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Teaching Combat Sports in School Physical Education: Development of Specific Motor Skills

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Abstract

Background. In the school setting, combat sports allow students to develop moral, affective, intellectual, and motor abilities. Problem and aim. This study aimed to explore how combat sports are taught in physical education classes in Brazil and investigate the perception of physical education teachers regarding the effects of combat sports on motor skill development.

Methods. A semi-structured and validated questionnaire was administered to 77 physical education teachers in Santa Catarina, Brazil. Results. 18 respondents taught combat sports as part of their teaching program and 59 did not. Teachers believed that combat sports help students develop specific motor skills, particularly grabbing, rolling, and dodging.

Conclusions. The results showed that despite being aware of the benefits of combat sports to motor skill development, most teachers do not include combat-related activities in their classes.

Introduction

Contemporary physical education is guided by diversification, regarding the development of specific contents (sports, dance, gymnastics, games and plays, adventure activities, and combat sports). These contents are organized in curricular proposals and official documents in the public domain, as the National Common Curriculum Basis [Brazil 2017], National Curricular Parameters [Brazil 1998] and Curricular Proposal of the State of Santa Catarina [2014], in Santa Catarina State – Brazil. These documents help teachers to select and organize the contents of scholarly Physical Education, aiming at a significant improvement in teaching and learning processes.

The National Common Curriculum Basis [Brazil 2017], which is the current and guiding educational document in Brazil, defines and conceptualizes as bodily disputes the ones that are carried out through techniques in which participants develop the stragtegies to meet specific objectives, such as: immobilizing, unballancing

and excluding the opponent from a given space. This thematic is established to be executed during the years of basic education, in a progressive way and contemplating the diversity of manifestations and meaning of the fights, martial arts, and combat sports.

Furthermore, in its concepts, fights are bodily manifestations belonging to human evolution, being a combat education form, both in prehistory and in more recent times. Different types of fighting appear around the world with the evolution of combat practices, each type with its own characteristics, and with similarities aimed at techniques to strike the opponent. In addition, fights are manifested in contexts such as schools and the school environment through physical education classes [Vit, Reguli 2015].

In the school setting, combat sports allow students to develop moral, affective, intellectual, and motor abilities [Olivier 2000; Tani *et al.* 2008; Vit, Reguli 2015]. Motor skills are the ability to control movements. The higher the skill, the more successful, optimized, and precise is the action [Gallahue, Ozmun 2005]. Different combat techniques can help develop and refine motor skills [Aljadeff-Abergel 2013; Alencar *et al.* 2015; Oliveira *et al.* 2017; Kozdras 2019]. During a match, participants must carry out quick attack and defense actions, responding to the opponent's movements [Gomes *et al.* 2010].

Fundamental motor skills can be classified into locomotor, fine motor (or manipulative), and stability skills. Examples of fundamental motor skills include walking, running, jumping, grasping, grabbing, holding, manipulating objects, pulling, throwing, landing, escaping, unbalancing, pushing, dodging, turning, stopping, and rolling [Gallahue, Ozmun 2005; Gallahue, Donnelly 2008; Faro *et al.* 2020]. These skills are essential to combat sports, as they are the basis of combat movements and techniques [Katic *et al.* 2012].

Motor skill development is an important goal of school physical education and has been widely studied by researchers in the fields of biomechanics, kinesiology, developmental psychology, and sociology [Gallahue, Ozmun 2005; Souza *et al.* 2008; Tani *et al.* 2008; Nobre, Valentini 2016; Busko 2019; Kozdras 2019]. The aim of this study was to investigate the teaching of combat sports in Brazil and examine the perspective of physical education teachers regarding the effects of combat sports on motor skill development.

Materials and methods

This descriptive study was approved by the Human Research Ethics Committee (process no. 2.380.744/2017) of the Santa Catarina State University, Brazil. All study participants read and signed an informed consent form.

