

The effects of reciprocal, self-check, and command teaching styles on dance learning

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Abstract

Background and Study Aim Implementation of dance in physical education is in conformity with the requirements of modern education which fosters lifelong exercise for health and quality of life. The study aimed to determine which of the applied teaching styles would have the most significant impact on dance learning and the improvement of dance performance. Additionally, to assess the effects of these teaching styles on factors such as Task climate, Social relatedness, Autonomy, and Ego climate, as well as the relationship between these effects and gender.

Material and Methods The study was carried out on a sample of 58 students attending a university study program for a Physical Education teacher, aged between 20 and 22, divided into three groups: reciprocal (N=19), self-check (N=18), and command (N=21). The study utilized the Motivational Climate on Physical Education Scale (MCPES).

Results The two-way Analysis of variance and the Tukey Post Hoc Test were used to analyse the differences in teaching styles as well as differences according to gender. During the learning process, differences between teaching styles progressively increased. The preferred teaching style in partner dances was the reciprocal style, which led to a significant improvement in the learning process, particularly among female students.

Conclusions The obtained results suggest that the reciprocal style is the most effective method for learning dances that are performed in pairs. Student-centred teaching style more than teacher-centred, should be preferred when learning dances.

Keywords: student-centeredness, gender differences, university students, learning progress

Introduction

The implementation of dance contents in physical education (PE) classes have physiological, psychological and social benefits for students. According to previous studies, dance content can have the positive impact on students cardiovascular system, muscular strength, coordination, flexibility, balance, and psychological well-being [1], can improve general health status [2], can improve student's creativity [3], inclusiveness and social interaction [4]. Especially for developing student's creativity, student-centered approach and active participation of students in class is in conformity with the requirements of modern education. Student-centred approach [5, 6] will encourage their critical reflection and independent problem solving which can be achieved by applying appropriate teaching style.

Mosston has defined nine teaching styles used in PE, and their application as coaching styles in the field of sports is also justified [7]. For the purpose of this study, three styles applied were those assumed to be effective when teaching a dance in physical education classes, and these were: command style,

reciprocal style, and self-check style. Differences in these styles are reflected in different roles of teachers and learners in the process of leading and decision-making during teaching. According to previous studies in which different learning styles have been analysed, practice style, command style and inclusion style were mostly used in PE [8], which did not mean that they were equally effective in dance teaching. Authors Fernández & Espada (2021) [9] confirmed that the command style was mostly used in PE classes, but they pointed out that the use of a style depended on the type of teacher's education. Generally, previous studies favoured more inventive and less traditional teaching styles in PE classes [10-12]. Only a few studies analysed teaching styles in dance in PE [12, 13], however, there are no studies that analysed the connection between teaching styles and results achieved in performing a dance through the PE learning process. Therefore, available information confirming the effects of teaching styles during the learning process is limited.

The motivational climate in PE classes affects motivation, personal experience of students and their attitudes towards physical activity [14-16]. Teachers who can create a suitable positive

environment in classes in which students actively participate, will more easily reach the goals of the learning process [17-18]. If there is no positive climate for active learning, it will be more difficult to achieve set goals in the educational process [19]. Successful PE lessons are directly connected to the development of best possible pedagogical working environment and a positive motivational climate. Therefore, the possibility of assessing a positive motivational climate, as well as its influence on individual activities within PE lessons, is of exceptional importance for successful education and acquisition of skills.

Monitoring the process of dance teaching in PE classes is possible if there are objective and individual indicators of progress in dance skills. In the last 3 to 5 years, different studies have addressed the issue of the teaching process and special methods of evaluating dances in PE classes [20-22]. Therefore, new methods of assessing learning progress, especially in dance sport, can be successfully implemented for the purpose of monitoring the learning progress and analysing differences in the teaching styles. However, the question that remains open is which teaching styles should be applied in learning dance, at what age, and are there any gender specificities.

The objectives of the present study were to: (1) determine which of the three teaching styles, the reciprocal style, self-check style and command style, would best influence students in dance learning and in improving dance performance; (2) analyse the influence of a motivational climate on different teaching styles (reciprocal style, self-check style and command style) during dance learning among female and male students.

