

ARTIGOS

Steps and Mismatches: Dance in Initial Physical Education Training Curriculum¹²³⁴

Passos e descompassos: a dança nos currículos de formação inicial em educação física

> Alencar, Allana ⁽ⁱ⁾ Backes, Ana Flávia ⁽ⁱⁱ⁾ Manta, Sofia Wolker ⁽ⁱⁱⁱ⁾ Resende, Rui ^(iv) Farias, Gelcemar Oliveira ^(v) Nascimento, Juarez Vieira do ^(vi)

⁽ⁱ⁾ Universidade Federal de Santa Catarina – UFSC, Centro de Desportos, CDS, Laboratório de Pedagogia do Esporte – LAPE, Florianópolis, SC, Brasil. https://orcid.org/0000-0002-0280-7567, allanaa.alencar@gmail.com

⁽ⁱⁱ⁾ Universidade Federal de Santa Catarina – UFSC, Centro de Desportos – CDS, Laboratório de Pedagogia do Esporte – LAPE, Florianópolis, SC, Brasil. https://orcid.org/0000-0002-3949-8809, anafbackes@hotmail.com

(iii) Universidade Federal de Santa Catarina – UFSC, Centro de Desportos – CDS, Florianopolis, SC, Brasil. https://orcid.org/0000-0002-1059-2471, sofiawolker@gmail.com

^(iv) Universidade da Maia – ISMAI, Educação Física e Desportos – CDS, Centro de Investigação em Qualidade de Vida – CIEQV, Castêlo da Maia, Maia, Portugal. https://orcid.org/0000-0003-4314-0743, rresende@ismai.pt

(v) Universidade do Estado de Santa Catarina – UDESC, Centro de Ciências da Saúde e do Esporte – CEFID, Laboratório de Pesquisa em Práticas Pedagógicas da Educação Física – LAPRAPEF, Florianópolis, SC, Brasil. https://orcid.org/0000-0003-3552-3437, gelcemar.farias@udesc.br

^(vi) Universidade Federal de Santa Catarina – UFSC, Centro de Desportos – CDS, Laboratório de Pedagogia do Esporte – LAPE, Florianópolis, SC, Brasil. https://orcid.org/0000-0003-0989-949X, juarez.nascimento@ufsc.br

¹ Responsible Editor: Carmen Lúcia Soares. https://orcid.org/0000-0002-4347-1924

² References correction and bibliographic normalization services - Maria Thereza Sampaio Lucinio - thesampaio@uol.com.br.

³ Funding: Coordination for the Improvement of Higher Education Personnel (CAPES); This work is financed by National Funds through FCT – Foundation for Science and Technology within the scope of the project UIDB/04748/2020

⁴ English Version: Cesar da Silveira Costa - comercial@ciadastraducoes.com.br

pro•posıções

e-ISSN 1980-6248

Abstract

This study aims to describe the offer of subjects in the Area of Dance in the curricular structures of the bachelor's and licentiate degree courses in Physical Education of Brazilian federal and state universities. This is a research of quantitative approach, of documentary type, in which its source is from the "e-MEC" database of Ministry of Education. Evidence has revealed the predominance of the offer of only one subject, of a mandatory nature, regardless of the course and geographic region. Rethinking curricular structures is recommended to leverage the application and expand the possibilities of theoretical-practical transposition in the Area of Dance in the initial training in Physical Education.

Keywords: Dance, Physical Education and training, Higher Education, Curriculum

Resumo

O estudo objetiva descrever a oferta de disciplinas na Área da Dança nas estruturas curriculares dos cursos de bacharelado e de licenciatura em Educação Física de universidades federais e estaduais brasileiras. Trata-se de pesquisa de abordagem quantitativa, do tipo documental, que toma como fonte a base de dados "e-MEC" do Ministério da Educação. As evidências revelaram o predomínio da oferta de apenas uma disciplina, de caráter obrigatório, independente do curso e região geográfica. Repensar as estruturas curriculares é recomendado para potencializar a aplicação e ampliar as possibilidades de transposição teórico-prática na Área da Dança na formação inicial em Educação Física.

Palavras-chave: dança, Educação Física e treinamento, educação superior, currículo

Introduction

Dance is a polysemic phenomenon with multiple configurations, a social construction that has existed since antiquity and a practice that is undeniably important for the physical, cognitive, emotional, social, artistic, and cultural aspects of its adepts (Cardoso et al., 2021). As a body practice, dance experiences movement as a fundamental element and the body as the tool that expresses the different needs proposed by the various genres and subgenres that this modality offers (Cardoso et al., 2017; Nascimento, 2017; Reis et al., 2020).

In the scope of their intervention, Physical Education professionals develop body movements executed in different contexts and practices, highlighting dance as one of the body practices belonging to their field of action (CONFEF, 2010). Regarding the school environment, the National Curriculum Parameters (Brasil, 1998) had already inserted dance in



the educational scenario and, more recently, the curricular guidelines present in the National Common Curricular Base (Brasil, 2017) indicate dance as a curricular content to be developed in Physical Education classes, which should provide opportunities to explore the awareness, expressions, and potential of the body in movement.

As dance is one of the intervention areas of the Physical Education professional, it needs to be included as a mandatory curricular component in the bachelor's and licentiate degree courses nationwide. In fact, when placed in the context of training, dance is based on the understanding and practice of motor skills and techniques that involve the teaching of movement (Alves, 2016; Marani & Sborquia, 2019). To this end, it is understood that teaching and learning processes require the intervention of qualified and trained professionals, equally to any other profession that involves sharing knowledge and obtaining specific skills (Alves et al., 2017; Brasileiro & Souza, 2019; Lucca et al., 2019). Thus, we highlight the importance of the Physical Education professional being aware of the different forms of today's dances manifestation (Guzzo et al, 2015; Brasileiro & Souza, 2019) and emphasize the relevance of methodologies that ensure quality teaching in initial training, covering technical, cultural, and social aspects inherent to movement, as well as the infinite possibilities in the field of intrapersonal experiences and socialization.

In research about dance in higher education, Miranda (1994) pointed out some problems faced in the training of Physical Education professionals regarding the Area of Dance, especially the low concern for the understanding of the structure, meaning, value and importance of Dance in general educational terms. Although the passage of time has favored the development of the various techniques inherent to the existing genres and subgenres, some factors persist and contribute to the teaching and understanding of dance as an emerging issue, leading to a stereotypical view of this area of knowledge (Brasileiro & Do Nascimento Filho, 2017). Thus, the recognition of the critical, historical, aesthetic, cultural, and creative dimensions of dance has aided in its understanding as an area of knowledge and as classical knowledge of Physical Education (Brasileiro, 2009; Brasileiro et al., 2020; Marques, 2003). In fact, its plurality permeates political, economic, social, and cultural agendas, problematizing and strengthening dialogues that involve gender issues, power relations, aesthetic standards, social inclusion, physical and mental health, among other themes, providing an understanding that goes far beyond the act of dancing (Cardoso et al., 2021).