A semi-structured questionnaire was administered to 77 physical education teachers in public schools located in 13 municipalities (Aguas Mornas, Angelina, Anitapolis, Antonio Carlos, Biguacu, Florianopolis, Governador Celso Ramos, Palhoca, Rancho Queimado, Santo Amaro da Imperatriz, Sao Bonifacio, Sao Jose, Sao Pedro de Alcantara, and Florianopolis) in Santa Catarina, southern Brazil. Public schools are administered by the Grande Florianopolis Regional Coordination (GFRC).

The questionnaire was composed of 29 questions organized in demographics, curriculum, and pedagogical strategies and proposals. The data collection instrument was designed specifically for this study and tested for adequacy and reliability regarding clarity, practical relevance, and theoretical relevance [Aiken 1985; Merino, Livia 2009; Cassepp-Borges *et al.* 2009]. The questionnaire was validated with a reliability coefficient of 0.91. GFRC approved the study and sent the questionnaire to all physical education teachers through correspondence.

Content analysis was used to investigate the survey results [Bardin 1977]. Answers were pre-analyzed, coded, and categorized using NVivo 9.2 software. In the pre-analysis stage, all responses were read in full. Then, responses were coded according to words and concepts. Finally, three categories were defined: combat sports, motor skills, and benefits of combat sports.

Results and discussion

A total of 77 physical education teachers in primary and secondary state schools of the Grande Florianopolis metropolitan area participated in the study. Participants were characterized according to their age [Sikes 1985], level of education, and years of teaching experience [Farias and Nascimento 2012] (Table 1).

Category	n	Percentage (%)
Gender		
Male	29	37.66
Female	48	62.34
Age		
<29 years	9	11.69
30-39 years	36	46.75
40-49 years	21	27.27
>50 years	11	14.29
Level of education		
Undergraduate degree	23	29.87
Professional degree	48	62.34
Master's or doctoral degree	6	7.79
Teaching experience		
1–4 years	16	20.78
5–9 years	18	23.38
10-19 years	32	41.55
20-27 years	8	10.39
28-38 years	3	3.90

In Santa Catarina, Brazil, combat sports can be included in the school curriculum as a tool for developing body awareness. Teachers may decide whether to implement combat sports in physical education classes or not [Santa Catarina 2014]. Only 18 teachers (23.38%) reported teaching combat sports. The other 59 teachers claimed to be aware of the potential of combat sports for promoting motor skill development but did not include the subject in their lesson plans. Previous studies have shown that combat sports are little explored in the school setting [Nascimento, Almeida 2007; Fonseca *et al.* 2013].

Teachers reported that combat sports can help develop students' attitudes (n = 35), motor skills (n = 20), health (n = 7), and other aspects (n = 15), such as physical aptitude, cognitive development, and life quality. Seven teachers, however, believed that students do not benefit from learning combat sports.

Combat sports are generally associated with violence, precluding their inclusion in physical education classes [Olivier 2000]. Contrary to this belief, combat sports can help develop a sense of "learning to be" and "learning to live together" [Delors 1998] and stimulate moral and philosophical conduct. Students learn to respect one another rather than to express violence [Matos *et al.* 2015; Fabiani *et al.* 2016]. Learning the principles of martial arts (mutual respect, ethics, citizenship, among others) in school can promote positive attitude changes that persist to adulthood [Fett, Fett 2009; Correia 2015]. Efforts have been made to disseminate information on the benefits of combat sports to physical education teachers [Nascimento, Almeida 2007; Rufino, Darido 2012; Gallati *et al.* 2015; Correia 2015; Kusnierz *et al.* 2017].

The benefits of fight teachings can contemplate three basic pillars: mental values, by challenging situations; pedagogical values, by attitudes, concepts and procedures of teaching and learning; utilitarian values with benefits beyond school, by motor development, practice of physical activities and sports practice. In addition, some contexts present different purposes for fights and martial arts teaching in physical education classes, as for instance in Japan, with a philosophy focused on human character, and in western countries, as for example, the United States, with a concept focused on sporting. Among so many benefits and purposes, one must take a critical look at what should really be attributed to the student, and among the most common is the development of motor skills [Vit, Reguli 2015; Cynarski 2016].

