of teaching experience, also agreed to participate. None of the participating teachers have had any previous experience with TPSR. They all were knowledgeable and used direct instruction regularly in their physical education classes. Teachers were assigned to the experimental group and control group based on their interests.

2.2. Measurements

Autonomy support. The autonomy support scale developed by Moreno-Murcia, Huéscar, Andrés and Sánchez-Latorre [45] was employed in this study to examine autonomy support. The questionnaire includes eleven items that students have to respond to about teachers' autonomy support interpersonal style in physical education classes (e.g., "With your explanations, you help us understand what the activities we do are for"). Responses were collected on a Likert-type scale with four answer options ranging from (1) certainly not to (4) definitely yes, which reached 0.65 pre- and 0.77 post-internal consistency.

Controlling style. The controlling style scale developed by Moreno-Murcia et al. [45] was employed to examine controlling style. The questionnaire includes nine items that students have to answer about teachers' controlling style in physical education classes (e.g., "Speaks continuously and does not allow us to make contributions in class"). Answers were given on a Likert-type scale with four answer options ranging from (1) certainly not to (4) definitely yes, which reached 0.80 pre- and 0.83 post-internal consistency.

Autonomy. To verify the degree of satisfaction with the perception of autonomy we used the autonomous dimension of the psychological need satisfaction in exercise scale (PNSE) by Wilson, Rogers, Rodgers and Wild [46] adapted and validated to the Spanish context by Moreno-Murcia, Marzo, Martínez and Conte [47]. The factor is composed of six items (e.g., "I think I can make decisions about my exercise program"). The responses were collected on a Likert-type scale with six options ranging from (1) false to (6) true, with values reaching 0.66 pre-test internal consistency and 0.71 post-test.

Personal and social responsibility. The Spanish translation developed by Escartí, Pascual and Gutiérrez [48] of the personal and social responsibility questionnaire by Li, Wright, Rukavina and Pickering [49] was employed to examine personal and social responsibility. The questionnaire is made up of two factors of seven items each: Personal responsibility (e.g., "I want to improve"), and social responsibility (e.g., "Respect for others"). It was answered through a Likert-type scale with six response options, ranging from (1) totally agree to (6) totally disagree. The pre- and post-test internal consistency coefficients for social responsibility were 0.70 and 0.71, respectively, and 0.69 and 0.71 in the case of personal responsibility.

2.3. Procedure

A quasi-experimental quantitative study was carried out with a control group [50]; it can also be regarded as a comparative study in that it analyzes the differences that occur in the autonomy support interpersonal style, in autonomy perception and in personal responsibility depending on the teaching methodology [51].

An intervention program was conducted on one of the schools for eight weeks (16 classes of 55 min) during the second quarter of the academic calendar. The contents to be worked on in the two groups

were those established in the physical education syllabus for the course in question. The experimental group experienced TPSR, while the control group experienced a direct instruction approach.

Prior to the intervention, the headmaster of each centre was informed of the study's purpose and procedures, and asked for his consent. The head of the physical education department and the teacher involved in each school were also informed. At the same time, a meeting was held with the parents of the students participating in the study to keep them informed about the research and to obtain informed consent from them and their children. The ethics committee from Universidad of Murcia issued a favorable report on the research (ID 1233/2016) (see Supplementary Materials).

The instruments applied at the beginning and after the intervention study were the same for both groups. They were completed in a quiet environment in the presence of the physical education teacher and the principal researcher with the aim of resolving any potential doubts. The anonymity of the responses was guaranteed at all times. The average completion time did not exceed 25 min, and there were no doubts raised with regard to comprehension of the questionnaires.

2.3.1. TPSR Intervention Program

A teacher with no previous experience was trained in TPSR (which consisted of two three-hour seminars given by two researchers who had more than four years of experience on this pedagogical model, plus one month of continuous training development) and applied this methodology in his school. The study consisted of the implementation of Hellison's [2] TPSR in the experimental group in physical education classes. This model focuses on providing adolescents with successful experiences that help develop their personal and social skills, both in sport and in life. Its implementation is based on the progressive and cumulative presentation of five levels: Respect for others, participation and effort, personal autonomy, help and leadership and transfer outside the gym. Each session format followed Hellison's [2] five-part proposal: (a) Relational time: The teacher interacted with their students to create bonds (at the beginning of the class, and while the students were performing the tasks, the teacher used words of encouragement); (b) awareness talks: The teacher tried to put responsibility into practice introducing the level to be worked at during the session (at the beginning of each session, teachers highlighted the responsibility goal/level set); (c) physical activity plan: The responsibility level selected for the session was embedded in all the tasks (for example, level two, effort, was the goal in which students were asked to perform the activities "as many times as they could"); (d) group meeting: At the end of each session, the teacher and the students shared their perceptions regarding responsibility in class (the teacher asked the students to reflect on the "responsibility goal" selected for the session); and (e) reflection time: Students evaluated their classmates, teacher and their own behavior (with the "thumbs up" strategy) [2]. The teacher used general strategies to implement TPSR (i.e., showing transfer examples for each value) and specific ones (i.e., collective scoreboard). Likewise, strategies were also used to solve individual conflicts (i.e., five days rule) and collective ones (i.e., grandmother rule) [38].

