PHYSICAL EDUCATION STUDENTS' INTENTION OF USING THE SPECTRUM OF TEACHING STYLE IN THEIR FUTURE WORK

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Abstract

The spectrum of teaching styles in Physical Education is essential to achieve teaching goals and to increase students' motivation and their adhesion to physical activities and sports. The purpose of this study was to examine physical education university students´ intention of using the spectrum of teaching styles according to their academic level and year. This research followed a quantitative descriptive methodology using a survey with a standardized procedure for collecting data via questions to the participants. Questionnaire based on students' beliefs about teaching styles. The sample was made up of 667 Spanish physical education university students (77.8% men and 22.2% women, aged from 18 to 30). A descriptive analysis (mean and standard deviation) and an inferential statistical analysis were carried out using different tests (Student's t test and ANOVA). The results of this investigation show that in general students prefer to use reproductive styles (3.24±1.53) rather than productive styles (3.10±.55) in their future work as physical education teachers. The guided discovery and divergent production styles receive higher scores than other teaching styles, both of them are included in the productive styles cluster (student-centered learning). The level of academic studies (Master's degree students or Degree students) influences the intention of using reproductive styles ($t_{(50.481)} = -2.025$, $p = .04$) and productive styles ($t_{(47.997)} = -1.935$, $p = .05$). Furthermore, the year of studies they are currently in also influences the intention of using reproductive styles ($F_{(4)} = 2.732$, $p = .02$ $\eta p^2 = .01$) and productive styles ($F_{(4)} = 9.743$, $p = .00$ $\eta p^2 = .05$). The intention of using guided discovery, learner-designed, self-check and divergent production styles increases with the years of study. On the contrary, the intention of using the most traditional styles (command and practice) decrease with the years of study. These findings illustrate the future physical education teachers´ intention of using the teaching styles in their future lessons and show how their intention changes during their years of study.

Keywords: *Teaching styles, physical education, university students.*

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1. Introduction

Teaching styles in physical education are the teaching climate and the models of stimulation and organization used to teach, they are recognized by the way in which the teacher's interactions occur (Blázquez, 2017).

The theory of the spectrum of teaching styles created by Muska Mosston in 1966 has been considered internationally as the pedagogical basis in the field of physical education (Cañadas & Espada, 2023). The fundamental proposition of this theory is that teaching is governed by a single unifying process: decision making (Mosston & Ashworth, 2008). In this line of thought, Sánchez, Byra, and Wallhead (2012) suggest that the spectrum is a series of tools that provide physical education teachers with 11 different teaching options to address student diversity and achieve multiple physical education objectives.

Pedagogical models in general terms are divided into two clusters, one of them is teacher-centered learning and the other is student-centered learning. Specifically, the terms teacher-centered (direct) and student-centered (indirect) have commonly been used by researchers to categorize the reproductive and productive clusters, respectively (Mosston & Ashworth, 2008; Syrmpas et al., 2020).

- Reproductive styles, the teacher is a greater protagonist in the teaching and learning process since the students only perform what the teacher indicates. The following styles come within this group: command (A), practice (B), reciprocal teaching (C), self-check (D) and inclusion styles (E).

- Productive styles are those in which students have greater responsibility in the activities or tasks, they are invited to engage in discovery and creativity for the resolution of the different activities. The styles found within this group are the following: guided discovery (F), convergent discovery (G), divergent discovery (H), Learner Designed Individual Program (I), Learner Initiated (J) and self-teaching (K).

Goldberge, Ashworth and Byra (2012) determine that for the sport pedagogy scholar, the spectrum of teaching styles in physical education serves both as an organized repository for knowledge about teaching as well as a catalyst for generating new pedagogic research questions. Based on this consideration, the spectrum of teaching styles should be presented to physical education teachers during their undergraduate studies. In Spain, there are two undergraduate Physical Education Teacher Education (PETE) programs. The first one is Primary Education with its concern for the education of children between 6 and 12 years old. The second one is Sport Sciences that prepares students to teach physical education (PE) to adolescents between 12 and 18 years old. Preservice physical education students complete a master's degree program in Physical Education Teacher Education (PETE) in Spain. This master's degree focuses on the theoretical, methodological and research aspects of teaching and learning in physical education.

2. Objectives

The main objectives set out in this research were:

- To analyze university students´ intention of using the spectrum of teaching styles according to their academic level.
- To analyze university students´ intention of using the spectrum of teaching styles according to their academic year.

3. Methods

This research used a quantitative, descriptive, and non-experimental methodology analyzing the collected data to verify the correlation among the objectively studied variables (Cea D´ancona, 2001).

3.1. Participants

The sample was made up of 667 Spanish physical education university students (77.8% men and 22.2% women, aged from 18 to 30).