Olivier [2000] highlighted that one of the main objectives of school physical education is the development of motor skills. Combat sports can be used as a strategy to develop not only specific motor skills but also affective and moral abilities in students [Olivier 2000; Gallahue, Donnelly 2008; Lopes *et al.* 2016; Rodrigues *et al.* 2017]. Teachers must know which specific motor skills can be developed through combat sports [Tani *et al.* 2008]. Table 1 shows the skills that are exercised in combat sports, as reported by physical education teachers.

Table 2. Fundamental motor skills developed in combat sports,	
according to physical education teachers ($n = 77$).	

Specific motor skill	No. of citations	Percentage (%)
Walking	32	3.12
Manipulating objects	34	3.31
Throwing	38	3.70
Running	42	4.09
Grasping	44	4.29
Stopping	49	4.78
Touching	51	4.97
Escaping	52	5.07
Taking down	57	5.56
Pulling	57	5.56
Jumping	57	5.56
Unbalancing	58	5.65
Pushing	58	5.65
Landing	60	5.85
Turning	62	6.04
Holding	64	6.24
Dodging	70	6.82
Rolling	70	6.82
Grabbing	71	7.92

Teachers identified 19 specific motor skills that are used in combat sports. Although most teachers did not teach the subject, they were able to identify a wide variety of skills that can be developed through combat activities [Olivier 2000; Souza *et al.* 2008; Gutierrez-Garcia *et al.* 2018]. In combat sports, several skills are exercised simultaneously. Therefore, it is important to design lesson plans to incorporate complementary skills using different combat movements and techniques [Oliver 2000; Gallahue, Donnelly 2008; Vit, Reguli 2015].

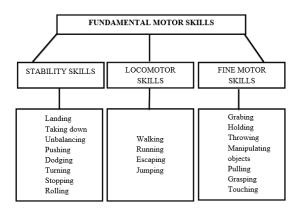


Figure 1. Fundamental motor skills developed in combat sports, as reported by physical education teachers and presented according to the classification of Gallahue and Donnelly [2008].

The motor skills identified by the teachers were categorized into three groups (Figure 1) [Gallahue, Donnelly 2008]. This classification may help teachers understand the different skill dimensions that can be developed through combat practices.

It can be seen from Figure 1 that combat sports promote the development of motor skills in the three

categories of fundamental movements. Teachers can select specific motor skills or sets of skills to work on with their students. However, this type of planning requires knowledge of which skills can be developed through which combat sports or techniques. As a solution to this problem, some authors proposed systematic lesson plans for school classes, highlighting the most appropriate movements for enhancing different motor skills [Olivier 2000; Gallahue, Donnelly 2008]. Systematic approaches facilitate lesson planning, but it is important to bear in mind that it is not sufficient to impart the knowledge or skills required to achieve a learning objective. Teachers must contextualize activities and design a lesson plan that allows them to explore the opportunities for development that combat sports provide.

In an effort to elucidate the relationship between different combat sport modalities and motor skill development, Scaglia and Gomes [2011] proposed a classification system that distinguishes combat activities by the type of physical contact in which combatants engage. Contact is classified as continuous, intermittent, or object-mediated. Continuous contact is common in sports where opponents stand close to each other, such as judo, jiu-jitsu, and sumo. Combat sports such as karate, boxing, Muay Thai, and taekwondo are characterized by intermittent physical contact. In some combat sports involving the use of weapons, contact between opponents is mainly object-mediated, as occurs in fencing, jousting, and kendo.

Scaglia and Gomes's [2011] classification system was applied to the fundamental motor skills reported by physical education teachers (Table 3). Note that some motor skills appear in more than one category. The classification may be of great value to teachers, as it indicates which sets of motor skills are prioritized by each type of physical contact.

Table 3. Motor skills developed by physical contact activities.

