

Physical education teachers' use of and feeling for teaching styles

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Abstract:

Teaching styles target the different development channels, therefore, this research aims to ascertain what teaching styles in physical education influence the teaching and achievement of objectives, what teaching style is the most used, and teachers' feelings about what teaching style is the most difficult to use, and the most accepted by students, as a function of degree and educational stage. For this purpose, a sample of 455 Physical Education teachers in the Community of Madrid was used, and an inferential analysis (ANOVA, Welch and Student's t-test) was carried out. Some of the results show that the teaching style such as command style and free exploration in the students are more used by physical activity and sport science graduates and teachers with this qualification and graduate in physical Education ($p=.000$; $p=.000$). In addition, the command style and reciprocal style are the most difficult to use for graduates in physical education ($p=.009$; $p=.006$). In conclusion, it is exists differences between teaching styles used and feeling of teachers when they use it.

Key Words: Teaching styles; Physical education; development channels; feeling.

Introduction

Sport and physical activity is an important tool for the personal development, since it allows to improve the capabilities of these, such as self-esteem, personal autonomy and social relations (Arráez, 2001).

In addition, the presence of multiculturalism is increasingly higher in any field of society, so it is important to implement forms of work which will allow the inclusion. Despite this, it does not carry out the education and preparation of the professionals of education and sport (Arráez, 2002).

For this reason, it is important to know the different styles of teaching and its use, as well as keep in mind that there is a more favorable and unique teaching style, but it is necessary to implement them and to assess their validity depending on the characteristics of students and the goals for which these styles can be modified (Hervás-Avilés, 2005).

Teaching styles are used to contribute knowledge to students in a more efficient way, since it is suggested the use of motivation and interest (Shen and Chen, 2007), which leads to a more significant learning, and therefore, more durable (López and Moreno 2002).

In this way, teaching styles should be used as a methodological tool to (Boyce, 1992):

- To help the teacher in preparing sessions.
- To assist research for the improvement of education.
- To guide to supervisors to provide corrections to physical education teachers'.

Thus, Biddle and Goudas (1993) and Delgado (1996) say that the domain and use of different teaching styles can help physical education teachers', allowing a good planning of the sessions, giving rise to a climate positive classroom and an increase in the motivation of students, and therefore an improvement in learning. In addition, the teacher not only must use all of teaching styles, but it has to be able to combine them or create new styles, knowing that no better than another and the use of teaching styles depends on the students and the teaching context (González-Peiteado and Aznar-Cuadrado, 2010; Mosston and Ashworth, 1993; Sicilia and Delgado, 2002).

Next, it will define the concept of teaching style to know and clarify it:

On the one hand, Delgado (1991) says that teaching styles are an open-ended process to investigate, and it defines them as the way in which relate to elements of the teaching and learning process.

On the other hand, Grasha (1994) defines teaching styles as the behaviors that teachers show in the class, affecting in different dimensions such as the presentation of information and the relationship and interaction between teachers and students.

For its part, Galera (2001) believes that teaching styles are those adaptations that make the teacher from different elements which are part of the model of teaching. In addition, this author considers that teaching styles are closely related to the student's learning and that, the students' behavior is due to the intervention of the teacher in the class. In the same way, Muñoz (2002) defines style as a concept which includes others more specific concepts, such as the method.

Thus, the first model of teaching styles appeared due to the necessity to clarify and identify what teaching behaviour should be like. In addition, it allowed a progression of education, improving personalised teaching and the cognitive processes (Mosston, 1978). This first mode presents his spectrum teaching styles in the notion of controversy or first period (1966-1986): teaching based on the command, teaching based on the task, reciprocal teaching, formation of small groups, program individual, guided discovery, problem solving and creativity (Mosston, 1978).

After this first model, it takes place a second stage in the period of no controversy (1986 - date.) where the first change is to replace the term channel by objective, clarifying that the main thing is the teaching styles to meet the objectives established (Mosston and Ashworth, 1993).

For this reason, on the basis of the decisions taken at each moment, it will be carried out a style of teaching different, distinguishing between reproductive teaching styles (styles to or direct control, B or teaching based on the task, C or reciprocal teaching, D or self-assessment, and E or styles of inclusion) and productive teaching styles (F or guided discovery, G or de, H or an individualized program, I started students and J or how-to) (Mosston and Ashworth, 1993).

Finally, after the proposal by Mosston (1978), and its later reform (Mosston and Ashworth 1986), the proposal of teaching styles by Delgado (1991), who carried out a modification of some of the styles of Mosston and Ashworth (1986) and added some new ones, appeared in Spain. Delgado (1991) divided the teaching styles into 6 different families according to the objective to be achieved, suggesting the same development channels as Mosston (1978): physical, social, affective or emotional and cognitive. The teaching styles of Delgado (1991) are:

- Traditional styles (command style, modification of command style and task assignment): the development channels are more favoured in task assignment and a little less so in the modification of the command style and the command style. The least favoured development channel is the cognitive one.
- Styles which promote individualisation (individualisation by groups, modular education, individual programmes and programmed learning): the least favoured development channel in this family of teaching styles is the cognitive one.
- Styles which enable participation (reciprocal teaching, small groups and microteaching): these favour the following development channels: emotional and social; then cognitive and finally, physical development, in this order.
- Styles favouring socialisation: This family of teaching style favours, in descending order, the channels of social, emotional and cognitive development. However, so much importance is given to socialisation that motor or physical development is forgotten.
- Styles which involve the students cognitively (guided discovery and problem solving): the most favoured development channels, in descending order, are cognitive, physical, social and emotional.
- Styles that promote creativity: this style looks for an original cognitive consequence, because it is the style which most favours cognitive development.