Material and methods

Participants

Fifty-eight students attending a university study programme for a Physical Education teacher, aged between 20 and 22 (28 male students and 30 female students), voluntarily participated in this study. At the beginning of the teaching process, students were randomly assigned to three study groups: a) reciprocal (N= 19, 9 female students and 10 male students); b) self-check (N=18, 11 female students and 7 male students); c) command (N=21, 10 female students and 11 male students). Before the beginning of the study, it was determined whether the students had already had any skills in dance sport, and those having such skills did not participate in the study. Then, the participants from all groups were given basic information and instructions regarding: a) basic information on the study and the study objectives, b) basic information on the questionnaire being conducted and the way to fill out the questionnaire, as well as anonymity

in the interpretation of results. Participation in the study was voluntary and participants were informed that they could withdraw at any time. The study implementation was approved by the Ethical Board of the Faculty of Kinesiology, University of Split.

Research Design

Motivational Climate on Physical Education Scale (MCPES) questionnaire was implemented according to a study of Soini et al. [23] and Topatsi et al. [24], in which the questionnaire scales were reduced from 45 to 18 in validation, the latter determining 4 factors: Autonomy factor; Social relatedness factor, Task involving climate factor and Ego involving climate factor. The five items from the Autonomy dimension represents a chance to choose among different activities in a PE lesson and examines the opportunities that PE provides to support students' independence, free choices, and the extent to which they can intervene in shaping a lesson. The five items from the Task - involvement dimension represents effort and self-improvement, and examines the participant's effort for personal improvement and the perception that mistakes are part of the learning process. The four items from the Ego-involvement items dimension represent normative comparison and examines the presence of competitive climate in the lessons and the sense of superiority over classmates. The four items from the Social relatedness dimension represent the students' unity in PE classes and explores the development of team spirit, unity, and collaboration between the students to resolve difficult situations during a lesson. Each item was rated on a five-point Likert- type scale ranging from 1 (strongly disagree) to 5 (totally agree).

The process of learning and assessing dances included basic dance structures of samba steps with a tempo of 121 BPM (beats per minute), allegro, and in the 4/4-time signature: (1) basic step; (2) Whisk; (3) Chucharacka (4) samba turn, and (5) general aesthetic impression of regular technical performance and choreography coherence. The learning process for all three analysed groups included common methodological procedures that consisted of: (1) explanation and demonstration of basic stance and movements, (2) demonstration of dance parts at a slower rhythm followed by counting, (3) demonstration of the dance in its regular rhythm followed by counting, (4) demonstration of the dance followed by music, (5) connecting dance parts in one dance structure – choreography.

Differences in the learning process were defined by different dance teaching styles, assigned to the participants randomly:

- 1) Command teaching style - the teacher constantly managed the course of learning and correcting mistakes in class;
- 2) Self-check teaching style - following the first

phase of demonstration and instruction without and with music, the students practiced what they had learned in front of a mirror trying to spot and correct their mistakes;

- 3) Reciprocal teaching style – the students, following the first phase of demonstration and instruction without and with music, practiced in pairs and corrected each other's mistakes.

The evaluation of progress in learning samba structures was carried out in three phases, marked as follows:

- (S1) the beginning of the learning process in which the basic steps and Whisk were learned and assessed;
- (S2) the course of the learning process in which basic steps and Whisk were repeated and new dance structures of Chucharacka and samba turn were acquired and assessed;
- (S3) the final phase of the learning process in which samba choreography was practiced and assessed.

The overall learning and assessment process in all three groups lasted for three weeks, two lessons per week. In the first lesson of each week, new dance steps were adopted, and in the second class of each week, the acquired content was revised, after which the assessment was carried out. The assessment was carried out by three independent experts, in order to determine the objectivity of the tests for evaluating dance structures in accordance with a previous study conducted on a student population. [22, 25, 26]. The experts were PE teachers with dance experience in the field of dance sport. On the 5-point Likert scale, they assessed the performance of each individual student in all three measurement points, according to previously prepared criteria as follows:

- point 5 indicated correctly performed dance steps to the music;
- point 4 indicated small mistakes in the performance of dance steps to the music;
- point 3 indicated medium mistakes in the performance of dance steps to the music;
- point 2 indicated big mistakes in the performance of dance steps to the music;
- point 1 indicated incorrect performance of dance steps.

Statistical analysis

In order to determine the influence of different teaching styles on the process of dance learning, and to analyse the influence of a motivational climate during dance learning, especially according to gender, a two-way analysis of variance (two-way ANOVA) was used with the independent variables of: a) gender (male and female students) and teaching styles (reciprocal, self-check, command). The Tukey Post Hoc Test was used to determine significant differences among means. The significant level was set at $p < 0.05$. For analysing the objectivity of

dance experts, and in order to assess the internal consistency of the MCPES subscales, Cronbach's alpha was calculated.

