



# Gender Participation and Preference: A Multiple-Case Study on Teaching Circus at PE in Brazilians Schools

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**Introduction:** After more than a decade monitoring physical education instruction in Brazilian elementary schools we noticed an exponential increase in circus activities in both curricular physical education (PE) and in after-school programs. The purpose of this study was to analyze the children's participation and gender preferences in circus activities, with regard to recent studies reporting substantial gender inequalities in Brazilian PE.

**Method:** A qualitative study, based on multiple-cases design, was conducted in two public and six private Brazilian elementary schools. Data collection consisted of 17 semi-structured interviews with PE teachers and school administrators and *in situ* observations totalizing more than 130 h. The data were analyzed using Content Analysis (thematic categories).

**Results:** Boys and girls showed high participation levels in both curricular and extracurricular PE circus activities. In grades 1–5, participant activity preference was not linked to gender in either curricular or extracurricular situations and overall physical engagement was high. Gender preferences between activities were identified in grades 6–12: girls for aerial activities (trapeze, silks) and boys for juggling activities. Teacher preferences played an important role in the process of linking activities to specific genders both through modeled behavior and gendered encouragement of participants.

**Conclusion:** Circus instruction engages children of all genders and is thereby an effective activity to counter low participation in PE for boys and, especially, girls. Although circus activities are not inherently gendered, gender preferences are cultivated by teachers through gendered behavior modeling (their activity preferences) and encouragement strategies (guiding students to activities based on gender), which is often observed in traditional PE school activities and sports.

**Keywords:** art education, circus instruction, teachers education, physical education (P.E.), pedagogy

## INTRODUCTION

The current study seeks to understand whether circus in PE influences student participation when compared with traditional PE activities. The benefits associated with Physical Education (PE) at school are widely documented (Bailey, 2006). As with other areas of contemporary society, gender asymmetry and inequality influences the way students access and experience school activities including sport, art and education (Garcia, 2007; Evans, 2017; Stride et al., 2018). In PE, gender differences have been observed with regard to access, participation and interest in the field (Metcalf, 2018). In many places school PE follows this trend, with gender participation unequal, uneven and problematic (Del Castillo-Andrés et al., 2013). Achieving gender parity in PE remains an important challenge that merits inclusion in all discussions of PE activities (Lentillon et al., 2006). Adequate teacher education about the challenges to gender equality, and potential solutions, is one way to work toward gender parity (Hills and Croston, 2012). Whether intentional or unconscious, teachers' approaches for students of different genders influence student participation and preference for different activities (Garcia, 2013). For this reason, there have been sustained efforts in Brazil to promote gender equality in school PE, using a critical approach to navigate the internal (curricular, administrative) and external (social, cultural) tensions and conflicts of school programs (Cardoso et al., 2005; Ferreira et al., 2016). We are therefore interested not only in overall participation in circus activities, but specifically interested in whether participation in circus PE activities replicates or reduces the gender asymmetry seen in other PE activities.

The group of researchers undertaking this project have dual expertise in PE and circus education. After more than a decade following the slow development of circus teaching in Brazilian elementary and high schools (grades 1–12), we recently noted an exponential increase in the implementation of circus programs in curricular PE and as an extracurricular activity. Teaching circus at school became popularized in the late 1990s (Ontañón et al., 2012; Price, 2012), which led to official documentation by the federal government and some states incorporating circus as standard curricular content. Brazilian educational authorities are not alone in recognizing that circus can positively contribute to student physical and social development (Duprat et al., 2014), many other countries worldwide also include circus arts in educational practices (Garcia, 2007, 2013; Bertin-Renoux, 2019; Kriellaars et al., 2019; Neave et al., 2020).

In response to the recent increase in school-based circus instruction in Brazil, we undertook a long-term research project that follows circus instruction in different elementary and high schools toward a better and broader understanding of the relationship between circus and school structures (curricular, extracurricular, instructional methods, financial engagement, and learning experiences). We analyze the implementation process, the methodologies used and the results of these experiences from the educators' perspectives (teachers and schools administrators). In this article, we discuss overall student engagement in circus activities when compared with traditional PE activities, as well as the influence of gender preferences

in PE circus instruction on engagement. To better understand what influences student engagement, we include program information about implementation, financial investment and teacher education as a means of discovering whether similar gendering processes happen in circus instruction and traditional PE activities (Berg and Lahelma, 2010).