However, although the national curricular guidelines for Physical Education undergraduate courses (bachelor's and licentiate degree), since Resolution 03/1987/CFE (BRASIL, 1987) until Resolution 06/2018/CNE (BRASIL, 2018), present important indications for the elaboration of pedagogical curricular projects, the dimensions of the teacher training in the Area of Dance and the respective competences to be acquired during the course have not been prioritized due to the existing generalist training perspective in the initial training courses in Physical Education (Brasileiro et al., 2020; Carbinatto et al., 2016; Lucca et al., 2019; Muglia-Rodrigues & Correia, 2013; Souza & Brasileiro, 2019). Although literature points out the growing interest in topics such as initial training and professional intervention in Physical Education (Brasil et al., 2016; Cardoso et al. 2016; Cruz & Castro, 2016; Lucca et al., 2019; Milistetd et al., 2015; Miranda & Ehrenberg, 2017; Quinaud et al., 2018), the scientific scenario still lacks research in which dance is an object of study, especially regarding its offer and teaching in bachelor's and licentiate degree in Physical Education.

The initiative to approach dance in initial training in Physical Education is an invitation to reflection, discussion, and problematization about the responsibilities that higher education assumes as an important and complex investigative locus and understanding the university as a privileged center for the production and socialization of knowledge (Rocha & Rezer, 2015). Therefore, this research aims to describe the offer of subjects in the Area of Dance in the curricular structures of Bachelor's and Licentiate degree in Physical Education courses in Brazilian federal and state universities.

Methodology

The study was characterized as descriptive of documentary design, with a quantitative approach to the data. In addition to the systematization of numerical results, further analysis was sought from the focusing and transformation of these data into information organized according to theme units (Gil, 2008; Sánchez et al., 2011). The official database of the Federal Government's Ministry of Education called "e-MEC" (emec.mec.gov.br), which provides precise and detailed information about Higher Education Institutions (IES), was used because it contains the register of courses registered and recognized in the Brazilian National System of Higher Education (SINAES). The "e-MEC" platform works in accordance with the authorizing



acts of the institutions, which are supervised and edited based on the competent regulatory processes and in accordance with the Normative Ordinance of the Ministry of Education – MEC no. 40/2007 (2007).

Regarding the methodological procedures used, we opted for a search in the "advanced search" field in the "e-MEC" platform, refining the information by requesting only undergraduate courses in Physical Education (bachelor's and licentiate degree) in activity and offered free of charge in federal and state public IES. These specific criteria were met by 268 Physical Education courses from 93 IES.

The *excel* spreadsheet generated by the "e-MEC" platform included basic information to identify each course. However, two Municipal IES were excluded because they did not fit the pre-established criteria. Regarding the courses, all of them were analyzed separately, allowing us to observe that some institutions had up to 45 active Physical Education courses registered. Based on this data, and aiming at refinement and reliability, we established as eligibility criteria only one bachelor's degree course and one licentiate degree course in Physical Education, respectively; the most recent ones from each institution registered in the initial search. The process of document analysis also made it possible to identify the subjects that dealt with the dance theme as a specific curricular subject, that is, as an explicit focus and objective in the course syllabus, or as complementary content, where the theme was implicitly included and worked in parallel with other content, whether these subjects were offered on a mandatory or elective basis.

From this stage on, complementary searches were made in all university websites and institution websites in order to verify the offer of dance-related courses, thus making it possible to analyze the documents provided, such as the curricular pedagogical project, syllabus, course description, program content, among others. Therefore, 145 courses belonging to 91 IES were considered potentially relevant and included in this study (Figure 1).

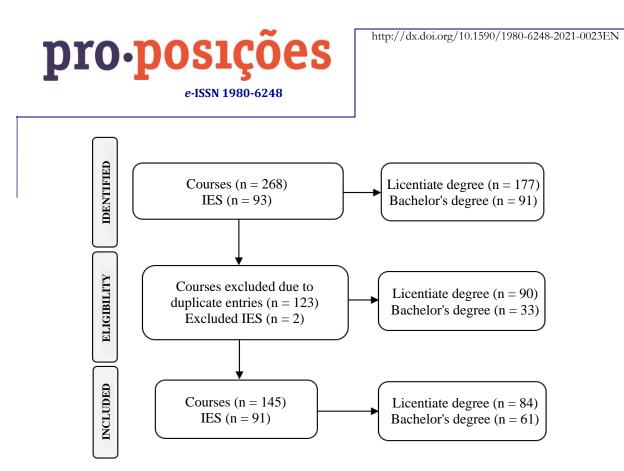


Figure 1 - Flowchart of Physical Education courses and federal and state public IES registered on the e-MEC platform. Brazil, 2020. Source: Research data.

The quantitative data obtained were analyzed using descriptive statistics of mean, standard deviation, absolute and relative frequency. We used the Statistical Package for the Social Sciences (SPSS®) program, version 20.0.

Although the quantitative approach is predominant, Sparkes and Smith's (2014) guidelines for conducting qualitative research were employed regarding the emergency and search for the themes, as well as their identification and naming, connection and organization, followed by cross-checking and confirmation of the themes. Also regarding the step of creating and classifying the categories of analysis through the theme units, the following criteria were taken into account: 1) stipulating clear rules about the limits and definition of categories; 2) categories should be mutually exclusive, that is, what is in one category, cannot be in another; 3) categories should not be too broad and need to present cohesion and homogeneity, that is, not pointing out items that are very different from each other in the same group; 4) categories should exhaust the possible content, thus, it should include all possible content; 5) classification should be objective, allowing the study replication (Carlomagno & Rocha, 2016).

