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The Legacy of the Rio 2016 Olympic Education Programme:

An evaluation of Physical Education Classes in Public
Schools of Rio de Janeiro

2016 리우 올림픽 교육 프로그램의 유산:
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Finally, to my parents, whose lessons I carry with deep respect. I will eternally dedicate the successes of my trajectory to the love and security that you provide me.

Abstract

The Legacy of the Rio 2016 Olympic Education Programme

An evaluation of Physical Education Classes in Public
Schools of Rio de Janeiro

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The Olympic Movement affirms that cities that host the Olympic Games can accomplish more than two weeks of a sport celebration. The competition would be a catalyst for changes, as Pierre de Coubertin proposed when developing the concept of Olympism, and areas such as tourism, sustainability, transportation and education would benefit from its legacy. A great number of researchers, however, indicate a lack of evidence to prove an effective socio-economic development achieved by hosting the tournament.

The 31st edition of the Olympic Games was the first one in South America. The city of Rio de Janeiro, in Brazil, was chosen as host seven years earlier, in 2009. The legacy factor played a major role since this bidding process. As one of the initiatives to promote lasting benefits, the Organizing Committee developed an Education Programme called *Transforma*. Besides promoting Olympic values and knowledge about the Games, *Transforma* had as one of its goals to increase the number of sports practiced in public schools of Rio de Janeiro.

Brazilian schools are known for teaching only the “magic four” in the Physical Education (PE) classes: football, basketball, handball and volleyball. This causes two main problems for students: limited motor skill learning, since different sports promote different movement abilities, and the tendency of young people who do not enjoy traditional sports to avoid PE classes and suffer bullying in many cases.

In order to stimulate the practice of diverse sports, *Transforma* organized trainings for PE teachers with the help of Brazilian national and local Sport Federations. Athletes or coaches would teach the educators basic rules and movements of their sports, so later this knowledge could be applied in the schools.

This research investigates if the objective of implementing new sports on PE classes in public schools of Rio de Janeiro was achieved, which factors influenced the process and what was the impact on students. It is, therefore, an examination of the efficiency of one of the Olympic legacy initiatives from the Rio 2016 Games.

To conduct this study, the author collected data from 105 PE teachers that joined the *Transforma* training through an online survey with open-ended and closed-ended questions. The questions were based on the framework of Guskey (2000), which establishes five levels of professional development evaluation. This model measures the participants' first reactions to the training, their level of learning, the school support, the use of the new knowledge and the outcome for students.

First results indicated that 82.9% of the participants included a different sport in the PE classes after the training. For the second step, the researcher performed a logistic regression, which showed that the most significant aspect for the implementation of a new sport was the fact that PE teachers would learn during the training how to build the sports equipment with alternative and cheap material. This result might be explained by the context in which Brazilian schools are inserted. Most of the respondents complained about the lack of resources, a fact that is supported by previous

literature. If teachers learn how to build the sports equipment in an inexpensive way, they are able to overcome the school funding issue and rely only on their efforts. The third step was to investigate the impact of the training on students. Teachers' responses revealed that, despite of some hesitancy at the beginning, students were very satisfied with the new activities. Both quantitative and qualitative findings indicated an increase in participation. Those young people who avoided PE classes felt included and excited with the new sport. Most of the teachers said the students asked to play the sport again, demonstrating that they are willing to transcend the "magic four" if the PE teacher is prepared to include new activities.

Transforma was found to be an effective programme in terms of increasing sport participation in public schools of Rio de Janeiro. However, the programme was ended after the closing ceremony of the Rio 2016 Games, even though 97% of the teachers declared in the survey they would like the activities to continue.

The researcher suggests the Olympic Movement to deeply reflect about the continuity of legacy projects such as Education Programmes, starting from the bid process to choose the host city, so they are not over once the Games end. A more systematic evaluation is also necessary to measure and improve the impact of those initiatives, justify expenses and

support the argument that the Olympics are worth investing on. In addition, the researcher believes that teaching educators how to build sports equipment with cheap material could be considered as a legacy programme in countries with educational realities similar to Brazil, in a way to strike the lack of resources, but also in wealthier environments, as a tool to promote different sports and sustainability. Final recommendations are addressed to future researchers, who could focus on other stakeholders' perceptions, specially giving voice to students.