Results

Internal consistency reliability values for the four MCSPEs sub-scales are shown in Table 1. The Cronbach alpha coefficients for the four subscales were all above 0.70 and ranged from 0.72 (Autonomy) to 0.81 (Social relatedness). According to values of Cronbach's alpha (Table 1), dances experts in all three measurements points (S1, S2, S3) showed high objectivity while assessing dance performance. The mean values and standard deviations of the participants scored on the MCPES scale, for all three groups (reciprocal, self-check, command) are shown in Table 2. On the total sample of subjects, the highest mean scores were found for the Autonomy dimension (in both male and female students), and then in the Social relatedness dimension (in both male and female students), all above the mathematical mean. The lowest mean scores were found for the Ego climate factor (in both male and female students).

Table 1. Internal Consistency of the scales.

Sub-scales	α -Cronbach
Task climate (I)	.73
Social relatedness (II)	.81
Autonomy (III)	.72
Ego Climate (IV)	.75
Dance performance – first measurement (S1)	.98
Dance performance – second measurement (S2)	.98
Dance performance – third measurement (S3)	.96

Out of all four MCPES sub-scales, only the Autonomy support dimension, according to the Two-way analysis of variance, had statistical significance $F_{(1,52)} = 7.686$ ($p=0.008$) for the gender factor. According to the Tukey Post Hoc Test, significant differences were obtained between male and female students from the overall sample ($p=0.012$).

The process of samba learning was analysed in three measurement points (S1, S2, and S3). For all three study groups (reciprocal, self-check, command), the results of the mean values and standard deviations of the subjects, achieved in the three measurement points of the process of samba learning, especially according to gender, are shown in Table 2.

No significant interaction $F_{(1,52)} = 3.960$ ($p=0.052$) was found for the gender factor in the first measurement point of samba learning (S1), in which the two-way analysis of variance between two

Table 2. Mean values and standard deviations ($M \pm SD$) of the three learning style groups (males and females separately) in MCPES subscales: Task climate (I), Social relatedness (II), Autonomy (III), Ego climate (IV) and samba dance performance in three measurement points during learning process (S1, S2, S3)

Sub-scales	Reciprocal			Self- Check			Command			Total N=58
	male n=10	female n=9	total n=19	male n=7	female n=11	total n=18	male n=11	female n=10	total n=21	male n=28 female n=30
I	2.90±0.25	2.31±0.71	2.62±0.59	2.71±0.47	2.75±0.70	2.73±0.61	2.75±0.63	2.70±0.97	2.72±0.79	2.79±0.47 2.60±0.80
II	4.13±0.41	4.14±0.60	4.13±0.50	3.64±0.75	4.14±0.41	3.94±0.60	4.00±0.82	3.80±1.12	3.90±0.96	3.96±0.68 4.03±0.76
III	4.12±0.42	4.58±0.31	4.34±0.43	3.89±0.76	4.56±0.34	4.30±0.62	4.22±0.42	4.18±0.67	4.20±0.54	4.10±0.52 4.44±0.49 ^f
IV	2.78±0.43	2.64±0.95	2.71±0.71	2.00±0.56	2.32±0.80	2.19±0.72	2.66±0.82	2.28±0.74	2.48±0.79	2.54±0.69 2.40±0.82
S1	1.90±0.69	3.30±0.61 ^e	2.56±0.96	1.95±0.76	2.27±1.10	2.15±0.97	2.52±1.26	2.37±1.16	2.44±1.18	2.15±0.98 2.61±1.07
S2	2.83±0.59	3.96±0.72 ^b	3.37±0.86	2.86±0.90	2.70±1.03	2.76±0.96	2.88±1.00	3.17±0.93	3.02±0.96	2.86±0.82 3.23±1.03
S3	4.17±0.74	4.52±0.50 ^{ac}	4.33±0.65	3.29±0.91	3.15±0.87	3.20±0.86 ^e	3.33±1.01	3.60±0.98	3.46±0.97 ^d	3.62±0.95 3.71±0.98

a: $p < 0.05$ from self-check group female, b: $p < 0.05$ from self-check group females, c: $p < 0.05$ from command group males, d: $p < 0.05$ from reciprocal group total, e: $p < 0.05$ from reciprocal group male, f: $p < 0.05$ from male; I - MCPES subscale Task climate (rang 1-5); II - MCPES subscale Social relatedness (rang 1-5); III - MCPES subscale Autonomy (rang 1-5); IV - MCPES subscale Ego climate (rang 1-5); S1 - Dance performance – first measurement (rang 1-5); S2 - Dance performance – second measurement (rang 1-5); S3 - Dance performance – third measurement (rang 1-5).