Moreover, we used the process of content analysis (Bardin, 2011) in the analysis of the subjects and documents found in the investigated universities, which enabled the creation of

pro-posições

thirteen categories, aiming at a better understanding of the themes contemplated by the disciplines offered by the investigated courses, specifically: Dances in general (Specific and open themes related to dance in general); Theory and teaching methodologies in dance (Didactics and the teaching practice; Didactics in dance teaching; Dialogues about the importance of dance in the individual's formation; Dance in the school context); Rhythmic and expressive activities (Body expression and creativity; Improvisation proposals; Rhythmic and expressive activities at school); Workshops and practices related to dance (Experience of practical components and workshops; Creation laboratories); Theoretical and practical Foundations of dance (Introduction and fundamentals of dance; Technical bases for teaching and learning); Folkloric and/or popular dances (Research and practice of popular and/or folkloric Brazilian manifestations involving different cultures, contexts and regions); Techniques and composition (Specific and applied techniques for different dance genres and subgenres; Strategies and proposals for creative processes in choreographic composition; Analysis of choreographic works); Rhythm and movement (Rhythm, music, musical instruments, and creative possibilities; Practices of teaching music and movement); Ballroom dances (Historical and social perspectives of ballroom dances; objectives, leading rules, and techniques and strategies for teaching the different couple dance subgenres); Classical, modern, and contemporary dances (Historic perspectives; Methods, techniques, and teaching strategies of the different genres – modern, classic, and contemporary dances); Body, body culture, and movement (Body and society; Diverse aspects of corporeality; Analysis and discussions on dance technique and esthetics); Dance applied to physical activity and health (Basic notions about anatomy and kinesiology; Injury prevention in dance; Dance as health maintenance and quality of life); Mixed category (Subjects that included two or more themes from the above-mentioned categories).

The confirmation of the categories representativeness (Patton, 1990) was established by the completeness of their analysis, while interpretive validity (Maxwell, 1992) was obtained through the confrontation and discussion of two experts with extensive experience in qualitative research, Initial Training in Physical Education and Dance.



pro-posições e-ISSN 1980-6248

Results

The search conducted on the federal government website resulted in the identification of 91 IES, of which 58 (63.7%) were federal universities and 33 (36.3%) were state universities. The public institutions selected in SINAES offer 145 Physical Education courses, namely, 84 (57.9%) licentiate courses, which predominate in federal IES (63.4%), and 61 (42.1%) bachelor's degree courses, prevalent in state IES (36.6%).

The analysis of the geographical distribution of bachelor's degree and licentiate courses in Physical Education revealed that the Southeast (29.7%), Northeast (26.9%), and South (20.0%) are those that concentrate the largest number of courses offered by federal and state universities (Table 1). The lowest concentration was observed in public universities in the North (11.0%) and Midwest (12.4%) regions. While the biggest concentration of licentiate courses is in the Northeast (30.9%), followed by the Southeast (25.0%) and South (17.9%) regions, the offer of bachelor's degree courses is bigger in the Southeast (36.1%), followed by the South (22.9%) and Northeast (21.3%) regions.

Region		Universities 1=92)	State U (r	Total	
Region	Licentiate degree	Bachelor's degree	Licentiate degree	Bachelor's degree	(n=145)
	n (%)	n (%)	n (%)	n (%)	n (%)
North	8 (14.8)	3 (7.9)	3 (10)	2 (8.7)	16 (11.0)
Northeast	14 (25.9)	8 (21.0)	12 (40.0)	5 (21.8)	39 (26.9)
Midwest	8 (14.8)	5 (13.1)	3 (10.0)	2 (8.7)	18 (12.4)
Southeast	16 (29.7)	15 (39.5)	5 (16.7)	7 (30.4)	43 (29.7)
South	8 (14.8)	7 (18.5)	7 (23.3)	7 (30.4)	29 (20.0)

Table 1 - Number of licentiate and bachelor's degree courses in Physical Education offered by federal and state universities by region registered on the e-MEC platform, Brazil, 2020.

Source: Research data.



In relation to the curriculums of licentiate and bachelor's degree in Physical Education courses that presented subjects related to the Area of Dance, we found the offer of only one subject, regardless of the region. However, the Northeast (11.7%), Southeast (6.6%), and South (8.3%) regions stood out in offering two subjects per course in the investigated universities (Table 2). Few courses in the evaluated federal and state IES offer three or four subjects, and only two courses in the Southeast region (1.7%) offer five subjects. It is also noteworthy that 25 courses linked to the investigated federal and state IES do not offer courses on the dance theme.

Number of Subjects		niversities =92)		iversities =53)	Total
per Region	Licentiate degree	Bachelor's degree	Licentiate degree	Bachelor's degree	(n=145)
North	n (%)	n (%)	n (%)	n (%)	n (%)
One subject	3 (6.2)	1 (3.3)	2 (8.0)	1 (5.9)	7 (5.9)
Two subjects	2 (4.2)	-	1 (4.0)	-	3 (2.5)
Three subjects	2 (4.2)	-	-	-	2 (1.6)
Northeast					
One subject	7 (14.6)	4 (13.4)	2 (8.0)	1 (5.9)	14 (11.7)
Two subjects	5 (10.3)	3 (10.0)	5 (20.0)	1 (5.9)	14 (11.7)
Three subjects	1 (2.1)	1 (3.3)	1 (4.0)	-	3 (2.5)
Midwest					
One subject	4 (8.3)	3 (10.0)	1 (4.0)	1 (5.9)	9 (7.5)
Two subjects	1 (2.1)	1 (3.3)	1 (4.0)	-	3 (2.5)
Three subjects	1 (2.1)	-	-	-	1 (0.8)
Four subjects	-	-	1 (4.0)	-	1 (0.8)
Southeast					
One subject	4 (8.3)	6 (20.0)	1 (4.0)	3 (17.6)	14 (11.7)
Two subjects	2 (4.2)	3 (10.0)	2 (8.0)	1 (5.9)	8 (6.6)
Three subjects	4 (8.3)	1 (3.3)	1 (4.0)	2 (11.7)	8 (6.6)

Table 2 - Number of subjects offered in the dance segment by licentiate and bachelor's degree courses at federal and state universities registered in the e-MEC platform, Brazil, 2020.

Pro-Posições | Campinas, SP | V. 33 | e20210023EN | 2022

9/25

P	e-ISSN 19	3 0-6248			
Four subjects	2 (4.2)	1 (3.3)	-	-	3 (2.5)
Five subjects	2 (4.2)	-	-	-	2 (1.7)
South					
One subject	2 (4.2)	1 (3.3)	3 (12.0)	5 (29.4)	11 (9.2)
Two subjects	3 (6.2)	3 (10.0)	3 (12.0)	1 (5.9)	10 (8.3)
Three subjects	1 (2.1)	1 (3.3)	1 (4.0)	1 (5.9)	4 (3.4)
Four subjects	2 (4.2)	1 (3.3)	-	-	3 (2.5)
Total Subjects per course	48	30	25	17	120

pro-posicões

Source: Research data.

Regarding the nature of offered subjects (mandatory or elective), mandatory courses were offered in the Southeast (28.3%), South (18.4%), and Northeast (16.2%) regions, and elective courses in the Northeast (6.7%), South (6.3%%), and Southeast (5.8%) regions. However, despite the fact that the Southeast region had the highest number of mandatory subjects offered, the average number of hours was the lowest among the regions and IES (federal and state) investigated. The highest workload averages for the offering of mandatory subjects were observed in the Midwest region, and for elective subjects, the Northeast region stands out (Table 3).