Keywords: Olympic legacy, Physical Education, Rio 2016 Organizing Committee, Transforma, Education Programme, sport training, sport participation

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Chapter 1. Introduction

1.1. Background

The Olympic Games are the largest sport event in the world. In 2016, the 31st edition of the competition gathered more than 11,000 athletes from 205 countries in Rio de Janeiro. Since its origin, the Olympic Games are supposed to have a deeper meaning than breaking records and climbing the podium.

Known as the father of the modern Games and founder of the International Olympic Committee (IOC), Pierre de Coubertin dreamed about an educational movement, called Olympism, which would combine sport, arts and culture to promote human progress and make the world a better place to live. It was a reaction to a political, economic, social and religious crisis in Europe in the late 19th century (Kidd, 2013). Olympism includes values such as fair play, friendship, peace and international goodwill, which are still a topic of debate nowadays, as they were 100 years ago (Binder, 2001).

More than a century after its revival in Athens 1896, the Olympic Games are now a lucrative business, involving hundreds of millions of dollars in areas such as sponsoring, broadcasting rights and licensing. The high cost to host the competition, from the bid process to the closing

ceremony, combined with corruption scandals involving IOC members, generates a negative impression on public opinion. The result is fewer people interested in the Olympics and more campaigns against the event. In the United States, for instance, the country that hosted the competition for the largest number of times, a research by the management consulting company Gallup showed that American's interest in watching the Rio 2016 Olympic Games were the lowest ever, with 20% of the participants saying they did not plan to watch the competition at all (Art Swift, 2016). The decrease in the number of candidate cities to organize the Olympic Games, and the fact that, for the first time in history, the IOC nominated two host cities in the same session – Paris and Los Angeles, for 2024 and 2028 – also suggest that there has been a change in the way society considers the Olympics.

One possible solution to regain the prestige of the Olympic Games is to ensure that the event consists of more than 15 days of celebration. The IOC, the Organizing Committees for the Olympic Games (OCOGs) and the host countries seek measures to generate a lasting and positive legacy for the population in areas such as transportation, tourism, sustainability and education.

However, there is a lack of evidence so far to prove a direct relationship between hosting the Olympic Games and achieving a robust socio-economic development (Toledo, Grix, & Bega, 2015).

Since Athens 1896, the competition was organized for 18 times in the European domain, four times in the United States, three times in Asia (Japan, South Korea and China), twice in Australia, and one time in the extinct Soviet Union, Canada and Mexico. In 2016, the Olympic Games took place in South America for the first time, in the city of Rio de Janeiro, Brazil. It was the third time Brazil tried to host it. After the winning announcement in 2009, a series of questions and debates began in different public spheres, as well as within the civil society, on the catalyzing elements of opportunities that could influence the nation's economic, political, cultural, social and historical performance (Silvia Cristina Franco Amaral & Vargas, 2014). One of the discussions was about how to use the Olympic Games to improve the conditions of public education through sports.

The school is the social institution with the function of expanding the capacity of people to see the world and to understand it from a higher perspective. In this sense, the different areas of knowledge, including Physical Education (PE), have a historical relevance and must offer flexible

curriculum proposals to adapt to the different social contexts (Brandt, Neu, & Gama, 2015).

But despite the many theoretical and methodological innovations in the field, Brazilian Physical Education classes still focus on the “magic four”: football, volleyball, handball and basketball (Betti, 2009).

The lack of sports variety presents two major issues: first, the limitation in psychomotor learning. Second, there are numerous reports about students claiming to hate physical education and sports, after suffering bullying and being marginalized for their body or performance. It is only natural that they react by repelling PE classes (Vilaça & Marques, 2006).

1.2. Research Purpose

The Olympics are accused of becoming a commercial spectacle, going against Coubertin's proposals. Maguire, Barnard Butler & Golding (2008) sustain that:

The ‘legacy’ of the modern games is consumption. The legacy ‘message’ becomes embedded in a broader process of commerce whereby the media / marketing / advertising / corporate nexus is concerned less with the values underpinning Olympism per se and more with how such values can help build markets, construct and

enhance brand awareness, and create ‘glocal’ consumers/identities.

(Maguire, Barnard, Butler, & Golding, 2008, p. 2041)

One of the main legacy initiatives created by the Rio 2016 Organizing Committee was the Education Programme called *Transforma*. The programme had as one of its goals to increase sport participation in public schools.

Transforma intended to do this through the training of PE teachers. Sport Federations would show them how to teach different sports in their classes in order to improve participation and motor skills learning. It was a training of trainers.