Research about teaching styles

Some of the researches about teaching style are:

Boyce (1992), carried out a research to compare the differences in the learning and retention of target shooting through teaching styles as command style, tasks assignment and reciprocal teaching with students at university who aged between 18 and 23 years in the United States. It can conclude that the most significant results were seen in teaching styles of command style and tasks assignment.

In this way, the research of Curtner-Smith et al. (2001), aims to describe what teaching styles are used. It was used a sample of 18 physical education teacher in South-East of England (nine men and nine women). The results show that the most widely used teaching style is the practice style, which is the most effective to learn sport skills. Also this research shows that rarely are used styles that differentiate on levels, such as the inclusion style, or teaching styles which allow to students work independently (individualized program).

Research of Morgan, Kingston and Sproule (2005), aims to show how the teaching styles can influence in the class environment and in the motivation of students towards physical education. The styles analyze were command style and practice style, guided discovery and reciprocal teaching style. The results show that guided discovery and reciprocal teaching styles are less demanding and more creative, favouring the cognitive and affective channels and a major motivation in students to a greater extent than command styles and practice styles.

Also, research of Salvara et al. (2006), about the influence of the teaching styles in the achievement of goals of physical education to 75 students from Greece (35 boys and 40 girls), who aged 11 to 12 years. Thus, the results show that teaching styles which are more motivational to students are productive styles, while reproductive styles contribute a negative motivation towards the tasks.

Jaakkola and Watt (2011) carried out another research whose objective is to know how teachers use teaching styles in physical education and how teaching styles benefit to students. These authors use a sample of 294 physical education teachers in Finland. The analysis of data shows that the most of teachers used teaching styles such as command style and practice style, while the teaching styles less used are self-assessment and guided discovery. Regarding the perception of teachers about the benefit of the teaching styles, the results show that the practice style and the divergent style are the most influential. Although, the teaching styles that less influence are the reciprocal and guided discovery. Thus, it comes to the conclusion that the practice styles, divergent and inclusion are the most accepted by the students, while self-assessment, self-teaching and command style are the least accepted. Finally, the inclusion and practice styles are the most motivate styles to students. In each case, there are significant differences according to age, sex and the stage. Sánchez, Byra and Wallhead (2012) carried out a research in United States whose goal is to know the students' perception about the physical, cognitive, and social participation and consider what styles are preferred by students (command style, practice style and inclusion style). The results show that physical and cognitive participation is greater with the inclusion style and social participation is similar with all of three styles. On the other hand, it is preferred the inclusion style, because it allows to students to make more decisions. The command style is also chosen by some students, since they prefer to imitate a model. Few students selected the style of practice. Finally, Hewitt and Kenneth (2013) carried out a research with 12 teachers of tennis in Australia. The goal of research is to know what teaching styles are the most commonly used. In the results show that the practice style is the most used, although the command style is also used.

Objectives This research aimed to ascertain the influence of teaching styles on the Physical Education teacher. Thus, the specific goals were:

- To know what teaching styles in physical education influence the teaching and achievement of objectives depending on degree and stage.
- To analyse what teaching style in physical education is the most used depending on degree and stage.
- To discover the physical education teachers' feelings about teaching styles depending on degree and stage, such as what teaching style is the most difficult to use or the most accepted by the students and if they have sensed pressure when they have used them.

Material & methods

A quantitative, descriptive and non-experimental methodology was used for this research, as it required an objective process through statistical analysis (Anguera, 1992; González Tirados, 2009).

Sample This research used a sample of 455 teachers of whom 280 (61.5%) belonged to the primary stage and 175 (38.5%) belonged to the secondary stage. In addition, there were teachers who were graduates in physical activity and sport sciences (21.1%), graduates in physical education (47.7%) and teachers with both degrees (31.2%); 70.8% were men and 29.2% women. To calculate the sample universe, the number of schools in the Autonomous Region of Madrid was determined from the different lists in this region, as it is impossible to know the exact number of teachers who work in these schools. The lists used were of all the primary and secondary schools in the Region detailed in the regional schools guide (Autonomous Region of Madrid, 2014) and of municipalities and population in the same region for the year 2013 (Institute of statistics from the Autonomous Region of Madrid, 2013); in total 1659 schools. The size of the sample was determined using the formula for finite populations (Cea D'Ancona, 2004; Bravo Sierra, 2001), where the worst case is assumed regarding the population variance, with "P" and "Q" being equal, with a value of 50% each. The value of confidence was 95.50% with - 2 sigmas and + 2 sigmas for a normal distribution, and a margin of error of $\pm 4.75\%$ for the established sample, obtaining a sample of 455 units in the population. The sampling design was probabilistic, random cluster and stratified to achieve a more objective selection. The stratification consisted, in the first place, of dividing the population into municipalities, in the second place, into schools, randomly selecting the participating schools, and finally, choosing the teachers to be interviewed also randomly (a maximum of two teachers per school). This was done using the table of random numbers, proposed by Rodríguez Osuna (2002). Thus the collection of data was always proportional in the established criteria to municipal population size and geographic area, making the distribution according to the defined territorial areas of the total universe, and taking into account the inhabitants per municipality, so more surveys were carried out in strata with more inhabitants (Cea D'Ancona, 2001).