2.3.2. Direct Instruction Program

The teacher with no experience nor with any training in TPSR implemented his unit lesson using this program. Direct instruction was based on content/skill development and teacher-centered decisions [52]. Virtually everything was monitored and decided by the teacher: Content selection, managerial control, task presentations, engagement patterns, instructional interaction, pacing and task progression [52]. Sessions' formats followed a three-phase framework: (a) Warm-up: Students got ready for the class performing pre-designed tasks (i.e., tag games, joint mobility, etc.); (b) main part: Students performed a pre-designed set of tasks to improve the selected skills (i.e., baseball batting drills, badminton hitting drills, games, etc.); and (c) cool down: Students performed lighter tasks to get ready for the next class (i.e., stretching exercises). Teacher decided when practice started and stopped. Students did not have to make decisions besides participation in the different tasks. The teacher remained in full control of the class. To avoid a possible bias in the study, the participating

teacher (supervised by the university researcher team) developed a direct instruction lesson plan that could be appealing for students (fun and enjoyable), but also high-quality for researchers and scholars. Tasks, drills, games, competitions, etc., were designed to increase students' academic and active participation time [52]. Following Rosenshine [53], teachers proceeded in small steps at a brisk pace, gave detailed and repeated instructions and explanations, asked questions and offered active practice, delivered feedback and corrections and guaranteed continued practice to ensure high student success and achievement. The research team supervised the design and implementation of all direct instruction lessons to ensure that they followed the correct instructional format and included the previously mentioned elements. The goal was to confront a high-quality TPSR program and a high-quality direct instruction program; both developmentally appropriate.

2.3.3. Fidelity of Implementation

To ensure that the model was being properly applied, prior to the implementation in each class the physical education teacher sent the written lesson to the TPSR expert so that the expert could verify that the TPSR principles were being followed. One of every four sessions was filmed, each with a different group of students. These were analyzed using the Tool for Assessing Responsibility-Based Education (TARE) observation tool developed by Wright and Craig [54]. It includes four sections: Strategies used by teachers in the promotion of responsibility, teachers' strategies for the development of responsibility, responsibility of the students in the session and general comments on the session. In this case, only the first section was used. At five-minute intervals (10 intervals per class), the observer noted the absence or presence of the categories into which the measure is divided (e.g., "Example of respect"). The observer was trained in the use of TARE by an expert, ensuring a degree of agreement in the formation higher than 80% with the expert. With regard to the results obtained in each of the classes (see Table 1), the percentage of compliance was higher than 80% in all the lessons analyzed, the results were considered adequate [38], but it is important to say that the values in leadership and transference were not really high (50–80%).

Table 1. Percentage (%) of presence of strategies used by the teacher to promote Wright and Craig responsibility (2011).

Class	Int	MR	SE	OS	FSI	AM	PL	GCV	RA	Tr	Total
1	10	100	100	100	100	80	60	70	80	50	82.2
2	10	100	90	100	90	90	70	80	70	70	84.4
3	10	100	100	100	90	80	50	80	80	60	83.3
4	10	100	100	100	100	90	70	80	90	80	90.0

Note: Int: Number of intervals analyzed; MR: Modeling respect; SE: Setting expectations; OS: Opportunities for success; FSI: Fostering social interaction; AM: Assignment management tasks; PL: Promoting leadership; GCV: Giving choices and voices; RA: Role in assessment; Tr: Transfer.

2.4. Data Analysis

First, Cronbach's α was calculated in order to assess the internal consistency of the different factors under study. Most of the reliability Cronbach coefficients showed values above 0.70, and only a few of them fell in the range between 0.60 and 0.70, considered acceptable by authors such as Sturmey, Newton, Cowley, Bouras and Holt [55]. In order to calculate the effect of the intervention program, as well as pre-test and post-test differences for the control and experimental group, a data normality analysis was first carried out. This analysis revealed non-compliance with the hypothesis of normality, so non-parametric statistical methods were used. The analysis of the variables was carried out independently, using Wilcoxon's non-parametric test. The results were analyzed with the rule of thumb for effect size suggested by Cohen [56], effect sizes of 0.20, 0.50 and 0.80 are considered to be small, medium and large, respectively.

3. Results

To test the potential effect of the responsibility program on the students, the Wilcoxon non-parametric test for related samples was carried out for both the control group and the intervention group (see Table 2). After the intervention, the control group did not obtain statistically significant differences in any of the variables studied. By contrast, the experimental group showed differences in autonomy support interpersonal style ($p < 0.05$), controlling style ($p < 0.05$) and autonomy ($p < 0.01$). After the intervention the results were always higher than pre-test results.

