Implementation of The Spectrum of Teaching Styles in Physical Education According to the Characteristics of the School

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This study analyses physical education teachers' use and perceptions of the spectrum of teaching styles according to the characteristics of their schools. The study sample comprised 350 (35.1% women and 64.9% men) Spanish physical education teachers. The questionnaire used was based on the teachers' use of and beliefs about teaching styles. The main results show that there were no general differences in the use of styles by gender, hours per week, or ratio. However, the use of teaching styles, the ability to apply different teaching styles, and the perceived benefits in terms of fun, learning, and motivation were conditioned by the teaching level, class time, and the ownership of the schools. These findings illustrate physical education teachers' use and perceptions of the spectrum of teaching styles according to the context in which they work. This study could be beneficial to school administrations to identify how the characteristics of the schools can influence and condition the teaching methodology.

Keywords: style of teaching, institution characteristics, teaching and learning, physical education, schools

INTRODUCTION

Curriculum development is a process that involves the simultaneous interaction of many agents, including students, teachers, didactic materials, and the classroom context, all of which shape and construct meanings among the individuals involved (Alvunger, 2021).

Mosston & Ashworth (2008) suggest that teaching comprises a chain of decision-making. During the learning process, teachers and students make a series of decisions (Syrmpas et al., 2021).

These decisions can be classified based on three stages. First, there are pre-impact decisions that represent the planning and preparation decisions made prior to any teacher–learner interaction. Second, there are impact decisions that concern the implementation of the pre-impact decisions. Finally, there are post-impact decisions which define assessment during student practice time and assessment on how the episode has been produced (Byra et al., 2013; Mosston & Ashworth, 2008).

In the teaching-learning process, both the teacher and student can make decisions in each of these decision-making categories. Depending on who takes more responsibility for the decisions, the teacher or the student, we will be faced with one teaching style or another. The spectrum of teaching approaches consists of 11 landmark teaching styles, beginning from the Command style–A to the Self-Teaching style–K. In the Command style–A, the teacher makes the maximum decisions and the student the minimum, while the situation is vice versa in the Self-Teaching style–K (SueSee et al., 2019).

The teaching styles are command (A), practice (B), reciprocal (C), self-check (D), inclusion (E), guided discovery (F), convergent discovery (G), divergent discovery (H), learner-designed individual program (I), learner-initiated (J), and self-teaching (K). The use and significance of each style will be determined by the teaching objectives (Mosston & Ashworth, 2008).

The literature in general indicates that physical education teachers report using the command and practice styles more frequently than the other spectrum styles (Cothran et al., 2005; SueSee et al., 2019; Syrmpas et al., 2017).It should be noted that the selection of one teaching style or another will not only depend on the objectives that the teacher intends to work on, but will also be influenced by the context in which they are developed. Contextual factors outside of the teacher's control can influence instruction (Fischer et al., 2018; Kennedy, 2016).

In Spain, the "Organic Law 3/2020, of 29 December, which amends Organic Law 2/2006, of 3 May, on Education" established the national curriculum and suggested that children start school at six years of age. In elementary school (6–12 years), students have three hours of compulsory physical education (PE) every week. In secondary school (12–18 years), the first three academic years involve three hours of compulsory physical education weekly. The next two academic years have two hours, and the last academic year has physical education as an elective. Nonetheless, depending on the ownership of the educational center, the hours of compulsory physical education can increase. Thus, some private educational centers might require twice as many hours as a public center.

The spectrum represents a framework for teaching PE, designing PETE programs, and conducting studies regarding teaching styles spanning over 50 years (Byra et al., 2018) . There has been extensive research into teachers' preference and application of teaching styles according to the content they wish to teach and their effectiveness in instruction (Cothran et al., 2005; Curtner-Smith et al., 2001; Derri & Pachta, 2007; Jaakkola & Watt, 2011). Likewise, there has been research on the influence of teaching styles on the time spent in instruction, directing, waiting, and performing tasks (Byra et al., 2013).