Instrument The instrument used in this case is a questionnaire that had been used, designed and validated by Guedea (2010). This questionnaire is called the *Questionnaire for the analysis of teaching styles used in Physical Education*. Several Ph.D.s from Spanish Universities reviewed and validated it, finding a Cronbach alpha coefficient = .702. The questionnaire has several measurements with reference to the importance of teaching styles, knowledge of them, sensations and difficulties when they are used, frequencies of use and level of

acceptance. In this case, the measurement analysed the importance of teaching style in Physical Education classes, specifically, the next questions:

- Teachers' feelings:
 1. If teachers feel pressured when using the teaching styles (item 1)
 2. If teaching styles influence the development of the goals (item 2)
 3. Teaching style most difficult to use (command style, task assignment, reciprocal teaching, microteaching, argument and dialogue, guided discovery, problem solving and free exploration) (Item 19-26).
 4. Teaching style most accepted by students (command style, task assignment, reciprocal teaching, microteaching, argument and dialogue, guided discovery, problem solving and free exploration) (Item 27-34).
- The influence of teaching styles (command style, task assignment, reciprocal teaching, microteaching, argument and dialogue, guided discovery, problem solving and free exploration) (Item 3-10).
- The use of teaching styles (command style, task assignment, reciprocal teaching, microteaching, argument and dialogue, guided discovery, problem solving and free exploration) (Item 11-18)

Procedure

The first phase involved place location and contact with the schools and teachers selected for the study, following the guidelines established in the sampling design. Then, the standardised interviews were carried out with the questionnaire and the information obtained was collected and recorded. It was a cross-sectional study (Sierra Bravo, 2001), in this case it took place during the 2014-2015 academic year during school hours, since it was aimed at physical education teachers in formal education. The interviews were carried out by a single interviewer, obviating the need for a training phase, and making this procedure more effective and more rigorous although it involved more work (Cea D'Ancona, 2001). The statistical analysis involved an inferential analysis through different tests (Student's *t*, ANOVA and Welch), all using the statistical programme SPSS®, Version 20.

Results

Firstly, a difference of means (*M*) and the standard deviation (*DT*) were observed in the question about if the teaching styles influenced the achievement of the goals of physical education ($M = 4.09$; $DT = 0.84$), with the group of graduates in physical education ($M = 4.11$; $DT = 0.86$), revealing the highest scores of all the items. The data were subsequently analysed depending on the degree of variability, using the Levene test to show different items in which there were significant differences ($p < .05$). In these cases the Welch test was applied and significant results were seen in item 3 ($p = .000$), item 10 ($p = .000$), about if the command style and free exploration style have the most influence; item 11 ($p = .004$), item 18 ($p = .000$), about if the command and reciprocal are the most used teaching styles; item 19 ($p = 0.006$), item 21 ($p = .002$), about the difficulty for using the command and reciprocal teaching styles; and item 27 ($p = .004$) and item 34 ($p = .000$), about if the command and free styles are two of the styles most accepted by the students. The Games-Howell post-hoc test (Table 1) was used to discover where these differences were, and they were found in item 3 about whether the command style influences the teaching, with the graduates in physical activity and sport sciences ($p = .000$) or teachers with both degrees ($p = .000$), answering yes in contrast to graduates in physical education. In item 10, about the influence of the free exploration style, the same thing happened: with physical activity and sport science graduates ($p = .000$) and teachers with both degrees ($p = .000$) answering affirmatively (Table 1).

Table 1. The Games - Howell post - hoc test about the influence of teaching styles regarding degree.

Items	(I) Degree	(J) Degree	Difference in means (I-J)	Typical error	Sig.
3. Does the command style influence your teaching?	Graduate in physical education	Physical activity and sport sciences graduate	-.193*	0.046	0
		Both degrees	-.170*	0.044	0
	Physical activity and sport sciences graduate	Graduate in physical education	.193*	0.046	0
		Both degrees	0.023	0.045	0.868
	Both degrees	Graduate in physical education	.170*	0.044	0
		Physical activity and sport sciences graduate	-0.023	0.045	0.868
10. Does free exploration influence your teaching?	Graduate in physical education	Physical activity and sport sciences graduate	-.193*	0.046	0
		Both degrees	-.170*	0.044	0
	Physical activity and sport sciences graduate	Graduate in physical education	.193*	0.046	0
		Both degrees	0.023	0.045	0.868

Both degrees	Graduate in physical education	.170*	0.044	0
	Physical activity and sport sciences graduate	-0.023	0.045	0.868

In the same way, the most commonly used styles were the command style by the graduates in physical education (item 11; $p = .005$), and teachers with both degrees ($p = .017$) in contrast to the physical activity and sport science graduates; on the contrary, the free exploration style is the most commonly used style by the physical activity and sport science graduates ($p = .000$) or teachers with both degrees ($p = .000$) in contrast to graduates in physical education (item 18) (Table 2).

Table 2. The Games - Howell post - hoc test about the use of teaching styles regarding degree.