## METHODS

### Study Design

Our approach is grounded in the quest to directly observe the pedagogical process, and the questions that arise within it, as suggested by Hunter (2014) and Jachyra et al. (2015). With the aim of better understanding circus instruction in schools, we chose a qualitative methodological stance enabling the participants to remain the experts of their own experiences. Because the only common points between our different sites are circus activities taught within schools in Brazil, we chose a multiple-case study method that allowed us to observe the particularities of each circus case (Thomas, 2011; Ashley, 2013) was conducted. An interpretive naturalist's perspective (Thomson, 1981) was adopted to preserve the "naturalness" of the environment by considering the particular context of each school's PE classes (Lewis, 2014). We were also attentive to how memory construction is connected to place through direct experience, and subsequently the way to teach memory preservation (Lincoln and Guba, 1985). Each case study that makes up this research were carried out under the same epistemological and methodological framework.

### Participants

Brazilian basic education is organized in three levels (Early Childhood Education <0–6 years of age>; Elementary Education <cycle I 6–10 years, and cycle II 11–14 years>; and High School <15–17 years>) (Brasil, 2018). This research considers that our study reaches two of these three levels, Elementary and High School.

For the selection of schools, we adopted two non-probabilistic procedures: convenience sampling and "snowball" sampling (Bolfarine and Bussab, 2005). In the convenience sampling process, we contacted dozens of PE teachers in order to identify those who worked with circus activities at school. We asked these professionals to indicate other contacts that could fit in the research, thus professionals indicated new professionals that increased our "snowball" sample. The main inclusion criterion was that the teacher needs to be working for at least 2 years at school and be responsible for teaching circus. To ensure case diversity, three other criteria were considered: administration (public/private); location (city and state); educational program (curricular/extra-curricular). When multiple schools met the criteria, preference was given to schools with longer circus teaching experience.

Two public and six private schools located in four different states (São Paulo, Minas Gerais, Paraná, and Rio Grande do Sul) in the south and southeast regions of Brazil were selected for this study. The schools taught circus in elementary or high

**TABLE 1** | School descriptions.

School administration	Province	PE program	Grades	Group average/number of students	Teachers (by gender)	Interviews	<i>in situ</i> observation
(1) Private	São Paulo	E-C	Grade 1–12 (12 groups)	Minimum 8 Maximum 33 per group; 225 students	3 (male); 2 (female)	2 (1 C, 1 T)	6 days 18 h
(2) Private	Paraná	E-C	Grade 1–12 (6 groups)	Minimum 5 Maximum 13 per group; 60 students	1 (male); 1 (female)	4 (1 C, 2 T and 1 D)	2 days 8 h
(3) Public (State)	Rio Grande do Sul	CL–PE	Grade 1–3 (3 groups)	Minimum 10 Maximum 12 per group; 30 students	1 (female)	3 (1 C, 1 D and 1 T)	3 days 12 h
(4) Public (municipality)	São Paulo	CL–PE	Grade 2–5 (10 groups)	Minimum 18 Maximum 24 per group; 200 students	1 (female)	2 (1 C, 1 D, 1 T)	8 days 40 h
(5) Private	São Paulo	CL–PE	Grade 8 (1 group)	25 students	1 (female)	2 (1 C, 1 T)	2 days 4 h
(6) Private	Minas Gerais	C–CIRCUS	Grade 3–9 (10 groups)	Minimum 5 Maximum 15 (average 12); 120 students	1 (male)	2 (1 C, 1 T)	3 days 15 h
(7) Private	São Paulo	CL–PE	Grade 1–4 (4 groups)	25 in average; 100 students	1 (male)	1 (T)	15 days 27 h
(8) Private	São Paulo	CL–PE	Grade 10– 12 (3 groups)	20 in average; 60 students	1 (male)	1 (T)	5 days 8 h
<b>TOTAL</b>	<b>4</b>	<b>2 E-C; 5 PE CL; 1 C-CIRCUS</b>	<b>49 groups</b>	<b>820</b>	<b>7 male; 6 female</b>	<b>17 interviews</b>	<b>44 days; 132 h</b>

C, Pedagogical Coordinator; T, Teacher; D, School Director/Principal; E-C, Extra curricular; CL, Curricular; C, CIRCUS Curricular Circus Arts.

school level (grade 1 to 12–USA educational system), and had PE teachers in charge of these activities for at least 2 years (**Table 1**).

School Principals and PE Teachers provided consent prior to participation. Ethical approval was obtained from the Research Ethics Council by the University of Campinas (CAAE: 66614417.3.0000.5404).

## Procedures

The access to the schools was negotiated directly with the person responsible for Physical Education and with the School Principals. All PE teachers voluntarily participated in the study. Using participant observation (Spradley, 1980) we followed 49 PE groups (two private schools; six public schools). More than 800 students were observed in 49 different groups over more than 130 h of *in situ* observations.