3.2. Instruments

The questionnaire used was the students' experiences with and perceptions of teaching styles (Cothran et al., 2000). The adaptation and validation for the Spanish version was carried out in order to be used in the Spanish educational context (Espada et al., 2021). A Cronbach's α coefficient of 0.89 was obtained in the instrument. The questionnaire included a scenario for each of the 11 teaching styles followed by questions. This research used the item "I intend to make use of this teaching style in the future as a physical education teacher". This item was rated on a 5-point Likert scale (from 1 = never to 5 = always).

3.3. Procedure

After obtaining the approval for collaboration from the students, the questionnaire was administered and the information obtained was collected and recorded.

3.4. Statistical analysis

Statistical analysis was performed using SPSS (Windows, v.27.0). Statistical significance was set at $P<0.05$. Normality was confirmed with the Kolmogorov-Smirnov test, and thus, parametric statistics were used (T-Student and one-way ANOVA).

4. Results

Students prefer to use reproductive styles (3.24±1.53) rather than productive styles (3.10±.55) in their future work as physical education teachers.

Students' differences in intention to use teaching styles according to their academic level are shown in Table 1. Degree students and master's degree students prefer to use the guided discovery style (3.62±0.81; 3.70±0.82, respectively) and divergent production (3.54±0.84; 3.77±0.77, respectively). When analyzing the relation to students´ level of academic studies and their intention to use the two cluster styles

there are significant differences in both reproductive styles (t (50.481) = -2.025, p = .04) and productive styles (t (47.997) = -1.935, p = .05) (Table 2).

Table 1. Mean (M) and Standard Deviation (SD) of the teaching style scores according to academic level.

	Degree		*Master*	
	M	*SD*	*M*	*SD*
A Command	*3.06*	*0.94*	*3.20*	*0.93*
B Practice	*3.50*	*0.82*	*3.57*	*0.72*
C Reciprocal	*3.45*	*0.83*	*3.55*	*0.92*
D Self-Check	*2.83*	*0.93*	*3.02*	*0.97*
E Inclusion	*3.36*	*0.92*	*3.64*	*0.78*
F Guided Discovery	*3.62*	*0.81*	*3.70*	*0.82*
G Convergent Discovery	*3.42*	*0.86*	*3.34*	*0.74*
H Divergent Discovery	*3.54*	*0.84*	*3.77*	*0.77*
I Learner-Designed	*2.94*	*0.93*	*3.20*	*0.90*
J Learner-Initiated	*2.59*	*0.97*	*2.73*	*1.26*
K Self-Teaching	*2.45*	*0.94*	*2.91*	*0.98*

Table 2. Students' t-test results of the teaching style scores according to academic level.

	Reproductive styles				**Productive styles**			
	M±SD	t	df	p	M±SD	t	df	p
Degree	3.23±0.43	-2.025	50.48	.04	3.09±0.55	-1.935	47.99	.05
Master	3.39±0.49				3.27±0.61			

Students' differences in intention to use teaching styles according to their academic year are shown in Table 3. The intention of using guided discovery, learner-designed, self-check and divergent production styles increases with the years of study. On the contrary, degree students' intention of using the command and practice styles decreases with the years of study. The year of studies they are currently in also influences the intention of using reproductive styles ($F_{(4)} = 2.732$, $p = .02$ $\eta p^2 = .01$) and productive styles ($F_{(4)} = 9.743$, $p = .00$ $\eta p^2 = .05$) (Table 4).

Table 3. Mean (M) and Standard Deviation (SD) of the teaching style scores according to academic year.

	1st Degree		*2nd Degree*		*3rd Degree*		*4th Degree*		*Master*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
A Command	*3.44*	*1.02*	*3.04*	*0.86*	*3.02*	*0.82*	*2.56*	*0.99*	*3.20*	*0.93*
B Practice	*3.80*	*0.66*	*3.43*	*0.79*	*3.47*	*0.81*	*3.30*	*0.91*	*3.57*	*0.72*
C Reciprocal	*3.37*	*0.84*	*3.51*	*0.80*	*3.42*	*0.81*	*3.47*	*0.89*	*3.55*	*0.92*
D Self-Check	*2.58*	*0.97*	*2.80*	*0.92*	*2.99*	*0.86*	*2.94*	*0.92*	*3.02*	*0.97*
E Inclusion	*2.90*	*1.00*	*2.79*	*0.86*	*2.93*	*0.91*	*3.45*	*0.91*	*3.55*	*0.92*
F Guided Discovery	*3.36*	*0.93*	*3.62*	*0.72*	*3.64*	*0.75*	*4.03*	*0.77*	*3.70*	*0.82*
G Convergent Discovery	*3.30*	*0.92*	*3.42*	*0.83*	*3.39*	*0.87*	*3.69*	*0.73*	*3.34*	*0.74*
H Divergent Discovery	*3.20*	*0.85*	*3.54*	*0.81*	*3.60*	*0.77*	*4.03*	*0.79*	*3.77*	*0.77*
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	*2.52*	*1.05*	*2.52*	*0.91*	*2.70*	*0.96*	*2.66*	*0.98*	*2.73*	*1.26*
K Self-Teaching	*2.47*	*1.00*	*2.39*	*0.91*	*2.50*	*0.92*	*2.49*	*0.98*	*2.91*	*0.98*

Table 4. ANOVA of the teaching style scores according to academic year.