Items	(I) Degree	(J) Degree	Difference in means (I-J)	Typical error	Sig.
11. Do you use the command style more frequently?	Graduate in physical education	Physical activity and sport sciences graduate	.172*	0.055	0.005
		Both degrees	0.007	0.053	0.992
	Physical activity and sport sciences graduate	Graduate in physical education	-.172*	0.055	0.005
		Both degrees	-.165*	0.06	0.017
	Both degrees	Graduate in physical education	-0.007	0.053	0.992
		Physical activity and sport sciences graduate	.165*	0.06	0.017
18. Do you use free exploration more frequently?	Graduate in physical education	Physical activity and sport sciences graduate	-.234*	0.047	0
		Both degrees	-.190*	0.045	0
	Physical activity and sport sciences graduate	Graduate in physical education	.234*	0.047	0
		Both degrees	0.044	0.046	0.609
	Both degrees	Graduate in physical education	.190*	0.045	0
		Physical activity and sport sciences graduate	-0.044	0.046	0.609

Regarding teaching style most difficult to use, it possible observed significant difference in item 19, where teachers with both degrees considered more difficult the use of command style than teacher graduate in Physical Education (.006). In the item 21, where the graduates in physical education were the ones who considered that the regarding reciprocal teaching style, it is possible to observe that it was the most difficult to use for graduate in Physical Education, in contrast to the physical activity and sport science graduates ($p = .009$) and teachers with both degrees ($p = .036$) (Table 3).

Table 3. The Games - Howell post - hoc test about teachers' feelings (teaching style most difficult to use) regarding degree.

Items	(I) Degree	(J) Degree	Difference in means (I-J)	Typical error	Sig.
19. Is the command style the most difficult style to use?	Graduate in physical education	Physical activity and sport sciences graduate	-0.066	0.061	0.527
		Both degrees	-.162*	0.052	0.006
	Physical activity and sport sciences graduate	Graduate in physical education	0.066	0.061	0.527
		Both degrees	-0.096	0.064	0.297
	Both degrees	Graduate in physical education	.162*	0.052	0.006
		Physical activity and sport sciences graduate	0.096	0.064	0.297
21. Is reciprocal teaching the most difficult style to use?	Graduate in physical education	Physical activity and sport sciences graduate	.150*	0.05	0.009
		Both degrees	.101*	0.04	0.036
	Physical activity and sport sciences graduate	Graduate in physical education	-.150*	0.05	0.009
		Both degrees	-0.049	0.057	0.661
	Both degrees	Graduate in physical education	-.101*	0.04	0.036
		Physical activity and sport sciences graduate	0.049	0.057	0.661

With respect to teaching styles which were the most accepted by students (item 27) the graduates in physical education considered that the command style was the most accepted by students more than the physical activity and sport science graduates ($p = .000$) and teachers with both degrees ($p = .000$), who considered that the most accepted style was free exploration (item 34) (Table 4).

Table 4. The Games - Howell post - hoc test about teachers' feelings (teaching style most accepted by students) regarding degree.

Items	(I) Degree	(J) Degree	Difference in means (I-J)	Typical error	Sig.	
27. Is the command style most accepted by the students?	Graduate in physical education	Physical activity and sport sciences graduates	.147*	0.058	0.033	
		Both degrees	.146*	0.051	0.012	
	Physical activity and sport sciences graduate	Graduate in physical education	-.147*	0.058	0.033	
		Both degrees	-0.001	0.065	1	
	Both degrees	Graduate in physical education	-.146*	0.051	0.012	
		Physical activity and sport sciences graduate	0.001	0.065	1	
	34. Is free exploration the style most accepted by the students?	Graduate in physical education	Physical activity and sport sciences graduate	-.315*	0.053	0
			Both degrees	-.270*	0.049	0
Physical activity and sport sciences graduate		Graduate in physical education	.315*	0.053	0	
		Both degrees	0.045	0.054	0.68	
Both degrees		Graduate in physical education	.270*	0.049	0	
		Physical activity and sport sciences graduate	-0.045	0.054	0.68	

The difference of averages through the ANOVA test was used for the rest of the items where significant differences were not found ($p > .05$), only observing a significant difference in item 1 about whether teachers feel pressured when they use the teaching styles ($p < .05$). However, Tukey's post-hoc test was applied (Table 5) and it found no differences among the different groups ($p > .05$).

Table 5. Tukey's post - hoc test about teachers' feelings (teaching style most accepted by students) regarding degree.

Items	(I) Degree	(J) Degree	Difference in means (I-J)	Typical error	Sig.
1. Do you feel pressured when using the teaching styles?	Graduate in physical education	Physical activity and sport sciences graduates	0.056	0.139	0.915
		Both degrees	-0.26	0.122	0.085
	Physical activity and sport sciences graduates	Graduate in physical education	-0.056	0.139	0.915
		Both degrees	-0.316	0.149	0.088
	Both degrees	Graduate in physical education	0.26	0.122	0.085
		Physical activity and sport sciences graduates	0.316	0.149	0.088

Regarding stage, Student's t-test was used where the Levene test for equality of variances showed significant differences in different items, such as influence of command style, reciprocal teaching, microteaching, guided discovery and free exploration; to use of command style, reciprocal teaching, microteaching, guided discovery and free exploration; teaching style most difficult (command style, reciprocal teaching, microteaching, guided discovery and problem solving); and teaching style most accepted by students (command style, reciprocal teaching, microteaching, guided discovery and free exploration) where $p < .05$. In the items where significant differences were observed using the Levene test, equality of variances was not assumed. Student's t-test showed that teachers who teach physical education in secondary school consider that the command style influences their teaching more than teachers who teach in primary school [item 3; $t(444) = -4.618$; $p = .000$], with the same thing happening for guided discovery [item 8; $t(357) = -2.382$; $p = .018$], and for free exploration [item 10; $t(444) = -4.618$; $p = .000$] (Table 6).