Several criteria were applied to observers for this research. Observers were always made by external researchers who had no active participation in the implementation process design, and no previous link with the schools and PE teachers. The selected observers are experienced in teaching circus in PE, and trained in interview and observational methodology.

The observations followed the placement guidelines of Woods (1986) and Anguera et al. (2017), and the data were recorded in field notebooks. The procedures used in the observations were applied in the same way for all cases. In order to create an environment of empathy, as suggested by Wacquant (2006), and also to build a “participative observation” (Jachyra et al., 2015), the observers used the following strategy: they did not actively participate in any activities, but slowly built interactions with participants over time, especially with those who spontaneously approached the observer. The field notes were made during observation and a post-observation written in the field diary. Such records are important for the analysis and discussion of data, seeking a global understanding of the phenomenon (Wacquant, 2006). Later, the field diaries were transcribed in a text editor (.doc).

Additional information obtained in informal conversation with the PE teachers was added in the form of memos to complement observational notes that were still diffuse or incomplete. Each researcher was responsible for the observations in two schools and all participated in the subsequent analysis of the data.

Looking for a deeper understanding of social reality, based on testimonies of the subjects involved 17 semi-structured interviews were conducted with 9 PE Teachers, 6 school Pedagogical Coordinators, and 3 School Principals. The interviews were scheduled in places and times indicated by the interviewees during the observational period each school. After the transcription of the recordings (audio) the participants were invited to review the testimonials. For the purpose of this multi-case study, the analyzes of the interviews were reviewed considering the thematic catechographs described below.

The interviews with teachers aimed to understand personal and professional backgrounds in circus and the reasons to include it in the school context. Pedagogical coordinators and directors were asked about the recognition, support and promotion of the circus instruction at the selected schools. All interviews were recorded in Audio (MP3 format) and later transcribed by the researcher responsible for each case (school) in a text editor (.doc) for further analysis.

A pilot study including interviews and observations in two local schools was conducted previously, aiming to linguistically improve the instruments and training all researchers involved.

In qualitative research, each case is considered as unique (Stake, 1995). As demonstrated, data collection sought to understand the different contexts of each school (economic extract of the population; qualification of the teachers; type of administration; etc.). Rather than comparing schools, these data were analyzed separately for a rich description of each site. In some cases, patterns that arise in each site can be compared. For the purpose of this paper, we include data related to participation in activities and gender preferences related to participation.

## Analytical Perspective

All researchers were trained in the Content Analysis method. The data were analyzed by developing thematic categories through Content Analysis (Krippendorff, 2004) and interpreted into those categories using a critical hermeneutics lens (Bourdieu and Wacquant, 1992). Data transcriptions were read multiple times, each time developing and applying codes and seeking to reduce and systematize codes into categories. Thematic categories were created from recurring patterns and codes (e.g., experience of circus teaching, experience of the implementation process, resource allocation) (Denzin and Lincoln, 2011). Codes developed from observational data were contrasted with the interview codes, the convergence and divergence of which contributed to the consolidation of the thematic categories (Anguera et al., 2017).

Through successive readings we obtained a set of common categories herein presented and discussed. Ultimately four thematic categories provided a framework for understanding both observational and interview data related to participation and gender: (a) Teachers (education; circus training; gender); (b) Schools (implementation process; facilities; circus equipment; and policies); (c) Pedagogical aspects (classes organization; circus disciplines teaching; didactic strategies); (d) Students (participation; gender preferences;...). Data collected from each case (school) were analyzed by the researcher responsible for the project and, independently, by his or her adviser. In the second

stage, all researchers (5 in total) accessed and re-analyzed the data, trying to improve the analytical consistency.

Findings are presented in narrative text to better reflect the experiences of the participants, to articulate the themes (categories), and to foreground the contexts of each school (Thomson, 1981; Bourdieu and Wacquant, 1992; Garrett, 2006).

## RESULTS

### What Was the Implementation Process?

#### Drivers of Implementation

In most of the schools the implementation of circus instruction in PE was initiated by individual teachers (Schools 2, 3, 4, 5, 6, 7, and 8). Only in one school (1) was the circus activity implemented through administrator initiative. The teacher emerges as the central figure in the circus implementation process, although he or she is not the only one responsible for this process, as previously suggested (Price, 2012; Ontañón et al., 2013).