	Reproductive styles				**Productive styles**			
	M±SD	F	p	ηp^2	M±SD	F	p	ηp2
1st Degree	3.26±0.60	2.732	.02	.01	2.95±0.59	9.743	.00	.05
2nd Degree	3.24±0.49				3.04±0.48			
3rd Degree	3.27±0.49				3.12±0.57			
4th Degree	3.08±0.59				3.39±0.49			
Master	3.39±0.49				3.27±0.61			

5. Discussion

The aim of this study was, on the one hand, to analyze university students´ intention of using the spectrum of teaching styles according to their academic level, and on the other, to analyze university students´ intention of using the spectrum of teaching styles according to their academic year. The findings of the present study show that students prefer to use reproductive styles rather than productive styles in their future work as physical education teachers. These results are in line with the study by Cothran, Kulinna, and Ward (2000) about students´ physical education experiences in terms of teacher use of spectrum styles, students recollected that the styles their teachers employed were almost exclusively from the reproductive cluster (i.e., teacher-centered styles of teaching).

Regarding possible differences in intention to use teaching styles according to academic year, the data from this study show that degree students' intention of using the command and practice styles decreases with the years of study. These data could be due to the fact that the command and practice styles were most frequently identified because most physical education teachers use instructional strategies (teacher- centered styles) (Cothran et al., 2005; Kulinna and Cothran, 2003; Sánchez, Byra and Wallhead, 2012) and, when physical education students´ learn about others possibilities they prefer others teaching styles.

6. Conclusions

The conclusion from this research regarding the students' preference to use reproductive styles rather than productive styles but their intention changes during their years of study. The intention of using guided discovery, learner-designed, self-check and divergent production styles increases with the years of study.

References

Blázquez, D. (2017). *Métodos de enseñanza en educación física. Enfoques innovadores para la enseñanza de competencias (Teaching methods in physical education. Innovative approaches to teaching competencies).* Barcelona: INDE.

Byra, M., Sanchez, B., & Wallhead, T. (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. https://doi.org/10.1177/1356336X13495999

Cañadas, L., & Espada, M. (2023). Relationship between preference in teaching styles with participation in assessment and teaching styles that support basic psychological needs in Physical Education. *Revista de Educación, 399*, 199-219. https://doi.org/10.4438/1988-592X-RE-2023-399-567

Cea, M.D. (2004). Métodos de encuesta: teoría y práctica, errores y mejora (survey methods: theory and practice, errors and improvement). Madrid: Síntesis.

Cothran, D.J., Kulinna, P.A., & Ward, E. (2000). Students' experiences with and perceptions of teaching styles. *Journal of Research and Development in Education, 33*, 93–102.

Cothran, D.J. et al. (2005). A cross-cultural investigation of the use of teaching styles, *Research Quarterly for Exercise and Sport, 76*(2), 193-201

Espada, M.; Fernández, M.; Calero, J.C. (2021). Validación Española del cuestionario experiencia y percepción de los estudiantes del espectro de estilos de enseñanza en Educación Física (*Validation of the spanish version of the physical education students' experience and perceptions of the spectrum of teaching styles questionnaire*). *Journal of Sport and Health Research. 13*(2):305-318.

Goldberge, M, Ashworth, S & Byra, M. (2012) Spectrum of Teaching Styles Retrospective 2012. *Quest, 64*, 268–282. DOI: 10.1080/00336297.2012.706883

Kulinna, P. H. & Cothran, D. J. (2003). Physical education teachers' self-reported use and perceptions of various teaching styles, *Learning and Instruction, 13*(6), 597-609. http://dx.doi.org/10.1016/S0959-4752(02)00044-0

Mosston, M., & Ashworth, S. (2008). *Teaching Physical Education*. 1st online ed. Pearson Education.

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. Retrieved from https://doi.org/10.1080/17408989.2012.690864

Syrmpas, I., Papaioannou, A., Digelidis, N., Erturan, G., & Byra, M. (2020). Higher-Order Factors and Measurement Equivalence of the Spectrum of Teaching Styles' Questionnaire Across Two Cultures. *Journal of Teaching in Physical Education, 40(2),* 245-255.