Table 6. Student's t-test for independent samples about the influence of teaching styles depending on the stage.

Items	Levene test for equality of variance		t-test for the equality of means				Difference in means
	F	Sig.	t	gl	Sig. (bilateral)		
1. Do you feel pressure to use the teaching styles?	Have assumed equality of variances	2.578	0.345	0.8	453	0.324	0.025
	Have not assumed equality of variances			0.548	364.16	0.311	0.025
2. Do teaching styles influence the development of the goals?	Have assumed equality of variances	0.017	0.898	0.133	453	0.895	0.011
	Have not assumed equality of variances			0.133	374.06	0.894	0.011
3. Does the command style influence your teaching?	Have assumed equality of variances	93.375	0	-4.288	453	0	-0.169
	Have not assumed equality of variances			-4.618	444.436	0	-0.169
4. Does task assignment influence your teaching?	Have assumed equality of variances	1.489	0.223	0.6	453	0.549	0.027
	Have not assumed equality of variances			0.603	375.326	0.547	0.027
5. Does reciprocal teaching influence your teaching?	Have assumed equality of variances	4.293	0.039	1.055	453	0.292	0.044
	Have not assumed equality of variances			1.04	352.588	0.299	0.044
6. Does microteaching influence your teaching?	Have assumed equality of variances	17.177	0	2.071	453	0.039	0.056
	Have not assumed equality of variances			1.943	296.269	0.053	0.056
7. Does argument and dialogue influence your teaching?	Have assumed equality of variances	0.044	0.834	-0.105	453	0.916	-0.004
	Have not assumed equality of variances			-0.105	372.022	0.916	-0.004
8. Does guided discovery influence your teaching?	Have assumed equality of variances	14.573	0	-2.407	453	0.016	-0.113
	Have not assumed equality of variances			-2.382	356.795	0.018	-0.113
9. Does problem solving influence your teaching?	Have assumed equality of variances	0.014	0.906	0.06	453	0.953	0.003
	Have not assumed equality of variances			0.06	368.982	0.953	0.003
10. Does free exploration influence your teaching?	Have assumed equality of variances	93.375	0	-4.288	453	0	-0.169
	Have not assumed equality of variances			-4.618	444.436	0	-0.169

Regarding the most commonly used styles, the test showed that teachers who work in primary school more frequently used the command [item 11; $t(388) = 2.343$; $p = .02$] and microteaching styles [item 14; $(287) t = 2.02$; $p = .044$], while secondary school teachers more commonly used free exploration [item 18; $(438) t = -4.55$; $p = .000$] (Table 7).

Table 7. Student's t-test for independent samples about the use of teaching styles depending on the stage.

Items	Levene test for equality of variance		t-test for the equality of means				Difference in means
	F	Sig.	t	gl	Sig. (bilateral)		
11. Do you use the command style more frequently?	Have assumed equality of variances	23.23	0	2.306	453	0.022	0.106
	Have not assumed equality of variances			2.343	388.766	0.02	0.106
12. Do you use task assignment more frequently?	Have assumed equality of variances	1.051	0.306	0.507	453	0.613	0.022
	Have not assumed equality of variances			0.509	375.658	0.611	0.022
13. Do you use reciprocal teaching more frequently?	Have assumed equality of variances	4.318	0.038	1.055	453	0.292	0.042
	Have not assumed equality of variances			1.039	350.57	0.3	0.042

14. Do you use microteaching more frequently?	Have assumed equality of variances	19.098	0	2.177	453	0.03	0.055
	Have not assumed equality of variances			2.025	287.153	0.044	0.055
15. Do you use argument and dialogue more frequently?	Have assumed equality of variances	0.002	0.967	0.02	453	0.984	0.001
	Have not assumed equality of variances			0.02	368.632	0.984	0.001
16. Do you use guided discovery more frequently?	Have assumed equality of variances	5.26	0.022	-1.732	453	0.084	-0.083
	Have not assumed equality of variances			-1.725	365.006	0.085	-0.083
17. Do you use problem solving more frequently?	Have assumed equality of variances	0.452	0.502	-0.33	453	0.741	-0.016
	Have not assumed equality of variances			-0.331	370.724	0.741	-0.016
18. Do you use free exploration more frequently?	Have assumed equality of variances	91.526	0	-4.265	453	0	-0.175
	Have not assumed equality of variances			-4.548	437.645	0	-0.175

In addition, primary school teachers believed that guided discovery was one of the most difficult styles to use in comparison with secondary school teachers [item 24; $t(345) = 2.05$; $p = .041$] (Table 8).

Table 8. Student's t-test for independent samples about teachers' feelings (teaching style most difficult to use) depending on the stage.