Whereas, many PE teachers have reported feeling intimidated to initiate teaching new disciplines, including circus, teachers who implemented circus activities demonstrated “teaching courage” through their perseverance and problem-solving attitude during the implementation process (Ward, 2001). Because it was the teachers’ personal initiative that was the main trigger for the inclusion of circus activities, almost all PE teachers indicated a clear motivation that influenced their desire to integrate PE and Performing Arts into the context of school PE. The teacher at School 8 reports the drive to include circus comes from a belief that circus is:

[...] an activity that greatly enriches PE complementing the other contents that exist within it and brings new elements of artistic expression into the area that until then was somewhat overshadowed by sports and other content that are now being rescued (Roberto–School 8 teacher).

#### Context of Implementation

The longest-running program in this study is School 8, which began in 1995. Four circus programs launched in the 2000s (Schools: 1, 4, 6 and 7) and three were started 2010 (2, 3, and 5). We believe that this process may be the legacy of the profound changes undergone by Physical Education in Brazil during the 1980s as a result of the re-democratization (end of the civil-military dictatorship) and the institution of a new Federal Constitution. Ontañón et al. (2012) note that during this period, education was given new roles that led to a movement for educational renewal. By the 1990s, these transformations had prompted changes in institutional approaches to PE (educational guidelines, curriculum parameters, etc.). PE objectives, content and didactic strategies were now connected to cultural education, which strongly influenced the PE curriculum.

Although it was not a uniform movement throughout Brazil, the impacts of the cultural paradigm PE approach reached the education of teachers and, later, their performance in schools. Thus, it was in the 2000s that a group of teachers trained under the influence of the cultural paradigm entered the schools. When compared with experiences in other countries with no similar rise



in PE circus activities (Bolton, 2004; Price, 2012; Coasne, 2013; Kriellaars et al., 2019), our preliminary hypothesis is that the cultural perspective of education made it possible to implement other content, such as the circus, in school Physical Education.

### Economy of Implementation

While the majority of programs were implemented by teachers after the year 2000, a tremendous diversity of conditions was observed in each school. Resource allocation and availability was one of the most variable factors.

Systemic differences in educational conditions correlate with the different systems of school funding, with resource inequality linked to the asymmetrical financing of Brazilian education. Socioeconomic conditions play an important role in access to equitable education, as suggested by Bourdieu and Wacquant (1992). All programs receive some form of support from the school management team and sufficient space to develop the circus activities. Resources of space and equipment vary considerably, however, in connection to the differential funding of education in Brazil. In the public sector, the federal government is responsible for Higher Education; the states fund Elementary School II and High School; and the municipalities are responsible for Early Childhood Education and Elementary School I. This results in substantial inequalities in educational investment. In addition, the process of privatizing education must also be considered, where schools are funded primarily by the families of students which places different pressures on the curriculum but can also liberate the financial structure from reliance on government funding. Overall, private schools in this study have better conditions in facilities and equipment. The private (non-profit) schools clearly use “circus” as a school promotion strategy to draw students into their programs.

Most schools invested in equipment for circus activities. Financial investment for the purchase of circus and safety equipment (e.g., mattresses) was mentioned in interviews from Schools 1, 4, 5, 6, 7, and 8. Three schools made substantial investments in the purchase of equipment (1, 6, and 8), which was an important facilitator of the implementation process. However, in two of these schools (5 and 7), teachers still had to bring some personal equipment in order for the programs to operate. In Schools 2 and 3 teachers used their own circus equipment to teach. Only two of the private schools (1 and 6) showed sufficient investment in the materials.

In contrast, public schools (3 and 4) do not offer financial support, although they do not hamper the action of teachers. School 4 does not have specific circus equipment and therefore depends on the creativity, effort and resources of the teacher, who often prepares juggling apparatus at home for use at school. To combat the non-availability of circus equipment, teachers report artisanal manufacture (e.g., juggling) or the use of equipment borrowed temporarily. Teachers identify low support, especially lack of adequate equipment, as a factor that significantly limits the quality of teaching and learning circus. The teacher of School 3 finds that:

In fact, the challenges are quite large [...] we don't have many resources [and] often end up limiting [...] a sequence at work

[...]. And because it is a public school [the lack of materials] ends up limiting, because you need material to make [the activities]. So, this is one of the main challenges (Sara–School 3 teacher).

We note that the lack of investment to purchase circus equipment, even when it constitutes a major challenge, does not prohibit teaching circus at school. By relying on motivated teachers, some solutions are created and, over time, schools tend to change their position and increase support.

### Curricular Location of Implementation

From a school administrative perspective, three models were observed: circus activities in extracurricular programs (1 and 2); as part of the PE curriculum (3, 4, 5, 7, and 8); and having circus as a subject in the general curriculum program (6). Within these three models, there are still many variations. In Schools 1, 2, 6, and 8, circus is well-integrated into the pedagogical project, well-supported by the community, and does not rely on a single individual for longevity. Observations of School 3, where circus education and equipment are primarily maintained by the PE teacher, indicate that if the teacher leaves the program will also end.