Subjects	Federal Universities (n = 151)			State Universities (n = 72)					
Offered by Region	Licentiate degree	2	Bachelor degree	s	Licentiate degree		Bachelor's degree		Total
North	n (%)	WL	n (%)	WL	n (%)	WL	n (%)	WL	n (%)
Mandatory	12 (12.1)	58.3	1 (1.9)	60.0	4 (8.7)	66.3	1 (3.9)	60.0	18 (8.1)
Electives	1 (1.0)	40.0	-	-	-	-	-	-	01 (0.4)
Northeast									
Mandatory	16 (16.2)	50.0	7 (13.5)	37.9	11 (23.9)	61.4	2 (7.7)	60.0	36 (16.2)
Electives	4 (4.0)	51.3	6 (11.6)	47.5	4 (8.7)	56.3	1 (3.9)	60.0	15 (6.7)

Table 3 - Number of mandatory and elective subjects and workload per region, type of university and course registered on the e-MEC platform, Brazil, 2020.

Midwest

10/25

pro-posições									
		e-ISSN	1980-6248						
Mandatory	5 (5.0)	68.0	3 (5.8)	65.3	6 (13.1)	67.7	1 (3.9)	68.0	15 (6.7)
Electives	4 (4.0)	46.5	2 (3.8)	33.0	1 (2.2)	60.0	-	-	7 (3.1)
Southeast									
Mandatory	28 (28.3)	49.1	17 (32.7)	43.8	8 (17.4)	46.5	10 (38.3)	45.7	63 (28.3)
Electives	10 (10.1)	40.5	2 (3.8)	45.0	-	-	1 (3.9)	45.0	13 (5.8)
South									
Mandatory	13 (13.2)	55.7	9 (17.3)	56.4	10 (21.7)	67.2	9 (34.5)	57.3	41 (18.4)
Electives	6 (6.1)	50.5	5 (9.6)	42.6	2 (4.3)	49.0	1 (3.9)	68.0	14 (6.3)
Total Subject	99		52		46		26		223

http://dx.doi.org/10.1590/1980-6248-2021-0023EN

WL = average workload.

Source: Research data.

The detailed analysis of the subjects' nature in the licentiate and bachelor's degree courses as specific dance themes or as complementary content (Table 4) allowed us to identify that 72.2% of the subjects were offered with the dance theme as a specific focus and explicit objective in their syllabuses, while 27.8% showed that the same theme was contemplated as a complementary content in the investigated subjects, that is, dance was in the background and worked in parallel to other content. Dance as a specific theme appears more frequently in the Federal IES licentiate courses (70.7%).

Nature of Dance	Federal Universities (n = 151)		State U (n	– Total		
Subjects	Licentiate degree	Bachelor'sLicentiatedegreedegree		Bachelor's degree	- 1014	
	n (%)	n (%)	n (%)	n (%)	n (%)	
Specific Theme	70 (70.7)	34 (65.4)	34 (73.9)	23 (88.5)	161 (72.2)	
Supplementary Content	29 (29.3)	18 (34.6)	12 (26.1)	3 (11.5)	62 (27.8)	
Total Subjects	99 52		46 26		223	
		C D	1 1 .			

Table 4 - Distribution of the nature of dance subjects and/or content offered in licentiate and bachelor's degree courses in Physical Education registered in the e-MEC platform, Brazil, 2020.

Source: Research data.



When considering the theme categories covered in the offered subjects (Table 5), we observe that most of the licentiate and bachelor's degree in Physical Education courses investigated offer subjects that address mixed content identified in the analysis categories (31.4%). However, the theme categories of Dance in general (21.5%), Theory and teaching methodologies in dance (13.4%), and Rhythmic and expressive activities (13.4%) predominate in subject taught content.

Theme Categories		Universities = 151)	State Univ (n =	Total	
	Licentiate degree	Bachelor's degree	Licentiate degree	Bach degre	elor's
	n (%)	n (%)	n (%)	n (%)	n (%)
Mixed Category*	26 (26.3)	16 (30.8)	17 (36.9)	11 (42.2)	70 (31.4)
Dances in general	22 (22.3)	10 (19.2)	8 (17.4)	8 (30.7)	48 (21.5)
Theory and teaching methodologies in dance	14 (14.2)	4 (7.7)	9 (19.6)	3 (11.5)	30 (13.4)
Rhythmic and expressive activit	ties 13 (13.2)	11 (21.1)	5 (10.9)	1 (3.9)	30 (13.4)
Workshops and practices related dance	l to 6 (6.0)	2 (3.8)	1 (2.2)	-	9 (4.3)
Theoretical and practical foundations of dance	2 (2.0)	2 (3.8)	3 (6.5)	1 (3.9)	8 (3.6)
Folkloric and/or popular dance	es 7 (7.0)	-	-	1 (3.9)	8 (3.6)
Choreographic Techniques an Composition	d 2 (2.0)	2 (3.8)	1 (2.2)	-	5 (2.2)
Rhythm and Movement	2 (2.0)	2 (3.8)	-	-	4 (1.8)
Ballroom Dances	1 (1.0)	-	2 (4.3)	1 (3.9)	4 (1.8)
Classical, modern, and contemporary dances	2 (2.0)	1 (2.0)	-	-	3 (1.3)
Body, body culture, and movem	ent 2 (2.0)	1 (2.0)	-	-	3 (1.3)

Table 5 - Theme categories identified in dance-related subjects in bachelor's and licentiate degree in Physical Education courses registered in the e-MEC platform, Brazil, 2020.

pro-posiç e-ISSN 1980	S	p://dx.doi.orş	g/10.1590/1980-62	248-2021-0023EN	
Dance applied to physical activity and health	-	1 (2.0)	-	-	1 (0.4)
Total Subjects	99	52	46	26	223

*Those subjects identified with more than one content predefined by the categories were considered.

Source: Research data.

Discussion

The results indicate that more than half of the undergraduate courses in Physical Education offered by Brazilian (federal and state) public institutions are licentiate courses and predominate in federal institutions. They also show that the Southeast, Northeast, and South regions concentrate the largest number of courses offered (bachelor's and licentiate degree). The subjects related to the Area of Dance are offered more frequently in the licentiate courses at federal IES, while a smaller number of subjects was found in the bachelor's degree courses at state IES. Regardless of the Brazilian region where the course is offered, the largest proportion of subjects offered are of a mandatory nature, and the workload of subjects is greater in licentiate courses when compared to bachelor's degree courses. In general, the content developed by the subjects contemplate themes, in their majority, related to Dance in general, followed by Dance theory and teaching methodologies, and Rhythmic and expressive activities.