Items	Levene test for equality of variance		t-test for the equality of means				Difference in means
	F	Sig.	t	gl	Sig. (bilateral)		
19. Is the command style the most difficult style to use?	Have assumed equality of variances	12.307	0	-1.755	453	0.08	-0.084
	Have not assumed equality of variances			-1.766	376.967	0.078	-0.084
20. Is task assignment the most difficult style to use?	Have assumed equality of variances	0.577	0.448	-0.378	453	0.705	-0.011
	Have not assumed equality of variances			-0.382	382.008	0.702	-0.011
21. Is reciprocal teaching the most difficult style to use?	Have assumed equality of variances	14.627	0	1.941	453	0.053	0.071
	Have not assumed equality of variances			1.873	327.247	0.062	0.071
22. Is microteaching the most difficult style to use?	Have assumed equality of variances	8.701	0.003	1.475	453	0.141	0.034
	Have not assumed equality of variances			1.392	302.491	0.165	0.034
23. Is argument and dialogue the most difficult style to use?	Have assumed equality of variances	1.877	0.171	0.687	453	0.492	0.019
	Have not assumed equality of variances			0.672	342.634	0.502	0.019
24. Is guided discovery the most difficult style to use?	Have assumed equality of variances	15.593	0	2.092	453	0.037	0.091
	Have not assumed equality of variances			2.05	345.211	0.041	0.091
25. Is problem solving the most difficult style to use?	Have assumed equality of variances	9.851	0.002	1.607	453	0.109	0.065
	Have not assumed equality of variances			1.572	342.614	0.117	0.065
26. Is free exploration the most difficult style to use?	Have assumed equality of variances	2.952	0.086	-0.85	453	0.396	-0.027
	Have not assumed equality of variances			-0.869	395.517	0.386	-0.027

Teachers who teach physical education in primary school believed that the teaching style most accepted by students was the command style [item 27; $t(348) = 2.246$; $p = .025$], while secondary school teachers believed that the most accepted styles were guided discovery [item 32; $t(380) = -2.191$; $p = .029$] and free exploration [item 34; $t(425) = -5.8$; $p = .000$] (Table 9).

Table 9. Student's t-test for independent samples about teachers' feelings (teaching style most accepted by students) depending on the stage.

Items	Levene test for equality of variance		t- test for the equality of means				
	F	Sig.	t	gl	Sig. (bilateral)	Difference in means	
27. Is the command style the most accepted by the students?	Have assumed equality of variances	17.437	0	2.287	453	0.023	0.103
	Have not assumed equality of variances			2.246	348.067	0.025	0.103
28. Is task assignment the style most accepted by the students?	Have assumed equality of variances	0.236	0.627	0.237	453	0.813	0.011
	Have not assumed equality of variances			0.237	369.417	0.813	0.011
29. Is reciprocal teaching the style most accepted by the students?	Have assumed equality of variances	5.291	0.022	1.165	453	0.245	0.044
	Have not assumed equality of variances			1.141	344.649	0.255	0.044
30. Is microteaching the style most accepted by the students?	Have assumed equality of variances	15.685	0	1.976	453	0.049	0.049
	Have not assumed equality of variances			1.847	292.275	0.066	0.049
31. Is argument and dialogue the style most accepted by the students?	Have assumed equality of variances	2.231	0.136	0.75	453	0.454	0.021
	Have not assumed equality of variances			0.732	341.247	0.465	0.021
32. Is guided discovery the style most accepted by the students?	Have assumed equality of variances	18.772	0	-2.171	453	0.03	-0.103
	Have not assumed equality of variances			-2.191	380.469	0.029	-0.103
33. Is problem solving the style most accepted by the students?	Have assumed equality of variances	0.203	0.652	0.227	453	0.821	0.01
	Have not assumed equality of variances			0.226	366.465	0.821	0.01
34. Is free exploration the style most accepted by the students?	Have assumed equality of variances	136.231	0	-5.521	453	0	-0.246
	Have not assumed equality of variances			-5.8	424.83	0	-0.246

In the rest of the items in which the Levene test was not significant, the equality of variances was assumed, no significant differences being observed between the primary and secondary stages.

Dicussion

Regarding the styles which influence in achievement of objectives, the results indicate that graduates in physical activity and sport sciences or teachers with both degrees, and teachers who teach physical education in secondary schools considered that the command style, guided discovery and free exploration were the teaching styles which have most influence, i.e., the styles which allow physical and cognitive development have more influence in physical education classes.

There is a lot of research which claims that one of the teaching styles that most influences the achievement of goals is the command style, mostly regarding students with a low level of skills, being one of the most used styles (Boyce 1992; Cothran et al. 2005; Harrison et al. 1995). However, others authors, such as Morgan, Kingston and Sproule (2005) and Salvara, Jess, Abbott and Bognár (2006) claim that guided discovery and reciprocal teaching are some of the styles that most influence teaching. Other research claims that the traditional styles, such as the command style, provide less cognitive and affective responses as well as being less motivating for the students, so teachers have a negative attitude towards them (Isaza and Henao 2012; Langley 1995; Morgan et al. 2005; Solmon and Lee 1996). Lam, Cheng and Ma (2009) and Zumbunn et al. (2014), say in their studies that if teachers have intrinsic motivation teaching styles have a positive effect on the students who will increase their intrinsic motivation, that is, teachers play an important role in students' motivation, with five factor influencing it, i.e. "social and moral dimension, reflective practice, effective planning and management, and love of children" (Devine, Fahie and MacGillicuddy 2013). In addition, there are research which claim that teaching methods based on in students' learning favour the students' development, because they allow that students are implicated in their own learning (Gargallo-López, Pérez-Pérez, Verde-Peleato & García-Félix, 2017). Moreover, regarding the use of the teaching styles, it was observed that the command style, which involves mainly the physical development of the student, was more commonly used by graduates in physical education and teachers with both degrees, and also by primary teachers, together with the microteaching style which promotes emotional and social development. In contrast, the free exploration style was more used by physical activity and sport science graduates and teachers with both degrees, or teachers who teach in secondary