Although there is a general document that standardizes basic education in Brazil, which allows the teaching of the circus in schools (Brasil, 2018), the decision to implement or not happens in the scope of each of the schools, generally meeting the individual demand of teachers. The State of Paraná (South Region) and the city of São Paulo, the largest city in Brazil, can be considered exceptions as they include the circus in their official curriculum proposals (Ontañón et al., 2012).

### Who Are the Teachers?

The PE teachers are central to the implementation of teaching circus in these schools, and all showed high personal motivation to teach circus. All had higher education degrees in PE which is compulsory according to the Brazilian law (LDB n° 9.394/96 art.62 Brasil, 1996). Two teachers (Schools 1 and 6) concluded higher education before the year 2000, the others between 2001 and 2010; all had more than 10 years of experience in the area. Encounters with circus arts during their PE degrees motivated teachers to include circus in PE classes, with the exception of the School 2 teacher. Some of the teachers started teaching the circus at school immediately after completing their PE undergraduate diploma (Schools 1, 3, 4, and 7). Teachers from Schools 3, 4, and 7 were responsible for starting the project in their schools.

Continuing education has been mentioned as very relevant to the teacher's training before they began teaching circus in PE. The School 2 PE teacher highlights continuing education through “juggling conventions” (where amateur and professional jugglers gather to exchange technique). General artistic education (music, theater and dance) was mentioned by School teachers 6 and 7 as complementary to circus training (School 6 teacher). Only School 2 reports offering regular circus training to the teachers as part of their pedagogical project. In general, teacher training follows different

itineraries, mostly motivated by personal interest. In the teachers' words:

I faced some challenges [...]. I started at [name of university], and doing some searches by myself [in courses, study groups, ...] that helped a lot in my pedagogical practice [...]. I had some difficulties. I tried a little bit of each thing [circus disciplines], and this practice teach me a lot. I use all this experience with the students, bringing exactly what I learned (Maria–School 4 teacher).

The majority (06) of the teachers reported have artistic professional experience. Five of them perform in Circus Arts (Schools 1, 2, 6, 7, and 8), one in Music and another one in Dance (School 4). Their personal experiences in performing arts informed their decisions to teach circus at school. It is clear that the unavailability of specific education for teachers who intend to teach circus in schools has led teachers to access other forms of professional training.

The overall gender of circus teachers was balanced (7 men and 6 women—**Table 2**). In the curricular programs students either had a male or a female teacher (Schools 3,4,5,7, and 8), however extracurricular activities (Schools 1 and 2) sometimes had more than one teacher per group. In these cases, the participation of both male and female teachers was deliberately chosen by the schools. In this specific aspect it was possible to notice that the teaching conditions between the curricular and extracurricular activities are quite different. Both teachers and administrators reinforce that being able to count on more than one teacher and, whenever possible combining male and female educators, facilitates the implementation of circus discipline diversity.

## How Deeply Has Circus Been Integrated in Schools?

School administrators agree with teachers that financial support is crucial, but not solely responsible, for maintaining programs. The most productive form of institutional support identified by participants was the inclusion of circus in the curricula, or as a topic in PE or Arts disciplines. Lack of adequate circus equipment and qualified teachers was the most consistent problem faced by schools. In cases like Schools 3 and 5 the continuity of the programs is fragile and dependent on teachers continued engagement and motivation.

The Pedagogical Directors of most schools spoke about the importance of using an interdisciplinary approach to integrate circus within other curricular content. However, in practice, this was achieved primarily by Schools 6 and 8, indicating that interdisciplinarity is an uncommon reality. The factors that enable or prohibit integration of circus into the broader curricular content have not yet been studied.

In all schools where circus education is curricular (PE and / or Art) (3, 4, 5, 6, 7, 8), participation is mandatory for all student groups; extracurricular programs (1 and 2) are optional for students and require additional fees, which effectively functions

as a barrier to participation for many students. Circus activities are generally 1 h in length, once or twice a week in extracurricular programs during the academic year (Schools 1 and 2). In the curricular programs (3, 4, 5, 6, 7, and 8) one or two classes are held per week, lasting 50–70 min on average, and each teacher is free to establish how many classes will be held in relation to the other required PE activities. The decision depends on how teachers divide PE contents along the school year. For instance, Schools 3, 4, and 5 offer between 2 and 10 days of circus activity per year; Schools 7 and 8 hold ~35 classes per year; and School 6 schedules 72 classes per year.