The greater concentration of undergraduate course offerings in the Southeast, Northeast and South regions is often associated with the higher population density and higher Gross Domestic Product of these regions in the Brazilian scenario (IBGE, 2016), as well as the rising number of higher education enrollments registered in these regions (Brazil, 2017). Similar results on the geographical distribution of Physical Education undergraduate courses in Brazilian federal and state IES were evidenced in the study on the provision of subjects in the area of Sports Management in the curricula of bachelor's degree in Physical Education courses in Brazilian public universities (Quinaud et al., 2018), in the investigation on the geopolitical distribution and influencers of the geographic layout of higher education courses in Physical Education (Rodrigues, 2019) and in the panorama of the current configuration of *stricto sensu* postgraduate degree in Physical Education in Brazil (Corrêa et al., 2019).



Although with distinct focuses, the studies identified the South-Southeast axis and the Northeast region as the most important ones. Moreover, the geographical inequity in the distribution of courses, evidenced over the years, remains today (Corrêa et al., 2019; Haddad et al., 2006; Rodrigues, 2019). In this sense, Brazilian Physical Education faces an important challenge to better distribute the regional concentration, both of courses at the undergraduate and *stricto sensu* postgraduate degree level (Corrêa et al., 2019; Rodrigues, 2019; Tani, 2010).

Evidence points out that the subjects related to the Area of Dance are more concentrated in the licentiate courses than in the Physical Education bachelor's degree courses. It is believed that the Area of Dance is even more neglected in the Physical Education bachelor's degree courses due to the fact that the areas of Health, Sports, and Leisure dominate the course workload and the subjects offered. Moreover, the flexibility in curricular organization, denoted in bachelor's degree courses in Brazilian IES, has fostered a training process with a more generalist than specialist professional profile (Milistetd et al., 2014) as well as allowed pedagogical subjects to be offered less frequently and/or inserted late throughout the training (Maffei et al., 2016). One aspect to point out is that, even though it is more frequently offered as a compulsory subject, most IES have offered only one subject in the Area of Dance, which reduces its coverage to an average workload of approximately 53.71 hours/class. When analyzing the contribution of the bachelor's degree course in Physical Education for professional performance, Natividade and Schimidt (2009) verified that more than half of the professionals interviewed, both majored and students in their initial training, considered the workload allocated to the Dance subject insufficient.

The reduced experience in this area in initial training impairs the knowledge transfer process, also impacting the different contexts in which these professionals operate (Pereira & Hunger, 2009; Sousa et al., 2014). The way dance is affected in smaller workloads in initial training curricula may also justify its absence in the school context (Silva et al., 2015). These factors together reveal a certain insecurity in dealing with this knowledge in the space where teachers work, which reduces the chances of this content being taught in the school environment (Silva et al., 2015).

Although most of the subjects in the investigated courses were offered in a specific character, that is, with an explicit focus and objective in the syllabus, the results pointed out the predominance of mixed content, followed by the "General dance", "Theory and methodologies

pro-posições

of dance teaching," and "Rhythmic and expressive activities" themes. The evidence reinforces a generalist proposal in the offer of subjects in the Area of Dance, which involves content associated with similar themes, but with different purposes. Regardless of the context (educational, recreational, sports, competitive, or leisure), a broad and quality teaching process is necessary to ensure comprehensive training and an ethical and competent professional performance (Lucca et al., 2019; Santos et al., 2017). However, the importance of providing opportunities to experience dance in its varied content is justified so that professionals in training understand the different existing genres and subgenres, their historical issues and cultural manifestations, as well as to encourage reflection, discussion, and especially the application of this content in the practical context of its professional work (Miranda & Ehrenberg, 2017; Ugaya & Gallardo, 2019).

When understanding dance in this broader perspective, there is the concern and the responsibility that its teaching process and the curriculum of initial training contemplate, beyond technical issues, the infinite possibilities of dance in the field of intrapersonal experiences and socialization (Cardoso et al., 2020; Cardoso et al., 2021). Thus, pedagogical and curricular intentions need to be directed beyond techniques (Madela et al., 2017), and theory and practice must be worked inseparably (Bastos, 2017). The need for professionals in dance also stands out (Ehrenberg 2011; Lucca et al., 2019; Miranda & Ehrenberg, 2017; Santos et al., 2017; Ugaya & Gallardo, 2019). In fact, the concern is to develop autonomy and the critical and aesthetic sense, providing knowledge, experiences, and reflections (Lucca et al., 2019; Perini & Bracht, 2016) that enable the future Physical Education teacher to meet the curricular objectives foreseen in the initial training programs.

Considering the objectives of initial training in Physical Education and its infinite possibilities inserted in the manifestations of the body culture of movement, we understand that the experiences and knowledge necessary for future insertion of these professionals in the labor market may be obtained through different learning situations that, according to La Belle (1982), stand out as: Formal (qualified by an educational institution that certifies the professional to act), non-formal (characterized by more specific and short duration courses), and informal (through dialogue with peers or self-guidance in the theme of interest, without the mandatory presence of certification).



pro-posições *e*-ISSN 1980-6248

The current and commonly accepted requirements for the characterization of a professional in the Area of Dance are much more related to non-formal (participation in events, workshops, and courses) and informal (self-direction, daily experiences with renowned professionals and recognized dance schools, periodic practice of one or more dance genres, performing in companies). The perspective of generic training in Physical Education and, at the same time, reductionist for the professional performance in the Area of Dance, contributes to the construction of a discouraging picture observed in formal learning situations.

In spite of the discussions about the role of the dance teacher and dance professional regarding (regional and national) legislation, the policies for initial training, specifically in Physical Education courses, need to be revised and improved in an attempt to better assist in the training of competent dance teachers. For this, some essential factors stand out, such as the minimum conditions expected in relation to the domain of specific theoretical knowledge about dance, its genres and subgenres; the foundation and basis about the different populations that will be worked on; the understanding about the most efficient teaching methodologies; the domain of the knowledge base aiming at a meaningful teaching and learning process, among other variables (Stinson, 2010; Silva & Schwartz).

In view of the different acting possibilities of the Physical Education professional, the expansion of skills, abilities, and capacities related to the qualified professional performance will also favor the integral development of dance teaching (Lucca et al., 2019; Miranda & Ehrenberg, 2017; Perini & Bracht, 2016). New perspectives to undergraduate courses in Physical Education have been discussed currently to assist in the formation of more critical professionals who are aware and able to evaluate their practice and improve society facing the reality of their time (Cruz et al, 2019; Milistetd et al., 2014) as well as to meet the new indications of the curricular guidelines of Resolution N. 06/2018/CNE (Brasil, 2018). The reformulation of undergraduate courses comprises an important moment for reflections and discussions regarding the insertion of the Area of Dance in the curricular structures, constituting, especially, an opportunity to increase the level of knowledge through a process that provides the opportunity for conscious learning combining theory and practice.