education as it promotes cognitive development. It is noteworthy that previous research claims the teaching styles which are most commonly used are those which mainly influence the physical development of students, like task assignment and the command style (Cothran et al. 2005; Curtner- Smith et al. 2001; Hewitt and Kenneth 2013; Jaakkola and Watt 2011). Although, teaching styles more used are the traditional styles, teachers want to be “good teachers” and they try interesting for students’ learning (Cid-Sabucedo, Pérez-Abellás & Zabalza, 2009). Regarding different feelings about teaching styles in physical education teachers, in the first place, the study analysed what teaching style was the more difficult to use, and for the graduates in physical education, and therefore those who work in primary education, mainly men, they were reciprocal teaching and guided discovery. Thus, Pankratius (1997) considers that continuous education teachers must improve with respect to the teaching styles so advantage can be taken of the students' learning capacity. This indicates that the lack of education about styles leads to uncertainty in some teachers, causing tiredness or difficulty when the styles are implemented, as the styles that promote cognitive and affective capabilities necessitate planning.

In the second place, there are also differences with respect to the teachers’ perceptions about the teaching styles which are most accepted by the students. So, the graduates in physical education and primary school teachers believed that the command style was the most accepted, i.e., the style which promotes physical abilities in the students. However, physical activity and sport science graduates and teachers with both degrees, and also teachers who teach in secondary schools, considered that the styles of free exploration and guided discovery are the most accepted by students, styles which also help to improve the students’ cognitive abilities. Jaakkola and Watt (2011) claim that the most motivational styles i.e. the ones that allow students to have a more positive attitude toward the task are the teaching styles which involve them in their own learning. However, Sánchez, Byra and Wallhead (2012), in their investigation affirm that some students prefer the command style because they only have to follow a model, while others students prefer participatory styles. Isaza and Henao (2012) say that the socialising styles improve academic performance and the students' attitudes towards the subject of physical education. Sometimes the teachers decide to use traditional styles so they can have more time for practice and therefore physical development, losing less time in explanations and feedback (Byra, Sanchez and Wallhead, 2014). In spite of that, there is a great variety in preferences of teaching and learning styles (Tuomey 1998).

Conclusions

Teachers who are physical activity and sport science graduates and those with both degrees and those who teach physical education in secondary school considered that the teaching styles which most influenced them were those involving the physical and cognitive development of the students. Teachers who are graduates in physical education and teachers with both degrees, as well as teachers who teach physical education in primary school more frequently used the teaching styles which influence the physical, emotional and social development of the students, while the teachers who are physical activity and sport science graduates and those who teach physical education in secondary school preferred the teaching styles which promote the cognitive development of the students. The graduates in physical education and teachers of primary education believed that the more difficult teaching styles to use were those that promote the affective, social and cognitive development of the students. The graduates in physical education and teachers in primary school considered that the teaching styles most accepted by the students were the ones which influence the physical development of the students, while the teachers in secondary school, physical activity and sport science graduates and teachers with both degrees considered the most accepted styles to be those that promote cognitive development.

References

- Anguera, M. T. (1992). *Metodología de la observación en las ciencias humanas*. Madrid: Catedra.
- Boyce, B. (1992). The effects of three styles of teaching on university students’ motor performance. *Journal of Teaching in Physical Education*, 11(4), 389– 401.
- Byra, M., Sanchez, B., & Wallhead, T. L. (2014). Behaviors of students and teachers in the command, practice, and inclusion styles of teaching: Instruction, feedback, and activity level. *European Physical Education Review*, 20(1), 3– 19.
- Cea D’Ancona, M. Á. (2001). *Metodología Cuantitativa. Estrategias y técnicas de investigación social*. (3rd ed.). Madrid: Síntesis.
- Cea D’Ancona, M. Á. (2004). *Métodos de la encuesta. Teoría y práctica, errores y mejora*. Madrid: Síntesis.
- Cid-Sabucedo, A., Pérez-Abellás, A., & Zabalza, M. A. (2009). Las prácticas de enseñanza declaradas de los “mejores profesores” de la Universidad de Vigo. *RELIEVE*, 15 (2), 1-29.
http://www.uv.es/RELIEVE/v15n2/RELIEVEv15n2_7.htm
- Comunidad de Madrid (2014). *Guía de centros docentes de la Comunidad de Madrid*. En web: www.madrid.org/centros_docentes/guia/index.html
- Cothran, D. J., Kulinna, P. H., Banville, D., Choi, E., Amade-Escot, C., MacPhail, A., Kirk, D. (2005). A cross-cultural investigation of the use of teaching styles. *Research Quarterly for Exercise and Sport*, 76(2), 193
- Curtner- Smith, M., Todorovich, J., Mc-Caughtry, N., & Lacon, S. (2001). Urban teachers’ use of productive and reproductive teaching styles within the confines of the National Curriculum for Physical Education. *European Physical Education Review*, 7(2), 177– 190.