## Are Children Engaged? What Do they Practice? Is There Any Gender Preference? Organization by Discipline

We note that all teachers organize teaching based on different circus disciplines. All eight schools teach acrobatics (individual and group) and juggling. Balance activities are developed in most schools (only School 3 does not develop it). Aerials are taught in 5 of the schools (1, 2, 6, 7, and 8) and clown in three (2, 3, and 8). In general, we observed a set of ~20 circus disciplines (**Table 2**). Most schools are restricted to teaching 4 or 5 disciplines and only 2 (extracurricular) are able to offer greater diversity of subjects.

The teaching of circus subjects is strongly linked to the facilities and equipment available in each school: in Schools 1 and 6, aerial silks, aerial hoop and trapeze are available circus apparatus; in School 7, only aerial silk is developed because they do not have other aerial circus equipment. Low-resource schools tend to focus teaching on juggling and acrobatics, borrowing mattresses from gymnastics teaching or other established activities also developed in school PE. There are also some teachers who teach transversal content beyond circus disciplines, such as the history of the circus and particularly of animal tamer, as was the case in School 4.

## Instructional Strategies

Among the various instructional strategies adopted by the teachers “free play” (task-based activities with some teachers guidance) was most used in all schools. The “circuit activities,” where children move between different stations with different circus disciplines in a sequential order, were also common, with the exception of Schools 2 and 3. We noticed that in some schools, circus teaching was a direct reflection of the coaches' circus abilities, becoming most evident in schools with only one teacher. The teachers' testimonies reinforce this:

Our planning seeks to cover most circus disciplines. But we end up strengthening some more than others, this is a reflection of the skills of the team itself (circus teachers) who are more in tune with some disciplines. I recognize that we leave some subjects in the background, due to our own weaknesses. Teachers have limited skills (Eric–School 1 teacher).

We mainly teach juggling and aerials, because that's what we know best. We also teach some clown games and a little bit of balance (Linda–School 2 teacher).

**TABLE 2** | Circus disciplines and gender preferences.

School	Teachers (gender)	Circus disciplines	Preference	
			Girls	Boys
1	3M/ 2F	Aerial (silks, trapeze and aerial hoop); Juggling (scarves); Balance (chinese ball <rolling globe>; rolla-bola; stilts); Acrobatics (trampoline and mini-trampoline)	Aerial (Silks and Trapeze)	Trampoline
2	1M/1F	Juggling (diabolo, devil sticks, balls, clubs and rings); Balance (unicycle and rolla-bola); Acrobatics (individual and group); Aerial (silks, trapeze and aerial hoop); Clown	Acrobatics	Juggling
3	1F	Acrobatics (individual and group), juggling (balls, diabolo and scarves); "Drama games".	No difference	No difference
4	1F	Balance (tightrope and tin-can stilts); Acrobatics (individual and group); Juggling (scarves, handmade swing poi and hat spinning); Extra: Circus history; Circus animal acts and handlers; "knife thrower" game; creation/exploration, circus acts training, rehearsal and performance.	No difference	No difference
5	1F	Balance (stilts and rolla-bola); juggling (balls and diabolo); Acrobatics (individual and group)	Individual acrobatics	Stilts and Rolla-bola
6	1M	Balance (rolla-bola, chinese ball); Acrobatics; Juggling (balls, Chinese/Spinning plates, diabolo); Aerials (silks, trapeze and aerial hoop).	Aerial (silks and trapeze)	Acrobatics (trampette) and Rolla-bola
7	1M	Balance (stilts and rolla-bola); Acrobatics (individual floor skills); Aerials (silks); Juggling (Chinese plates; hat spinning; rings).	No difference	No difference
8	1M	Juggling; Balance (stilts and rolla-bola); Drama games/Clown; Acrobatics (individual and group); Aerials (silks and trapeze).	Aerial (silks and trapeze)	Juggling

### Student Engagement, Gendered Engagement

Our observations showed a high level of student participation in activities, and very few non-motivated children. Teachers and managers spoke enthusiastically about the results, reinforcing this perception. When we closely observe participation school by school, we can compare student preferences of circus disciplines by gender against the disciplines being taught, which reveals participation patterns (Table 2).

In the three schools (3, 4, and 7) with the youngest children (grades 1–5), no gender preference was observed. However, we see some trends in the other five schools (1, 2, 5, 6, and 8). In some groups, mainly from the 6th grade and older, we noticed that students self-divided by gender, both in classes based on "free play" and "circuit activities."