The study limitations are associated with the difficulties faced in accessing the documentation in its entirety in the investigated IES. Not all public federal and state institutions provide free access to the curricular pedagogical project, to the teaching programs or plans of

pro-posições

the subjects offered, and to the curricular structures. Although the curriculum conception adopted in the research, as a document and educational project, has allowed to characterize the offer of Area of Dance subjects in the curricula of licentiate and bachelor's degree courses implemented in different Brazilian geographic regions, future studies may deepen the analysis of learning situations in initial training in Physical Education when adopting a curriculum conception that contemplates not only formal teaching situations, but also the involvement of students in formative opportunities of research, teaching, and extension projects.

Conclusions

In addition to proposing a description of the subjects that address the Area of Dance content in the curricular structures of bachelor's and licentiate degree courses in Physical Education, based on the results found we sought to promote reflection and discussion on the assumptions and pedagogical responsibilities that have legitimated the teaching of the content related to this field of knowledge in initial training and in the curriculum of the Physical Education course of Brazilian public universities.

The evidence found in the study allowed us to conclude that offering subjects in the Area of Dance in bachelor's and licentiate degree courses in Physical Education is an important initiative to ensure the intervention of future professionals in their different contexts of performance. However, the results are worrisome regarding the number of offered subjects, the workload allocated to this theme, and the concentration of courses offered by federal and state public institutions located in the Southeast, South, and Northeast regions.

One aspect that we must emphasize is that the smaller proportion of pedagogical subjects for teaching dance seems to reinforce the predominance of a more technical perspective of the content in initial training to the detriment of a more pedagogical perspective, which needs to be deepened in future investigations. Although it is not possible to estimate the ideal workload or number of subjects for the Area of Dance inclusion in higher education in Physical Education, we believe that the teaching context should be rethought in order to enhance its application and expand the possibilities of theoretical and practical transposition. In addition, the curriculum reformulation is an important opportunity to equalize the technical, didactic, and pedagogical content of all the areas of knowledge to enable a broad and quality initial education.



Thus, we suggest that future studies on this theme may ensure a methodology that considers, in the content distribution analysis, the cultural characteristics of the regions investigated in an attempt to clarify the reasons why curricula have more or less subjects and more or less subject workload that address the Area of Dance in the initial formation in higher education in Physical Education.

References

- Alves, F. S. (2016). Exercícios qualitativos de avaliação com ritmo, expressão corporal e dança na formação em Educação Física. *Movimento*, 22(1), 75-88. https://seer.ufrgs.br/Movimento/article/view/56369/36519
- Alves, M. J., de Faria Gehres, A., Monteiro, E. A. P., & Brasileiro, L. T. (2017). Dance teaching in national programs in Brazil and Portugal. *Movimento*, 23(2), 489-501. https://www.redalyc.org/pdf/1153/115351637004.pdf
- Bastos, F. (2017). A pesquisa em educação em ciências e a formação de professores. *Ciência & Educação (Bauru)*, *23*(2), 299-302. https://www.scielo.br/pdf/ciedu/v23n2/1516-7313 ciedu-23-02-0299.pdf
- Brasil. Conselho Federal de Educação. (1987, 10 de setembro). Resolução nº 3, de 16 de junho de 1987. Fixa os mínimos de conteúdo e duração a serem observados nos cursos de graduação em educação física (bacharelado e/ou licenciatura plena). Diário Oficial da República Federativa do Brasil, seção 1(172), 14682.
- Brasil. (1998). Secretaria de Educação Fundamental. Parâmetros curriculares nacionais: Educação Física. Ministério da Educação – MEC.
- Brasil. Censo Escolar da Educação Superior. (2017). Ministério da Educação MEC. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira.
- Brasil. (2017). Base Nacional Comum Curricular. Ministério da Educação MEC.
- Brasil. Conselho Nacional de Educação. (2018, 19 de dezembro). Resolução nº 6, de 18 de dezembro de 2018. Institui Diretrizes Curriculares Nacionais dos Cursos de Graduação em Educação Física e dá outras providências. *Diário Oficial da União, seção 1*(243), 48.



- Brasil, V. Z., Ramos, V., de Souza, J. R., de Barros, T. E. D. S., & do Nascimento, J. V. (2016). As ações pedagógicas para a intervenção do treinador de surf. *Movimento*, 22(2), 403-416. https://seer.ufrgs.br/Movimento/article/view/57346/37373
- Brasileiro, L. T. (2009). Dança-educação física: (In)tensas relações. http://repositorio.unicamp.br/handle/REPOSIP/251781
- Brasileiro, L. T., & Nascimento Filho, M. J. D. (2017). A contribuição de Isabel Marques nas produções sobre "dança" e "ensino de dança" na Educação Física. Revista Brasileira de Educação Física e Esporte, 31(1), 223-233.
- Brasileiro, L. T., de Farias Fragoso, A. R., & de Faria Gehres, A. (2020). Produção de conhecimento sobre dança e educação física no Brasil: Analisando artigos científicos. *Pro-Posições*, *31*,e20180113-e20180113. https://www.scielo.br/pdf/pp/v31/1980-6248-pp-31-e20180113.pdf
- Carbinatto, M. V., Moreira, W. W., Souza, L. A., Chaves, A. D., Simões, R., & Ehrenberg, M. C. (2016). Avaliação em dança: O caso dos festivais universitários da educação física. *Pro-Posições*, 27(3), 57-80. https://www.scielo.br/pdf/pp/v27n3/1980-6248-pp-27-03-00057.pdf
- Cardoso, A. A., da Silva, J., & da Silva, R. M. C. R. (2021). Corpos que dançam: A significação do corpo no dançar a dois. *Corpoconsciência*, 25(1) 74-89. https://periodicoscientificos.ufmt.br/ojs/index.php/corpoconsciencia/article/view/1 1604
- Cardoso, A. A., Reis, N. M., Vieira, M. D. C. S., Borgatto, A. F., Folle, A., & Guimarães, A. C. D. A. (2020). Associated factors and profile of injuries in professional ballroom dancers in Brazil: A cross-sectional study. *Motriz: Revista de Educação Física*, 26(2) 1-8. https://www.scielo.br/pdf/motriz/v26n2/1980-6574 motriz-26-02-e10200077.pdf
- Cardoso, A. A., Reis, N. M., Marinho, A. P. R., Vieira, M. D. C. S., Boing, L., & Guimarães, A. C. D. A. (2017). Injuries in professional dancers: A systematic review. *Revista Brasileira de Medicina do Esporte*, 23(6), 504-509. https://www.scielo.br/pdf/rbme/v23n6/1806-9940-rbme-23-06-00504.pdf