- Delgado, M. Á. (1991). *Los estilos de enseñanza en la educación. Propuesta para una reforma de la enseñanza*. Granada: I.C.E. Universidad de Granada.
- Devine, D., Fahie, D., & McGillicuddy, D. (2013). What is 'good' teaching? Teacher Beliefs and Practices about their Teaching. *Irish Educational Studies* 32 (1), 83-108.
- Gargallo-López, B., Pérez-Pérez, C., Verde-Peleato, I. & García-Félix, E. (2017). Estilos de aprendizaje en estudiantes universitarios y enseñanza centrada en el aprendizaje. *RELIEVE*, 23(2), art. 2. doi: <http://doi.org/10.7203/relieve.23.2.9078>
- González Tirados, R. M. (2009). *Documentos para la docencia. Bases conceptuales en el proceso de la investigación*. Madrid: ICE Universidad Politécnica de Madrid.
- Guedea, J. C. (2010). *Análisis de los Estilos de Enseñanza utilizados por los profesores de Educación Física del nivel primaria en la ciudad de Chihuahua*. Universidad de Granada, Granada, Spain.
- Harrison, J., Fellinghan, G., Buck, M., & Pellett, T. (1995). Effects of practice and command styles on rate of change in Volleyball performance and self-efficacy on high-, medium- and low- skills learners. *Journal of Teaching in Physical Education*, 14, 328– 339.
- Heinemann, K. (2003). *Introducción a la metodología de la investigación empírica en las ciencias del deporte*. Barcelona: Paidotribo.
- Hewitt, M., & Kenneth, E. (2013). Estilos de enseñanza observados entre los entrenadores de juveniles y profesionales de Tenis Australia. *ITF Coaching and Sport Science Review*, 59(21), 6– 8.
- Instituto de Estadística de la Comunidad de Madrid (2013). *Demografía y población*. En Web: <http://www.madrid.org/iestadis>
- Isaza, L., & Henao, G. C. (2012). Actitudes- Estilos de enseñanza: su relación con el rendimiento académico. *International Journal of Physical Education*, 5(1), 133– 141.
- Jaakkola, T., & Watt, A. (2011). Finnish physical education teachers' self-reported use and perceptions of Mosston and Ashworth's teaching styles. *Journal of Teaching in Physical Education*, 30, 248– 262.
- Lam, S. F., Cheng, R. W. Y., & Ma, W. Y. (2009). Teacher and student intrinsic motivation in project-based learning. *Instructional Science* 37 (6), 565.
- Langley, D. (1995). Examining the personal experience of student skill learning: a narrative perspective. *Research Quarterly for Exercise and Sport*, 66(2), 116–128.
- Lussier, R. N., & Kimball, D. C. (2008). *Applied sport management skills*. United States: Human Kinetics.
- Morgan, K., Kingston, K., & Sproule, J. (2005). Effects of different teaching styles on the teacher behaviours that influence motivational climate and pupils' motivation in physical education. *European Physical Education Review*, 11(3), 257– 285.
- Mosston, M. (1978). *Del comando al descubrimiento*. Buenos Aires: Paidós.
- Mosston, M., & Ashworth, S. (1986). *La enseñanza de la Educación Física. La reforma de los estilos de enseñanza*. Barcelona: Hispano Europea.
- Muñoz, F. (2002). *Alternativas pedagógicas para acortar la brecha entre el currículo real y el formal*. (Tesis Doctoral). Cuba: Universidad de Santa Clara.
- Pankratius, W. (1997). Preservice teachers construct a view on teaching and learning styles. *Action in Teacher Education*, 18(4), 68– 76.
- Rodríguez, A. L., & Murcia, J. A. M. (2002). Aprendizaje de hechos y conceptos en educación física. *Apunts. Educación Física Y Deportes*, 63, 16–26.
- Rodríguez Osuna, J. (2002). *El análisis de la realidad social. Métodos y técnicas de investigación* (3ª ed.). Madrid: Alianza Editorial.
- Salvare, M., Jess, M., Abbott, A., & Bognár, J. (2006). A preliminary study to investigate the influence of different teaching styles on pupils' goal orientations in physical education. *European Physical Education Review*, 12(1), 51– 74.
- Sanchez, B., Byra, M., & Wallhead, T. L. (2012). Students' perceptions of the command, practice, and inclusion styles of teaching. *Physical Education and Sport Pedagogy*, 17(3), 317– 330.
- Shen, B., y Chen, A. (2007). An examination of learning profiles in physical education. *Journal of Teaching in Physical Education*, 2(26), 145–160.
- Sicilia, Á. (1997). *Evolución del conocimiento escolar del estudiante de bachiller en Educación Física durante una actualización docente orientada hacia la autonomía de la enseñanza. Un estudio de casos*. Universidad de Granada, Granada.
- Sierra Bravo, R. (2001). *Técnicas de investigación social. Teoría y ejercicios*. Madrid: Thomson.
- Solmon, M., & Lee, A. (1996). Entry characteristics, practice variables and cognition: student mediation of instruction. *Journal of Teaching in Physical Education*, 15(2), 136–150.
- Tuomey, J. (1998). An investigation of the relationship between the learning styles, the preferred teaching styles and the "academic ability" of leaving certificate pupils in a secondary school in Ireland. *Irish Educational Studies*, 17(1), 370-376.
- Zumbrunn, S., McKim, C., Buhs, E., & Hawley, L. R. (2014). Support, belonging, motivation, and engagement in the college classroom: A mixed method study. *Instructional Science*, 42(5), 661-684.