factors (teaching style and gender) was used, but the Tukey Post Hoc Test showed significant differences between the female and male group that acquired the skill of dance by the use of the reciprocal style in favour of female students ($p=0.037$). In the second measurement point of samba learning (S2), the Tukey Post Hoc Test showed significant differences between female groups in self-check and reciprocal teaching style in favour of female students from the reciprocal group ($p=0.028$).

In the third measurement point of samba learning (S3), the results showed a significant interaction with the teaching styles factor $F_{(2,52)} = 8.787$ ($p=0.001$). According to the results of the Tukey Post Hoc Test, significant differences were found in the third measurement point of samba learning (3) between the female group which learned samba in the reciprocal style and the group of male students which learned samba in the command style in favour of female students ($p=0.037$). Furthermore, significant differences were found between the group of female students from the reciprocal and self-check groups in favour of the reciprocal group ($p=0.010$).

Finally, in the third measurement point, significant differences were obtained in the overall sample (female and male students together) between the group of students which learned samba in the reciprocal style and the group which learned samba in the self-check style ($p=0.001$), as well as between the group of students which learned samba in the reciprocal style and command style ($p=0.006$), and according to which the students from the reciprocal group showed better results.

According to the results of the Repeated Measures Analysis of Variance (Fig. 1), significant differences were found $F_{(4,110)} = 5.549$ ($p=0.001$) between measurements in the learning process (S1, S2, S3) in the overall sample of participants (female and male students together) in all three study groups (reciprocal, self-check and command).

Discussion

The present study was conducted in order to analyse the process of samba learning and to determine preferred teaching styles, especially according to gender, and to see which style would generate best performance results in students. At