However, no previous research has been known to analyze how the characteristics of the educational center affect the application of teaching styles in the classroom.

This paper is aimed at analyzing the effect of educational context factors – teaching level, class time, hours per week, student ratio, and center type in terms of ownership – on the use of teaching styles in physical education classes.

METHOD

This research used a quantitative, descriptive, and non-experimental methodology with a cross-sectional survey (Stockemer, 2019).

Participants

The size of the sample was determined through the formula of finite populations(Cea D'Ancona, 2004; Sierra Bravo, 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 95.5% with - 2 sigmas and + 2 sigmas for a normal distribution, and a margin of error of ± 4.8% for the established sample, obtaining a sample of 344 units in the population. The total final sample comprised 350 (35.1% female and 64.9% male) Spanish physical education teachers.

Procedure and material

Random, incidental and probabilistic sampling of the PE teachers was used to select the participants. The first phase involved place location and the establishment of contact with the schools and teachers selected for the study. After obtaining their approval for collaboration, standardized interviews were carried out with the questionnaire, and the information obtained was recorded. All participants were treated according to the ethical procedures recommended by the American Psychological Association about the consent, confidentiality, and anonymity of the participants. The questionnaire and background information forms could be completed in approximately 20 minutes.

Instruments

Kulinna and Cothran's (2003) teaching styles questionnaire form (Kulinna & Cothran, 2003) was translated and validated to be used in the Spanish context (Espada et al., 2019). Cronbach's α coefficient of 0.92 was obtained for the instrument. In addition, reliability coefficients for each individual teaching style were determined. They ranged from $\alpha = 0.71$ (command style) to $\alpha = 0.90$ (self-teaching style). Furthermore, the proportion between chi squared and degree of freedoms (X^2/df = 2.72, p < 0.001) and absolute index (RMSEA = 0.07) indicated an acceptable goodness of fit (Merino-Barrero et al., 2017). The questionnaire included a scenario for each of the 11 teaching styles, followed by one question related to the participants' experience with the style and three questions related to their perceptions of each style. The item pertaining to the teachers' experience with each style was "I have used this way to teach physical education." This item was rated on a five-point Likert scale (from 1 = never to 5 = always). Another question related to the perceived ability to use each style. This item

was "My teaching ability to implement this style is…." This item too was rated on a five-point Likert scale (from 1 = poor to and 5 = excellent). The three items pertaining to the teachers' perceptions of the benefits to students were (a) "I think this way of teaching would make class fun for my students," (b) "I think this way of teaching would help students learn skills and concepts," and (c) "I think this way of teaching would motivate students to learn." These three items were rated on a five-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). Further, the questionnaire included background questions concerning demographic characteristics (age and gender) and characteristics of the schools (hours per week, student ratio, class time, and center type).

Design and statistics

We revised the construct validity of the scale by performing a confirmatory factor analysis. Values of X^2 / gl, RMSEA, CFI, SRMR, and TLI were calculated, and Cronbach's α for each teaching style was reported. Thereafter, we analyzed the scores of the questionnaire. The statements corresponding to having fun, learning, and being motivated were lumped – averaged – in a new variable called perceived benefits (see Syrmpas et al., 2015). We then examined the experience in using teaching styles, the perceived ability, and the perceived benefits of the styles as a function of age, gender, teaching level, class time, hours per week, student ratio, and center type in terms of ownership. To this end, separate MANOVAs, univariate ANOVAs, and follow-up post hoc tests – either Tukey for equal variances or Games–Howell for unequal variances – were performed. The effect sizes of MANOVAs were expressed with partial eta squared (η_P^2), with values of 0.01, 0.06, and 0.14 for small, medium, and large effects, respectively (Cohen, 1988). The level of significance was set at α = 0.05, whereas the observed power (1-β) for multivariate tests was above 0.99 in all instances. SPSS V.25 (Armonk, NY: IBM Corp., USA) and jamovi V.1.6.5. (www.jamovi.org) were employed for statistical analysis.