Type of physical contact	Motor skills
Continuous	Grabbing, walking, landing, taking down, unbalancing, pushing, holding, pulling, rolling
Intermittent	Walking, running, dodging, turning, stopping, jumping, touching
Object-mediated	Walking, dodging, throwing, manipulating objects, grasping, touching

Most motor skills reported by teachers are related to the practice of continuous contact activities. This result can be attributed to the high popularity of grappling-based sports and the biases and prejudices that permeate striking and armed sports [Gomes, Avelar Rosa 2012]. Close contact sports, such as judo, are regarded as safer for students because they include mainly holds and throws rather than kicks and punches [Gomes, Avelar Rosa 2012; Mesquita 2014; Olivio Junior, Drigo 2015; Lopes *et al.* 2016]. Motor skills associated with intermittent physical contact were the second most reported by physical education teachers. Intermittent contact sports typically involve strikes and, therefore, require specific pedagogical strategies to be taught. Teachers need to feel confident in their ability to teach intermittent contact techniques and should discuss the meanings and implications of each movement beyond the classroom [Galatti *et al.* 2015]. Motor skills such as walking, running, dodging, turning, stopping, jumping, and touching are not complex but can become so when combined with other movements. This consideration provides a solution for teachers who feel insecure to teach striking sports. A karate movement can be adapted by using touching gestures instead of blows so that students can develop their motor skills without the risk of injuries [Cirino *et al.* 2013].

The motor skills least associated with combat sports were those that can be developed through object-based activities. Skills such as throwing and manipulating objects can also be promoted by more traditional sports, for instance, basketball, athletics, and gymnastics. Fencing and jousting are interesting additions to the school curriculum, as they can be the focus of multidisciplinary classes discussing swords, spears, shields, swordsmanship, metalworking, and their historical and philosophical contexts [Cirino *et al.* 2013; Pereira *et al.* 2017]. In this manner, it is possible to diversify physical education classes and develop students' motor skills through fun teaching activities.

In the view of physical education teachers, there was a clear relationship between combat sports and motor skill development. However, although part of the school curriculum framework, combat sports are rarely included in teaching programs in Santa Catarina - Brazil. As different combat sports promote different motor skills, the practice of diverse sports modalities is indicated to achieve a well-balanced motor development. This objective necessitates the resolution of the fears and insecurities that prevent more widespread teaching of combat sports in schools. Future studies should aim to develop pedagogical proposals and materials to support teachers' ability in conducting combat sports lessons and stimulating specific motor skills.

Final considerations

The results showed that few teachers in Grande Florianopolis teach combat sports in physical education classes. However, it is possible that the results do not represent the reality of the state or the country. Teachers identified that combat sports can help develop affective, moral, and motor abilities in students. It is important to expose students to activities that can enhance body awareness, as proposed by the Santa Catarina curriculum framework.

The high number of motor skills reported by teachers shows that combat sports can bring many benefits

to child development. Combat sports promote continuous, intermittent, and object-mediated physical contact. Teachers can develop lesson plans that incorporate all types of contact, evidence of the wide range of possibilities for developing motor skills that teaching combat sports provides. Further research should focus on students' development of motor skills and the pedagogical strategies used by physical education teachers to teach combat sports.

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Nauczanie sportów walki w szkolnym wychowaniu fizycznym: Rozwój szczególnych umiejętności motorycznych

Słowa kluczowe: sport kontaktowy, umiejętność motoryczna, szkoła

Streszczenie

Tło. W środowisku szkolnym sporty walki pozwalają uczniom rozwijać zdolności moralne, afektywne, intelektualne i motoryczne.

Problem i cel. Niniejsze badanie miało na celu zbadanie, w jaki sposób sporty walki są nauczane na lekcjach wychowania fizycznego w Brazylii i zbadanie postrzegania przez nauczycieli wychowania fizycznego wpływu sportów walki na rozwój umiejętności motorycznych.

Metody. Półustrukturyzowany i zweryfikowany kwestionariusz został przeprowadzony wśród 77 nauczycieli wychowania fizycznego w Santa Catarina, w Brazylii.

Wyniki. 18 respondentów uczyło sportów walki w ramach swojego programu nauczania, a 59 nie. Nauczyciele uważali, że sporty walki pomagają uczniom rozwijać specyficzne umiejętności motoryczne, szczególnie chwytanie, przetaczanie i unikanie.

Wnioski. Wyniki badań wykazały, że większość nauczycieli, mimo świadomości korzyści płynących z uprawiania sportów walki dla rozwoju zdolności motorycznych, nie włącza do swoich zajęć zajęć związanych z walką.