- Cardoso, I., Batista, P., & Graça, A. (2016). A identidade do professor de Educação Física: Um processo simultaneamente biográfico e relacional. *Movimento*, *22*(2), 523-538. https://seer.ufrgs.br/Movimento/article/view/54129/37382
- Carlomagno, M. C., & da Rocha, L. C. (2016). Como criar e classificar categorias para fazer análise de conteúdo: Uma questão metodológica. *Revista Eletrônica de Ciência Política*, 7(1), 173-188. https://revistas.ufpr.br/politica/article/view/45771/28756
- Conselho Federal de Educação Física CONFEF. (2002, 18 de fevereiro). Resolução nº 46, de 18 de fevereiro de 2002. *Dispõe sobre a Intervenção do Profissional de Educação Física e respectivas competências e define os seus campos de atuação profissional.* Rio de Janeiro.
- Corrêa, M. R. D., Corrêa, L. Q., & Rigo, L. C. (2019). A pós-graduação na educação física brasileira: Condições e possibilidades das subáreas sociocultural e pedagógica. Revista Brasileira de Ciências do Esporte, 41(4), 359-366. https://www.sciencedirect.com/science/article/pii/S0101328918300362
- Cruz, G. B. D., & Castro, P. H. Z. C. D. (2019). A didática e a formação do professor de Educação Física: Uma análise a partir da avaliação de alunos concluintes. *Pro-Posições*, 30,1-25. https://www.scielo.br/pdf/pp/v30/0103-7307-pp-30-e20160106.pdf
- Cruz, M. M. S., Reis, N. S., dos Santos Carvalho, S. C., & Medeiros, A. G. A. (2019). Formação profissional em educação física: História, avanços, limites e desafios. *Caderno de Educação Física e Esporte, 17*(1), 227-235. http://e revista.unioeste.br/index.php/cadernoedfisica/article/view/20408/14285
- Ehrenberg, M. C. (2008). Os currículos de licenciatura em educação física: A dança em questão. Revista Corpoconsciência, 15(1), 51-59. https://periodicoscientificos.ufmt.br/ojs/index.php/corpoconsciencia/article/view/3 531
- Gil, A. C. (2008). Métodos e técnicas de pesquisa social (6ª ed.). Atlas.
- Guzzo, M. S. L., Federici, C. A. G., Roble, O. J., & Terra, V. D. S. (2015). Dança é política para a cultura corporal. *Pensar a Prática*, 18(1), 212-222.



Haddad, A. E., Pierantoni, C. R., Ristoff, D., Xavier, I. D. M., Giolo, J., & Silva, L. B. D. (2006). *A trajetória dos cursos de graduação na saúde: 1991-2004*, 533-533. http://portal.inep.gov.br/informacao-da publicacao//asset_publisher/6JYIsGMAMkW1/document/id/488631

- Instituto Brasileiro de Geografia e Estatística. (2016). Síntese de indicadores sociais: Uma análise das condições de vida da população brasileira: 2016 / IBGE, Coordenação de População e Indicadores Sociais. (Estudos & pesquisas. Informação demográfica e socioeconômica, n. 36).
- La Belle, T. J. (1982). Formal, nonformal and informal education: A holistic perspective on lifelong learning. *International Review of Education*, 28(2), 159-175. https://link.springer.com/article/10.1007/BF00598444
- Lucca, I. L., Rosa, M. K. F., Alvarenga, P. L., & Rabelo, P. C. R. (2019). A contribuição das vivências em dança na formação dos docentes em Educação Física. *Pensar a Prática*, 22, 1-11. https://www.revistas.ufg.br/fef/article/view/49360
- Madela, A., Dal-Cin, J., Rezende, S. B., & Rezer, R. (2017). Formação de professores e hermenêutica: Reflexões para o campo da Educação Física. *Pensar a Prática*, 20(2), 57-267. https://www.revistas.ufg.br/fef/article/view/40792
- Maffei, W. S., Verardi, C. E. L., & Pessôa Filho, D. M. (2016). Formação inicial do professor de Educação Física: Produções acadêmicas entre 2005–2014. *Motrivivência*, 28(49), 146-163. https://periodicos.ufsc.br/index.php/motrivivencia/article/view/2175-8042.2016v28n49p146
- Marani, V. H., & Sborquia, S. P. (2019). A dança na formação e desenvolvimento profissional em educação física: Dimensões ético-estéticas em foco. *Caderno de Educação Física e Esporte*, 17(1), 265-271. http://e revista.unioeste.br/index.php/cadernoedfisica/article/view/21604

Marques I. (2003). Dançando na escola. Cortez.

Maxwell, J. (1992). Understanding and validity in qualitative research. Harvard educational review, 62(3), 279-301. https://www.researchgate.net/publication/284892180_Understanding_and_Validity n_Qualitative_Research

21/25



- Milistetd, M., Duarte, T., Ramos, V., Mesquita, I. M. R., & do Nascimento, J. V. (2015). A aprendizagem profissional de treinadores esportivos: desafios da formação inicial universitária em Educação Física. *Pensar a prática*, *18*(4), 982-994. https://www.revistas.ufg.br/fef/article/view/34988
- Milistetd, M., Trudel, P., Mesquita, I., & do Nascimento, J. V. (2014). Coaching and coach education in Brazil. *International Sport Coaching Journal*, 1(3), 165-172.
- Ministério da Educação MEC. (2007). *EMEC: Instituições de educação superior e cursos cadastrados.* Portaria Normativa n.40, de 12 dezembro de 2007.
- Miranda, M. L. de J. (1994). A dança como conteúdo específico nos cursos de educação física e como área de estudo no ensino superior. *Revista Paulista de Educação Física, 8*(2), 3-13.
- Miranda, R. D. C. F., & Ehrenberg, M. C. (2017). Compondo percursos gestuais: A dança na formação inicial de professores de Educação Física. *Educar em revista*, (66), 177-192. https://www.scielo.br/scielo.php?pid=S010440602017000400177&script=sci_abstrac t&tlng=pt
- Muglia-Rodrigues, B., & Correia, W. R. (2013). Produção acadêmica sobre dança nos periódicos nacionais de Educação Física. Revista Brasileira de Educação Física e Esporte, 27(1), 91-99. https://www.scielo.br/scielo.php?pid= \$1807
 55092013005000002&script=sci_abstract&tlng=pt
- Nascimento, V. (2017). "Dançar dói, mas dói mais quando estou parada": reflexões sobre o corpo na dança. *Movimento*, 23(3), 1079-1090. https://seer.ufrgs.br/Movimento/article/view/71021
- Natividade, T. C. T., & Schmidt, A. (2009). Educação Física, bacharelado, dança informal. Revista EVS-Revista de Ciências Ambientais e Saúde, 36(5), 1109- 1124. http://seer.pucgoias.edu.br/index.php/estudos/article/view/1178
- Patton, M. Q. (1990). Qualitative evaluation and research methods. SAGE Publications, inc.
- Pereira, M. L., & Hunger, D. A. C. F. (2009). Limites do ensino de dança na formação do professor de Educação Física. *Motriz: Revista de Educação Física*, 15(4).768-780. https://repositorio.unesp.br/handle/11449/8366