FINDINGS

Descriptives, reliability, and validity of construct of the questionnaire

Descriptives of the five original categories can be found in Table 1. For the current questionnaire, the reliability coefficients for teaching individual styles averaged at a Cronbach's α of 0.87, ranging from α = 0.80 for the command style to α = 0.90 for the self-teaching style. Besides the proportion between chi-squared and the degree of freedoms (X^2 / df = 2.89, p), both incremental (CFI = 0.81) and absolute indexes (RMSEA = 0.07) indicated an acceptable goodness of fit (Merino-Barrero et al., 2017; Worthington & Whittaker, 2006).

Table 1
Mean (M) and standard deviation (SD) of the teaching styles' scores.

		Experience		Ability		Fun		Learning		Motivation	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
A	Command	3.25	0.79	3.50	0.76	3.08	0.83	3.39	0.84	3.19	0.88
B	Practice	3.41	0.66	3.75	0.78	3.67	0.76	3.72	0.79	3.75	0.78
C	Reciprocal	2.99	0.72	3.35	0.76	3.38	0.80	3.66	0.75	3.57	0.82
D	Self-Check	2.62	0.88	3.01	0.84	2.98	0.81	3.13	0.87	3.09	0.89
E	Inclusion	3.04	0.84	3.33	0.81	3.46	0.83	3.55	0.85	3.59	0.85
F	Guided Discovery	3.15	0.61	3.28	0.73	3.35	0.77	3.57	0.80	3.57	0.78
G	Convergent Discovery	2.80	0.84	3.08	0.85	3.31	0.82	3.39	0.86	3.34	0.84
H	Divergent Discovery	3.11	0.73	3.31	0.79	3.47	0.80	3.56	0.85	3.57	0.85
I	Learner-Designed	2.30	0.94	2.77	0.91	3.08	0.86	3.17	0.90	3.17	0.86
J	Learner-Initiated	1.85	0.86	2.37	0.90	2.60	0.99	2.64	0.97	2.70	1.00
K	Self-Teaching	2.02	0.80	2.37	0.93	2.75	0.94	2.69	0.97	2.80	0.96

Experience in the use of teaching styles

There were no general differences in the use of teaching styles by **gender, hours per week, or student ratio,** with the MANOVA showing a lack of significance ($p > 0.05$). The only exception was observed with Command style–A and gender; it was more used by men (M = 1.93, SD = 0.85) than women (M = 1.72, SD = 0.85) as per the ANOVA, with $F(1,348) = 5.01$, $p = 0.026$, and $\eta_p^2 = 0.01$.

The MANOVA revealed a difference in the use of teaching styles by **age**, with $F(44,1352) = 1.90$, $p < 0.001$, and $\eta_p^2 = 0.06$. The post hoc test indicated that younger teachers (20–30 years) used the Practice style (M = 3.71, SD = 0.76) more than teachers who were 31–40 (M = 3.35, SD = 0.63, t (345) = 3.45, p = 0.006) and 41–50 years old (M = 3.30, SD = 0.62, t(345) = 3.75, p = 0.002). Similarly, teachers of age 20–30 more often used Convergent Discovery (M = 2.90, SD = 0.80) and Learner-initiated (M = 3.37, SD = 0.86) than teachers who were 31–40 (M = 2.51, SD = 2.51, 0.89, t(89) = 2.91, p = 0.036) and 51–60 years old (M = 2.86, SD = 0.59, t(82) = 3.21, p = 0.016), respectively.