Table 2. Pre- and post-test difference in the variables subject to study in the intervention and control group.

		Experimental Group (n = 60)			Control Group (n = 60)		
		M	SD	Size Effect	M	SD	Size en
Autonomy support	Pre	4.51	0.64	0.35	3.88	0.52	0.23
	Post	4.69 *	0.36		3.67	1.17	
Controlling style	Pre	2.52	0.97	-0.18	2.37	0.60	-0.09
	Post	2.35 *	0.90		2.31	0.70	
Autonomy	Pre	3.41	0.95	0.55	3.72	0.61	0.24
	Post	3.90 **	0.83		3.87	0.66	

Note: * $p < 0.05$; ** $p < 0.01$

4. Discussion

The objective of this study was to analyze the effect that the application of TPSR would have on the perception of teachers' interpersonal style and on autonomy need satisfaction. The starting hypothesis was confirmed; TPSR was shown to have an effect on the autonomy support interpersonal style perception and on students' autonomy.

The increase in personal responsibility and social responsibility of the participants in this study is in line with the results obtained in previous research using TPSR [5,6,10,11,57–59].

The intervention achieved an increase in the perception of student autonomy, a fundamental issue in education today, as noted by Taylor and Lonsdale [60], Schiefelbein and Schiefelbein [33] and Oriol et al. [32]. In this regard, the present study follows the same line as Escartí et al. [42] and Manzano-Sánchez and Valero-Valenzuela [11] with primary school students where groups to which the TPSR model was applied obtained improvement in autonomy levels. The same results were obtained by Merino-Barrero, Valero-Valenzuela and Belando [43] with secondary school students. Moreover, as indicated in previous studies [60] students with higher responsibility levels perceive themselves as more autonomous, competent and optimally related, which seems to generate feelings of self-determined motivation. Findings from the present study are in line with previous research that found significant improvements in autonomy [8,61] after experiencing TPSR.

After the intervention, a higher perception of teachers' autonomy support interpersonal style was observed as well as a decrease in controlling style. Moreno-Murcia, Gómez and Cervelló [62] found that the possibility of choice in the proposed activities increased positively students' perception of autonomy. In the same line, Hyeon, Reeve, Yu and Ryen [63] found that those teachers who carried out strategies to promote students' autonomy in their classes obtained higher perception of autonomy support and lower levels of controlling attitude. These results confirm the results in our study, in which the possibility of choosing tasks was one of the premises to be considered in the design of the classes where TPSR was applied. The inclusion of this type of activity, among others, increased students' perception of autonomy. Similarly, after their autonomy support intervention with primary physical education teachers, Moreno-Murcia and Sánchez-Latorre [21] revealed data showing an increase in

students' perception of autonomy. In this regard, Yew and Wang [64] observed clear evidence that autonomy support is necessary to achieve efficiency in physical education classes. Zamarripa et al. [24] found that students' perception of teachers' autonomy support was positively associated with autonomous motivation.

One of the limitations of this study was that the pure randomization of the students could not be respected (the investigation was conducted in real practice contexts) and some variables such as autonomy support, autonomy and personal responsibility (pre-test) had a low value in Cronbach alpha (values of 0.65, 0.66 and 0.69, respectively). Furthermore, the statistical analyses have some restrictions, this is only a partial answer to the research question, and new analyses should be done comparing pretest and posttest score inside the groups. Another limitation was the analysis of the sessions filmed by the researcher, which was carried out by a single person. While this person was experienced in observation, this entails a potential bias [65]. Other limitations are sample size, the brief duration of the intervention and the unbalanced gender distribution. Finally, a teacher taught each intervention program (instructional model). Some authors believe that the same teacher should conduct two different intervention programs under study. Future research should include a follow-up on the students after the intervention, which would make it possible to ascertain whether the levels reached were maintained over time. The sample could also be expanded in similar and/or different contexts and with the same teacher. Other variables related to the study, like motivation, could be measured in the future.

5. Conclusions

In conclusion, the use of teaching models in physical education that favor an interpersonal style of support for autonomy, such as TPSR [2], where strategies such as ceding responsibilities, providing opportunities for success or granting students the ability to choose, are used, allows students to have an improvement in the satisfaction of the need for autonomy and a decrease in the perception of the controlling style in addition to benefits in both personal and social responsibility.

Supplementary Materials: The following is available at <http://www.mdpi.com/2071-1050/11/23/6589/s1>.

Author Contributions: D.M.-S. "introduction; formal analysis; data curation; writing—review and editing; investigation", A.V.-V. "introduction; methodology; resources; writing—review and editing; supervision", J.A.M.-M. "methodology; resources; supervision", G.L. "introduction; methodology; writing—original draft preparation; formal analysis"

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

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