- Perini, R., & Bracht, V. (2016). Os saberes docentes dos professores de Educação Física na Educação Infantil de Serra/ES. Pensar a Prática, 19(4), 53-963. https://www.revistas.ufg.br/fef/article/view/41753
- Quinaud, R. T., Farias, G. O., & Nascimento, J. V. (2018). Formação profissional do gestor esportivo para o mercado de trabalho: A (IN) formação dos cursos de bacharelado em educação física do Brasil. *Movimento*, 24(4), 1111-1124. https://seer.ufrgs.br/Movimento/article/view/75557/51798
- Reis, N. M., Cardoso, A. A., Araújo, C. R., Moratelli, J., Boing, L., Borgatto, A. F., & Guimarães,
 A. C. (2019). Quality of life is associated with fatigue among Brazilian professional dancers. *Motricidade*, 15(1), 33-38. http://www.scielo.mec.pt/pdf/mot/v15n1/v15n1a04.pdf
- Rocha, D. D., & Rezer, R. (2015). Estética, formação inicial e dança: Um olhar para a formação de professores de educação física. *Movimento*, *21*(4), 865-876. https://seer.ufrgs.br/Movimento/article/view/51878
- Rodrigues, E. P. (2019). Formação superior em educação física: possíveis entendimentos da distribuição geopolítica dos cursos [Dissertação de Mestrado, Faculdade de Educação Física, Universidade de Brasília].
- Santos, J. C., Rodrigues, J. D. P., Nery, S. S. S., Silva, É. P. D. S., Nunes, A. P., & Brito, A. D.
 F. (2017). Contribuições da dança na formação inicial de professores de educação física da Universidade Federal do Piauí. *Pensar a Prática, 20*(4), 793-807. https://www.revistas.ufg.br/fef/article/view/43885
- Sánchez, J. R, Delgado, S. C, & Marín, B. M. (2011). *Métodos de investigación y análisis de datos en Ciencias Sociales y de la Salud*. Ediciones Pirámide, SA.
- Silva, D. D. O., Pizani, J., Mendes, E. H., & Barbosa-Rinaldi, I. P. (2015). As disciplinas rítmicas е dançantes nos de licenciatura Educação Física cursos em do estado do Paraná. Pensar a Prática, 18(2), 530-543. https://www.revistas.ufg.br/fef/article/view/27651



- Souza, A. A. A., & Brasileiro, L. T. (2019). Saberes docentes de professoras de Educação Física sobre o conteúdo dança. *Motrivivência*, *31*(59), 1-18. https://periodicos.ufsc.br/index.php/motrivivencia/article/view/21758042.2019e573 29/40797
- Sousa, N. C. P. D., Hunger, D. A. C. F., & Caramaschi, S. (2014). O ensino da dança na escola na ótica dos professores de Educação Física e de Arte. *Revista Brasileira de Educação Física e Esporte*, 28(3), 505-520. https://www.scielo.br/pdf/rbefe/v28n3/1807-5509-rbefe-28-03-00505.pdf
- Sparkes, A., & Smith, B. (2014). Ethical issues in qualitative research. *Qualitative research methods in sport, exercise and health: From process to product.* Routledge, 206-237.
- Stinson, S. W. (2010). Questioning our past and building a future: Teacher education in dance for the 21st century. *Journal of Dance Education*, 10(4), 136-144. https://www.tandfonline.com/doi/abs/10.1080/15290824. 2010.529764
- Tani, G. (2000). Os desafios da pós-graduação em educação física. Revista Brasileira de Ciências do Esporte, 22(1), 79-90. http://revista.cbce.org.br/index.php/RBCE/article/view/755/429
- Ugaya, A. S., & Gallardo, J. S. P. (2019). Dança nas aulas de educação física: A percepção de professores supervisores do PIBID. *Cadernos de Formação RBCE*, *9*(1), 54-64. http://revista.cbce.org.br/index.php/cadernos/article/view/230

Submission data:

Submitted for evaluation on February 15, 2021; revised on May 29, 2021; approved for publication on September 1, 2021.

Corresponding author:

Allana Alencar - Laboratório de Pedagogia do Esporte/Centro de Desporto, Campus Reitor João David Ferreira Lima, s/n, Trindade, Florianópolis, SC, Brasil, CEP 88040-900.



Author contributions:

Alencar, Allana - Conceptualization (Leadership), Data Curation (Leadership), Formal Analysis (Leadership), Research (Leadership), Methodology (Leadership), Project Management (Leadership), Resources (Leadership), Software (Leadership), Supervision (Leadership), Validation (Leadership), Visualization (Leadership), Writing – original draft (Leadership), Writing – review and editing (Leadership).

Backes, Ana Flávia - Conceptualization (Support), Data Curation (Support), Formal Analysis (Support), Investigation (Support), Methodology (Support), Project Management (Support), Software (Support), Validation (Support), Visualization (Support), Writing – original draft (Equal), Writing – proofreading and editing (Support).

Manta, Sofia Wolker - Data Curation (Support), Formal Analysis (Support), Research (Support), Methodology (Support), Software (Support), Writing – original draft (Support), Writing – review and editing (Support).

Resende, Rui - Conceptualization (Leadership), Formal Analysis (Support), Investigation (Equal), Methodology (Leadership), Project administration (Equal), Supervision (Leadership), Writing – original draft (Equal), Writing – review and editing (Equal).

Farias, Gelcemar Oliveira - Conceptualization (Leadership), Formal Analysis (Support), Investigation (Equal), Methodology (Support), Project Administration (Leadership), Supervision (Leadership), Visualization (Equal), Writing – original draft (Equal), Writing – review and editing (Equal).

Nascimento, Juarez Vieira do - Conceptualization (Leadership), Data Curation (Support), Formal Analysis (Support), Investigation (Equal), Methodology (Support), Project Management (Leadership), Software (Support), Supervision (Leadership), Visualization (Support), Writing - original draft (Support), Writing - review and editing (Support).