The MANOVA showed a medium effect for the **teaching level**, with $F(11,335) = 651.47$, $p < 0.001$, and $\eta_p^2 = 0.08$. This effect is primarily derived from the difference between primary and high school teachers' use of styles. High school teachers used the styles of Command (M = 3.24, SD = 0.58), Inclusion (M = 2.52, SD = 0.87), Guided discovery (M = 2.03, SD = 0.86), Divergent production (M = 3.25, SD = 0.80), and Learner-designed (M = 3.50, SD = 0.70) to a greater degree than primary teachers (M =

3.05, SD = 0.58, t(306) = -2.95, and p = 0.028 for Command; M = 2.09, SD = 0.94, t(345) = -4.18, and p <0.001 for Inclusion; M= 1.70, SD = 0.83, t(345) = -3.51, and p = 0.005 for Guided discovery; M = 2.92, SD = 0.79, t(345) = -3.52, and p = 0.004 for Divergent production; and M = 2.98, SD = 0.77, t(345) = -6.14, and p < 0.001 for Learner-designed. Intermediate-level sports technician teachers also used the learner-designed style (M = 3.75, SD = 0.46) more than primary teachers, with t(345) = -2.85 and p = 0.037. Participants who were high-level sports technicians used the self-check style (M = 3.35, SD = 0.86) more frequently than primary teachers (M = 2.85, SD = 0.71, t(345) = -2.79, p = 0.04), but they employed the divergent production style (M = 2.47, SD = 1.12) less frequently than high school teachers (M = 3.25, SD = 0.80, t(345) = 3.72, p = 0.002).

The use of teaching styles was also conditioned by the **class time**, with F(33, 1014) = 2.21, p < 0.001, and η_p^2 = 0.07. In particular, the convergent discovery style was used to a greater extent by teachers having 31–40 minutes of class time (M = 2.98, SD = 0.80) than teachers having more time for the class (M = 2.57, SD = 0.86, t(118) = 3.54, and p = 0.003 for 41–50 minutes & M = 2.44, SD = 0.91, t(144) = 3.88, and p < 0.001 for more than 50 minutes).

The amount of use of different styles was influenced by **center type** as well, with F(22, 676) = 2.27, p = 0.001, and η_p^2 = 0.07. Teachers working in private schools used the practice (M = 3.66, SD = 0.74) and self-check (M = 3.22, SD = 0.68) styles more than public school teachers (M = 3.33, SD = 0.62, t(83) = -3.04, and p = 0.009 & M = 2.85, SD = 0.74, t(347) = -3.59, and p = 0.001, respectively). Likewise, participants working in private schools used the inclusion (M = 2.59, SD = 0.86), command (M = 2.16, SD = 0.89), and convergent discovery (M = 2.90, SD = 0.93) styles more frequently than teachers from both charter (M = 2.23, SD = 0.88, t(120) = 2.50, and p = 0.037 for Inclusion, M = 1.78, SD = 0.81, t(247) = 2.70, and p = 0.020 for Guided discovery, and M = 2.52, SD = 0.94, t(347) = 2.63, and p = 0.024 for Convergent discovery) and public schools (M = 2.25, SD = 0.97, t(106) = -2.52, and p = 0.035; M = 1.80, SD = 0.86, t(347) = -2.75, and p = 0.017; and M = 2.59, SD = 0.81, t(347) = -2.37, and p = 0.048, respectively. Further, charter school teachers used the self-check style (M = 3.11, SD = 0.64) than public school teachers (t(347) = -3.04)).

Perceived ability to use teaching styles

The MANOVA did not identify a general effect on the ability to use the styles by **age, gender, hour per week,** and **ratio** (all p-values > 0.05).

The ability to use different teaching styles was influenced by **the level of teaching** of the participants, with F(44,1352) = 1.63, p = 0.006, and η_p^2 = 0.05. Primary school teachers reported less ability in using the reciprocal style (M = 3.20, SD = 0.77) than high-level sports technician teachers (M = 3.88, SD = 0.86, t(345) = -3.62, p = 0.003) and less ability in using the command style (M = 3.35, SD = 0.76) than both high school (M = 3.63, SD = 0.69, t(345) = -3.42, p = 0.006) and intermediate-level sports instructors (M = 4.13, SD = 0.64, t(345) = -2.89, p = 0.033).