Girls showed greater interest in the aerial activities, specifically in the practice of silks and trapeze (1, 6, and 8); in two other schools girls preferred individual acrobatics (2 and 5).

Boys show greater interest in acrobatics (trampoline and mini trampoline) in Schools 1 and 6, and preferred juggling in two other schools (2 and 8) (Table 2). Some teachers have acknowledged concern about these trends, indicating that they seek to balance student participation in all disciplines in the same way. At School 2, we observed some classes in which the group of students was divided by gender, so that each group could participate in activities guided by different teachers. In the teacher's own words:

Boys like to juggle and girls like acrobatics. When we divide, boys spend 40 min juggling with the male teacher and 20 min with the female teacher in acrobatics; and then change. So the children experience both teachers and we respect the disciplines that they most identify with in order not to demotivate (Thomas–School 2 teacher).

The multiple case studies that compose this project showed a recurrent concern among teachers in developing gender equality in their pedagogical practices (Uchoga and Altmann, 2016). Teachers were wary about replicating traditional sport models, which literature shows mostly engage boys (Penney, 2002; Garrett, 2004, 2006).

## DISCUSSION

### Circus Arts in PE

The implementation process of teaching circus in the schools of this study coincides with a period when engagement with circus arts in Brazil was rapidly increasing, beginning in the late 1990s and consolidating in 2005 (Ontañón et al., 2012). During this period, we also noticed an increase in the literature dealing with teaching circus at school in Brazil, which may have empowered more teachers to venture into this area (Faria et al., 2010; Miranda and Bortoleto, 2018).

In agreement with the literature studied, teachers indicated that popularization of teaching circus in school PE seems to be associated with the search for an alternative to sport-based models, which have been hegemonic in Brazil since the 1980s.

Something similar was observed by Garcia (2013) in France, where circus has been a longstanding option within PE classes: because most PE teachers come from a sport background, many prefer to teach highly athletic circus activities with an artistic component than the required dance practices. Perhaps drawing from its French roots, circus has been implemented in some Canadian schools as well (Froissart and Thomas, 2019). Price (2012) argues that the search for innovative practices in New Zealand PE has led to the inclusion of circus. We see PE as one of the main “entrance doors” for teaching circus at school in Brazil (Takamori et al., 2010), something also noticed abroad (Tribalat, 2003; Bolton, 2004; Coasne, 2013; Kriellaars et al., 2019). It is important to note that two of our observed schools teach circus as an extracurricular activity, which also introduces circus into the school environment, albeit differently. Teaching circus in PE curricular programs is not the only possibility, as suggested by Nevanen et al. (2014), reinforcing that teaching circus arts at school could combine different programs and professionals (PE teachers, Art teachers, etc.).

### Supporting Circus Activities

Participants indicated that teacher education in circus art was an important element in achieving good program results. The PE teachers testimonies indicated a positive relationship between what they have learned in undergraduate education with what they already do at school, which is already highlighted in Brazilian literature (Miranda and Bortoleto, 2018) confirming how important it is to have exposure to circus in Physical Education Teaching Education–PETE (Tucunduva and Bortoleto, 2019). The participation of teachers in continuing education was decisive for most of them becoming comfortable with teaching circus, as well suggested by Kriellaars et al. (2019). Artistic experiences, especially in the specific field of circus, seem to contribute significantly to an educator’s motivation to teach circus (Takamori et al., 2010; Garcia, 2013).

We noticed that most of the programs were started through teacher initiatives and, often, with equipment they provided. Managers and teachers were emphatic that institutional support, good facilities and the purchase of appropriate equipment contribute decisively to the success of the programs. For this reason, public school teachers showed greater difficulty in consolidating their projects. Contrary to Ward’s observation that circus programs are usually left to fend for themselves (2001), the cases studied in Brazil show adequate support from the school managers. Positive results from institutional support allowed most schools to expand their programs (especially Schools 1, 2, 6, and 8).

### Effects of Teaching Strategies

With regard to teaching strategies, the “free play” option has been one of the most used, which does not come as a surprise in art teaching since is based in a non-regulated exploration and can contribute to students’ social, cognitive and emotional development (Burdette and Whitaker, 2005). Some of the social aspects involved in this strategy are autonomy, problem solving, socialization, and coexistence (Aras, 2016). These aspects are linked to the students’ free choices (Wood, 2014) and culminates in reproducing their preferences. Previous studies in Brazilian schools (Takamori et al., 2010; Ontañón et al., 2012), show similar experiences in other schools, with positive results.