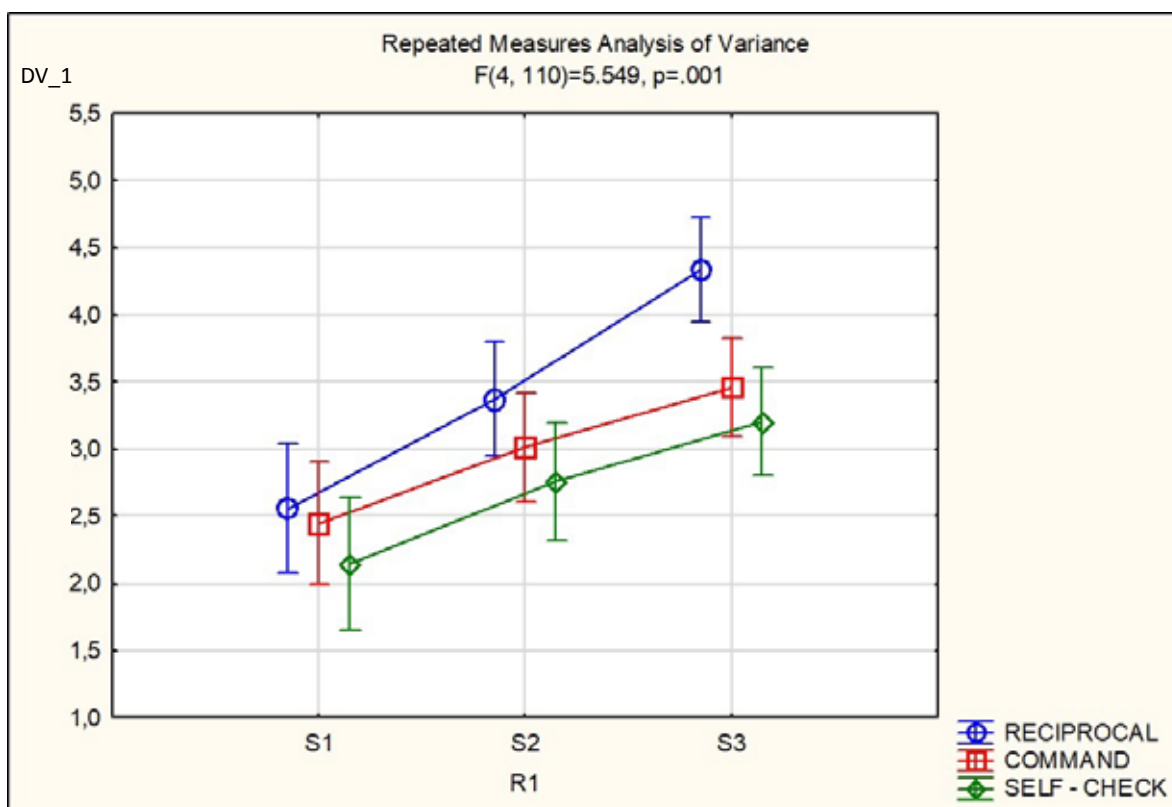


Figure 1. Differences between measurements in the learning process (S1, S2, S3) in the overall sample of participants (female and male students together) in all three study groups (reciprocal, self-check and command).

the same time, it was important to determine what kind of motivational climate would be desirable in order to make the learning of a dance to students as adult beginners more successful. The selected dance contents as well as teaching methods were in congruence with the contents and methods of learning a dance in PE classes.

The subscales of the MCPES questionnaire, Task climate, Social relatedness, Autonomy and Ego climate, according to the obtained results, do not have a significant role in the progress of teaching a dance to adult beginners, regardless of employed teaching style, but the Autonomy factor within the motivational climate of learning a dance is different for men and women. According to previous studies, student-centred autonomy in the teaching process, as one of three dimensions of social environment, affects the improvement of intrinsic motivation due to the ability of students to choose certain contents and methods in the teaching process, and to make decisions themselves [27]. In a teaching environment in which student-centred autonomy is implemented, students are more satisfied and active during the teaching process [28]. On a sample of student population from previous studies, there were differences in teaching styles and the Autonomy factor, as male students from the self-check group felt greater autonomy than those from two other groups [13]. It was noticed that the self-

check teaching style suited them best in order to create a positive motivational climate, which has not been the case with the present study. Even though the values of the Autonomy factor were high in this study in both male and female students, when compared to the results of the study conducted by Pitsi et al . [13], the values of the Autonomy factor were higher, regardless of the used teaching style. It is obvious that there was a generally positive motivational climate among the PE students regardless of the style, which is understandable because they were already motivated by their commitment to a profession in which they teach physical activity to others, and all teaching styles provided a stimulating motivational climate to them. But when it came to the dance activity, female students felt more competent than male students in making decisions, choosing content and generally in influencing the flow of work in class. The results are congruent with a study by Queste and Duda [29] conducted on a sample of dancers, according to which dancers' perceptions of autonomy support significantly and positively predicted autonomy and relatedness satisfaction.

The process of dance learning was analysed in three measurement points with a two-way ANOVA in order to get a better insight into the effects of different teaching styles, especially according to gender and for each teaching style separately.

According to Mattsson and Larsson [30] the teachers' pedagogical methods are illuminated in programming risks in teaching and negotiating environmental risks, according to which it is necessary to foresee certain risks and encourage students to be creative already in the initial phase of dance learning. At the beginning of the learning process, there were no significant differences between the groups, as expected, except for the obtained differences between female and male students in the reciprocal style. At the beginning of the learning process, female students achieved better results in the reciprocal style. In the form of teaching in the reciprocal style, when male and female students independently practiced learned dance elements in pairs in the second part of the lesson and corrected each other, female students achieved better results. These differences at the beginning of learning were observed only in students who practiced the dance in the reciprocal style. During the learning process, in the second measurement phase, there were significant differences between female students from the reciprocal and self-check groups, and the same resulted in the third measurement. There were no such differences in the first measurement. The self-check teaching style was characterized by independent learning in the second part of the lesson, after the necessary instructions were given. Self-correction implied looking at one's own performance in the mirror, and noticing and correcting one's own mistakes. In the reciprocal style, the phase of mistake correction, the students were put in pairs and the process was carried out without the interference of the teacher. It has been clear that female students from the reciprocal group progressed faster and that this way of teaching benefited them. Independent error analysis and correction by looking in the mirror while learning in a gender-mixed group, did not make the beginner female students from this study feel in a comfort zone for learning. Although studies usually favour more inventive and less traditional teaching styles in physical education, [10, 11, 12], which also includes the self-check style, it was not the case with this study. The obtained results suggest that an optimal teaching style cannot be generalised. Cuellar - Moreno [12] studied the effects of the command and mixed style on primary-school students. And the main conclusion of this study was that the combination of teaching styles, as opposed to using only a traditional, and reproductive teaching styles, contributed to more varied and positive PE teaching, strengthening students' attention capacity, satisfaction, and appropriate behaviour, while also enabling a proper development of motor skills. Therefore, there is a need to analyse the influence factor, such as age, gender, and the type of activity, in future studies related to the influence of different teaching styles

on the learning process itself and on the quality of motor performance.