The perceived ability also was influenced by the **class time**, with F (33,1014) = 2.91, p < 0.001, and η_p^2 = 0.09. Teachers with less class time (21–30 minutes) felt more capable of using the guided discovery style (M = 4.00, SD = 0.93) than teachers with 41–50 minutes (M = 3.29, SD = 0.74, t(346) = 2.73, p = 0.033) and more than 50 minutes of class time (M = 3.17, SD = 0.93, t(346) = 3.13, p = 0.010). However, these teachers with less class time (21–30 minutes) reported less ability in using the self-teaching style (M = 1.75, SD = 0.45) than teachers with 31–40 minutes (M = 2.37, SD = 1.04, t(18) = -2.97, p = 0.038) and 41–50 minutes (M = 2.44, SD = 0.89, t(9) = -3.90, p = 0.015), less ability in using the divergent production style (M = 2.63, SD = 1.06) than teachers with 41–50 minutes (M = 3.37, SD = 0.78, t(346) = -2.63, p = 0.044), and less ability using the command style (M = 2.88, SD = 0.83) than teachers with 31–40 minutes of class time (M = 3.63, SD = 0.89, t(346) = -2.67, p = 0.039).

The MANOVA also found an effect of the **center type** on the perceived ability, with F(22, 676) = 3.18, p < 0.001, and η_p^2 = 0.09. Teachers from public centers reported less ability in using guided discovery (M = 3.15, SD = 0.68) in comparison with both private school (M = 3.50, SD = 0.78, t(85) = -3.09, p = 0.007) and charter school teachers (M = 3.39, SD = 0.74, t(196) = -2.79, p = 0.016). Similarly, teachers working in charter schools felt more capable of using the reciprocal (M = 3.58, SD = 0.71) and command (M = 3.66, SD = 0.76) styles than public school teachers (M = 3.19, SD = 0.75, t(347) = -4.25, and p < 0.001 & M = 3.43, SD = 0.73, t(347) = -2.52, and p = 0.032, respectively). Finally, private school teachers reported more ability in using the learner-initiated style (M = 2.66, SD = 0.85) than charter school teachers (M = 2.25, SD = 0.90, t(347) = 2.78, p = 0.016). No further significant effects or post-hoc were found regarding perceived ability.

Perceived benefits in terms of fun, learning, and motivation

The MANOVA did not find a general effect on the perceived benefits by **age, gender, hours per week,** and **student ratio** (all p values > 0.05).

The perceived benefits varied by the participants' **teaching level**, with F(44,1352) = 1.46, p = 0.026, and η_p^2 = 0.05. The guided discovery style was perceived by high-level sports technicians (M = 3.98, SD = 0.71) as having more benefits compared with primary school (M =3.43, SD = 0.63, t(345) = -3.21, p = 0.012) and high school teachers (M = 3.39, SD = 0.71, t(345) = -2.83), p = 0.040). Also, high school teachers found the command style (M =3.33, SD = 0.73) more beneficial compared with primary school teachers (M =3.09, SD = 0.75, t(345) = -2.87, p = 0.035).

The MANOVA found an effect of **class time** on the perceived benefits, with F(33,1014) = 2.23, p < 0.001, and η_p^2 = 0.07. Teachers with 31–40 minutes of class time perceived the self-check style (M=3.37, SD = 0.78) as more useful compared with teachers with more time for lessons (M = 3.01, SD = 0.74, t(346) = 3.28, and p = 0.006 for 41–50 minutes & and M = 2.96, SD = 0.87, t(346) = 3.20, and p = 0.008 for more than 50 minutes). Meanwhile, teachers having 31–40 minutes found the learner-initiated style (M= 2.37, SD = 0.88) less beneficial compared with their counterparts having 41–50 minutes of class time (M = 2.75, SD = 0.87, t(346) = -2.84, p = 0.025). Further, teachers with less class time (21–30 minutes) perceived the convergent discovery style (M =

2.63, SD = 0.49) as less beneficial in comparison with their counterparts having more than 40 minutes of class time (M = 3.39, SD = 0.78, t(346) = -2.71, and p = 0.036 for 41–50 minutes & M = 3.40, SD = 0.86, t(346) = -2.67, and p = 0.040 for more than 50 minutes).