In general, circus activities at school showed high participation of all children, regardless of gender, which is already encouraging as a means of maintaining physical engagement in youth. Furthermore, because circus is a performing art, in which girls tend to participate more readily than boys Garcia (2007), it shows that moving away from a competitive model does not reduce male physical engagement. The circus as a novelty for PE seems to stimulate the high participation rate (Price, 2012). In all schools, circus has been taught with mixed-gender groups, which is crucial for minimizing gender differences, as suggested by Hills and Croston (2012).

### Gendered Preferences

Student preferences for different circus activities are influenced by gender relations, and possibly by the action-conscious or not-of the teachers (Funk, 2018). Historical pressures and trends have led to the “gendering” of certain disciplines in performance, which students and educators see in circus shows, technique videos, etc. (Harrison, 2019). The gender preferences of participants in these programs was also associated with classical “gendering” of circus disciplines and in some schools based on the preferences of their teachers. This study indicates that although a strong pedagogical option, “free play” can, in some age groups, reinforce students grouping together by gender. In this sense, “free play” activities can reproduce gender preferences, especially based on teachers’ preferences (Garcia, 2007) and, therefore, require attention and monitoring by teachers. For this reason, “circuit activities” contributed more sustainably to reducing gender asymmetry while still maintaining high participation and building student autonomy and responsibility (Coasne, 2013). Our findings reinforce Kriellaars et al. (2019)’s observation that participation in circus engages students of all



genders in grade 5. Gendered activity differences began to appear in grade 6 and up, indicating that external socializing forces may also be affecting student preferences.

Some teachers reported that they had not noticed gender preferences, however others indicated that some differences had been noticed with respect to the practice of the different circus disciplines. Some schools have even taken actions to minimize the tendency of students to gravitate toward certain activities with respect to their gender, especially in teaching strategies. It is important to note that the Brazilian Curricular guidelines reinforce that there should be no gender distinction and that the inequality should be fought (Brasil, 2018). However, there are still huge differences in the field of school PE in Brazil (Uchoga and Altmann, 2016) which requires permanent attention. Thus, circus education emerges as an important option for a PE that is still unbalanced with regard to gender (Garrett, 2004; Ontañón et al., 2013). Therefore, when we assume gender as a social construct (Bourdieu and Wacquant, 1992), both participation in PE and, more specifically, in circus instructions, seem to be linked to the context.

## CONCLUSIONS

In a multiple-case study, we strive to understand each case as unique and a product of its particular context, thereby resisting comparisons between specificities. Even so, patterns emerge from each site which can be discussed together. In all schools we observe high participation of children in circus education across all age groups, contrasting many studies that show the drop in children's interest in PE at school as they age, mainly after grades 7/8 (Silva et al., 2019). When we look at student engagement in more detail, our observations show that instructional design is directly related to participation. "Free play" and "circuit activities" were the most motivating strategies. It is possible that the greater diversity of circus disciplines taught through these methods contributed to maintaining children's interest, however, considering gender issues, it requires permanent attention by the teachers.

In schools with younger children there were no noticeable differences in gender preferences for certain circus disciplines, but older students showed strong preferences along gender divisions. For this reason, we recommend that schools monitor gender tendencies, as well as the provision of continuing education to teachers so that they expand their skills for teaching other circus disciplines. Well-trained teachers are crucial to the quality of teaching and are more able to offer a diversity of pedagogical strategies to maintain participation and gender equality, as well as being familiar with a broader diversity of circus disciplines.

These measures seem necessary so as to avoid an association between gender and intrinsic characteristics of circus practices;

children should see circus as a combination of their interests reinforced by the actions of teachers. Therefore, we agree with Quennerstedt (2019) that the PE can effectively contribute to a more equal gender participation in physical activities, and our research shows that circus instruction within school contexts offers many opportunities to promote gender equity.

This study is limited with regard to the geographic location of schools. Therefore, we intend to expand the sample, including schools from other states and regions of Brazil in future studies.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Research Ethics Council, University of Campinas. The patients/participants provided their written informed consent to participate in this study.

## AUTHOR CONTRIBUTIONS

MB: research project coordination (all case studies), general data analysis review, and full paper writing (intro, method, results—tables, discussion, conclusion). TO: case 7 and 8 study, specific and cross cases data analysis, and article writing (intro and method). LC: case 5 and 6 study, specific and cross cases data analysis, full paper writing, and article writing (results and discussions). AF: general data analysis and discussions writing, all article language review, and article writing (results and discussions). CM: case 1 and 2 study, specific and cross cases data analysis, and article writing (intro and conclusion). GS: case 3 and 4 study, specific and cross cases data analysis, and article writing (method and discussions). All authors contributed to the article and approved the submitted version.

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