Ultimately, in the third point of measurement, female and male students from the group that acquired dance skills in the reciprocal style achieved significantly better results than female and male students who acquired dance skills in the self-check style. Better progress of female students from the reciprocal group and the learning style in which students corrected each other in pairs, ultimately proved to have been the most successful style, in such a way that the performance of male students improved more effectively than in other study groups. Students felt good in the teaching form in which they corrected each other without the influence of the teacher, which was particularly noticeable in the performance of choreography (in the third measurement), performed in pairs with music. In the third point of measurement, female and male students from the group that acquired dance skills in the reciprocal style achieved significantly better results than female and male students who acquired dance skills in the command style. According to Castillo and Espinosa [25] an autocratic coaching style in dance at the beginning of the learning process encourages intrinsic motivation and has positive effect on dance performance, while the participatory coaching style did not have such effect. The autocratic coaching style used by the authors Castillo and Espinosa [25] can be identified with the command teaching style applied in the present research, and it is logical that at the beginning of learning, students look for competence in leadership. However, the applied participative coaching style cannot be compared on the same level with the two student-oriented teaching styles applied in the present study (reciprocal and self-check). Therefore, we can conclude that the findings from this study are in congruence with the findings of Castillo and Espinosa [25], as a positive effect on dance teaching in the command style resulted from both studies. Which leads us to the conclusion that the reciprocal style is the most effective method for acquiring activities that are performed in pairs, such as a dance activity, especially at the beginning of the learning process. In accordance with the conclusions Chatoupis and Vagenas [31] according to which the reciprocal style provides conditions for learning motor skills, particularly in the early stages of learning and in learning a technique of a skill. In the present study, through the process of learning in three measurements, the better performance of female students from the reciprocal group influenced their better performance in pairs, which was not the case in the other groups. Better learning outcomes of female students in the reciprocal style were also obtained by Zeng et al. [32] on a sample of student population.

According to the results of the Repeated

measures Analysis of Variance, shown in Figure 1, all three analysed groups (reciprocal, self-check, and command) progressed in learning samba through three measurements, but the students from the reciprocal group progressed significantly more than the others. Students from all three study groups had the same number of dance lessons during the learning process, they were led by the same teacher, and the lessons were guided by the same methodical principles. Nevertheless, the obtained differences indicate that students who practice dance structures in pairs using the reciprocal style acquire dance skills at a higher level than students who practice the same dance structures using the self-check or command teaching style.

As recommendation for future studies, there is a need to conduct a new study that will include more factors influencing the selection of an optimal teaching style, such as age, gender and especially the type of activity, in order to obtain more accurate data on an optimal teaching style.

Conclusions

The correct choice of the appropriate dance teaching style can improve the overall learning process. According to obtained results student-centered forms of teaching dances should be given

priority in the learning process. Especially, the reciprocal teaching style prove to be particularly effective when learning to dance in pairs. Even though students from all three groups significantly improved during the learning process, both female and male students from the reciprocal group achieved best results in the same learning time frame. Further research would be necessary in order to select an optimal teaching style in accordance with the type of an activity and the age of a learner. The results of the present study can help in choosing the most effective teaching style and creating an optimal motivational climate for learning dances. And finally, a dance as a social category of physical activity, especially dances with choreographies rehearsed in pairs, should be taught using the reciprocal style. The question is how effective other styles, whether traditional or alternative ones, would be in dance learning. This research is in line with the requirements of modern education and high-quality physical education lessons and classes that are enjoyable, well-structured, and meaningful [33].

Conflict of interest

The author declares that there are no conflicts of interest.

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Cite this article as:

Miletic D, Miletic A, Uzunovic S. The effects of reciprocal, self-check, and command teaching styles on dance learning. *Physical Education of Students*, 2023;27(5):261–269.

<https://doi.org/10.15561/20755279.2023.0506>

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Received: 20.08.2023

Accepted: 21.09.2023; **Published:** 30.10.2023