The ownership of the centers affected the perceived benefits of the styles, with $F_{(22, 676)} = 2.21$, p = 0.001, and $\eta_p^2 = 0.07$. Teachers from private schools perceived the styles of guided discovery (M = 3.74, SD = 0.59) and practice (M = 3.92, SD = 0.62) to have more benefits than teachers from public centers (M = 3.41, SD = 0.69, t(347) = -3.23, and p = 0.004 & M = 3.66, SD = 0.68, t(347) -2.59, and p = 0.027, respectively). Teachers working in charter schools reported less benefits for the learner-initiated style (M = 2.42, SD = 0.98) compared with teachers from both public (M = 2.70, SD = 0.87, t(347) 2.46, p = 0.038) and private schools (M = 2.89, SD = 0.90, t(347) = 3.10, p = 0.006) and cited less benefits for the self-check style (M = 2.97, SD = 0.81) in comparison with their counterparts from private centers (M = 3.30, SD = 0.80).

DISCUSSION

This study was designed to analyze the effect of educational context factors on Spanish teachers' use of the spectrum of teaching styles.

The descriptive data from the present research indicate that teachers are more experienced and skilled at using the command and practice teaching styles and less skilled at using learner-initiated and self-teaching styles. These teaching styles represent the two ends of the spectrum. Thus, teachers clearly have greater experience and skill in using directive styles or traditional learning students, in which the teacher has full authority in decision-making (Khalaf & Zin, 2018); this results in a more controlling environment in comparison with others teaching styles (Morgan et al., 2005). The study findings are in line with the cross-cultural analysis by Cothran et al. (2005) , including 1400 primary and secondary school teachers from seven different countries, that identified the command, practice, and reciprocal styles as the most commonly used styles.

Conversely, teachers lack experience and skill in using student-initiated styles, which are probably the most autonomy-oriented (Syrmpas et al., 2021) . In addition, the practice style scored highest in terms of its benefits for student learning. Although the crisis in the field of physical education has intensified the need for practitioners to move away from traditional teaching approaches and adopt thematic pedagogies that intentionally facilitate more inclusive, meaningful, and equitable experiences (Landi et al., 2016), teachers still remain comfortable with the use of direct teaching methods.

The analysis of the relationship between experience in the use of these styles and gender showed statistically significant differences in the use of the command style, which was more used by men than women. These differences align with other studies showing that women use fewer managerial styles than men (Macfadyen & Campbell, 2006; Merino-Barrero et al., 2017).

In addition, the present research identified an effect between the age of the teachers and

the use of some styles. Younger teachers used the practice style to a greater extent. In this style, the teacher makes most of the decisions in the teaching and learning process, delegating only some decisions during the phase of practice and execution of the task. This preference could be due to the need to maintain control of the class, as some authors, e.g. (Brunsdon, 2023; Cothran et al., 2005; Curtner-Smith et al., 2001) point out that keeping students under control is an environmental factor that affects the selection of the teaching style.

A medium effect was noted between the use of teaching styles and the teaching level. In secondary education, in addition to using the command style to a greater extent, teachers tend to use teaching styles in which more decisions pertaining the teaching and learning process can be delegated to students; these can be regarded as productive styles in which autonomy and consequently the intrinsic motivation of students are increased (Cañadas & Espada, 2023; Fernández-Espínola et al., 2020; Gil-Arias et al., 2020).

These data do not agree with the study by Syrmpas & Digelidis (2014)in which student teachers stated that as elementary and secondary students, they were more frequently exposed to reproductive teaching styles in their physical education classes, while their exposure to productive styles was significantly less frequent.

Similarly, we found that the perceived ability to use one style or another is influenced by the level of teaching of the participants. Primary teachers felt less capable of using the reciprocal style. This could be due to the fact that it requires students to have maturity and responsibility in giving and receiving peer feedback. However, previous research has demonstrated the positive effects on learning when using the reciprocal style: The close relationship developed between the "performer" and the "observer" increases students' motivation to improve feedback and performance (Byra et al., 2018). Also, encouraging peer feedback and asking deductive questions were also found to be effective strategies to enhance autonomous motivation and the satisfaction of basic psychological (Teraoka et al., 2021).

High-level sports technicians perceived the use of the guided discovery style as having more benefits for learning, while secondary school teachers considered the command style to have greater benefits. According to Mosston & Ashworth, (2008), there is no one teaching style that is better than another; however, some will be more effective than others depending on the teaching objectives.

In this sense, foresight research has shown that the cognitive development of students learning to dance using the convergent discovery style is higher compared with those learning under the command style (Corrales-Perea & Espada, 2022; De las Heras et al., 2019; Pitsi et al., 2023).

The results of the present work shows the influence of class time and school type on the selection of teaching styles used. Teachers with less class time used the convergent style more frequently than teachers with more class time and felt more capable to use guided discovery. These results are contrary to the study by Parsak & Sarac (2019) in which teachers' use of teacher-centered styles were found to be the result of a lack of class time and/or proper facilities or equipment. However, it is worth highlighting the striking

aspect of our findings, as for the successful execution of the convergent style, the teacher must trust the students to participate in convergent thinking and discover for themselves the solution to the motor problem posed (Mosston & Ashworth, 2008) . This implies that the teacher must be willing to allow students the time to experiment, search, and discover.

Finally, the results show an association between the use of teaching styles and school ownership. Teachers working in private schools tend to use reproductive styles to a greater extent than teachers working in public schools. This finding is in agreement with the research by (Fernandez & Espada, 2021) that observed significant differences in the use of teaching styles depending on the ownership of the school.

However, in the present research, private school teachers perceived the guided discovery style to be more beneficial for student learning. Similarly, the study by Teraoka et al. (2021) reported that PE teachers perceived that production teaching styles foster students' autonomy, motivation, discipline, responsibility, critical thinking, effective learning, and satisfaction and promote students' socialization and a sense of belonging as well as the adoption of PE as a lifelong habit.

CONCLUSIONS

The most relevant conclusions of this study suggest that the teacher age, teaching level, class time, and center type influence the selection of some teaching. Younger teachers and those who work in private schools prefer using more reproduction styles . Secondary school teachers and those with lesser class time use more production styles offering more autonomy to the students in decision-making.

Perceived ability was also influenced by the teaching level, class time, and school type. Primary school teachers felt less able to use reciprocal styles. Teachers with lesser class time and those working in public schools perceived themselves to be more capable of using guided discovery.

Finally, there is an effect of the teaching level, class time, and center type on the perceived benefits in terms of fun, learning, and motivation. The guided discovery style was perceived by high-level sports technicians and public-school teachers as having more benefits. However, high school teachers found the command style more beneficial compared with primary school teachers. Teachers with lesser class time perceived the self-check style as having more benefits.

Some limitations should be mentioned such as the impossibility to deepen into the reasons that teacher prefer determinate teaching style. To go more deeply into aspects related to the curriculum, sports facilities, equipment that could also condition the use of teaching styles. As a future line of research, it could be suggested to focus on the way that teachers implement the teaching styles using qualitative methodology through observational techniques or interviews and analyses the relation with the characteristics of their schools.

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