However, more than one year after the Rio 2016 Games were over, there was no data about its effectiveness and real impact on students.

The main purpose of this research is to investigate if the Rio 2016 Education Programme achieved the goal of increasing sport practice in Primary and Secondary schools. The study will also analyze which factors influenced this process and how students reacted to it.

My hope is that this research, by collecting data about the Rio 2016 Education Programme, will be able to collaborate in the development of educational initiatives that aim to increase sports participation in the school environment. Within the Olympic perspective, I hope that future OCOGs

dealing with PE teachers will find in the following pages discussions that may be useful in the quest for a positive legacy.

I believe, however, that the content produced will be valuable not only to the Olympic Movement, but also to sports federations, schools and universities administrators who use the methodology of training of trainers in sports education.

1.3. Research Questions

This research investigates the Rio 2016 Education Programme goal of implementing new sports in PE classes in public schools of Rio de Janeiro.

The study addresses the following questions:

RQ1. After the PE teachers training, were different sports implemented in the classes?

RQ2. What factors influenced the implementation of new sports?

RQ3. What was the impact of the training on students' sport participation?

Chapter 2. Literature Review

This chapter will review the literature of different aspects related to Olympic Education. First, the concept of Olympism, which is a fundamental element in the discussion about the impact of the Olympic Games in the educational context, will be defined.

A vast academic production has been held on the principles of Olympism, as well as the motivations and influences of Pierre de Coubertin when creating the movement in the late 19th century. A considerable number of his publications, that include 30 books, 50 pamphlets, 1300 articles and around 30 leaflets and posters have been translated from French to English, Spanish and other languages (Müller, 2000). The author will also review criticisms about Olympism's possible superficial role in the Modern Olympic Games.

The second section will discuss the concept of Olympic Education, followed by a review of studies about previous Education Programmes from Summer and Winter Olympic Games.

The third part begins with a brief explanation about the conditions of the Brazilian educational system. For the first time in 120 years, the Olympic Games took place in South America, and this very particular

reality must be taken into consideration for an appropriate investigation of the educational activities promoted during the Rio 2016 Olympic cycle.

Finally, details of the Rio 2016 Education Programme will be provided, including the main stakeholders and activities. The final section of the chapter is focused on the research topic of this thesis: the training of PE teachers, one of the three goals of the programme.

2.1. Definition of Olympism

The lack of a simple and precise definition of Olympism has been a motive for academic criticism about the validity of the movement. Pierre de Coubertin in his lifetime frequently referred to Olympism with both the prescriptive (“philosophy of life”) and descriptive (institutional and group achievement) associations. This varied explanation has undoubtedly resulted in a multiplicity of interpretations, some fundamentally different and sometimes even contradictory (Dacosta, 2006).

The original version of the Olympic Charter, from 1896, written by Coubertin and other IOC members, describes Olympism as a philosophy of life and defines its main four goals (Naul, Binder, Rychtecky, & Culpan, 2017):

1. To promote the development of those physical and moral qualities which are the basis of sport.

2. To educate young people through sport in a spirit of better understanding between each other and friendship, thereby helping to build a better and more peaceful world.
3. To spread the Olympic principles throughout the world, thereby creating international goodwill; and
4. To bring together the athletes of the world in a great four-yearly sports festival, the Olympic Games.

The importance conferred to Olympism in the original drafts of the Olympic Charter gave legitimacy to the concept and forced its usage into the vocabulary of the IOC members and other representatives associated with the Olympic Games (Teetzel, 2012).

Muller (2000) says that the discussion about the future of the Olympic Movement and its values and legacies raised considerably in the last twenty years, and has reawakened the attention about the backgrounds of the Movement and the basis of Coubertin's work. The author also writes that in 1918, Coubertin answered the question "What is Olympism?" as follows: "It is the religion of energy, the cultivation of intense will developed through the practice of manly sports, based on proper hygiene and public-spiritedness, surrounded with art and thought" (p.44).

DaCosta (2012) suggests that the French educator put together notions from history, pedagogy, sociology, anthropology, and even philosophy into a new framework. For the author, Olympism is a particular discourse characterized by heterogeneous thinking and eurhythmy, combined with doctrinaire conceptions, from art and aesthetics, for instance.

Liu (2012) says that Coubertin's thoughts and ideologies incorporate self-contradictory notions, emphasizing liberal humanistic qualities, such as fairness and justice, but limiting these ideas and rights to a few. Coubertin, for instance, strongly opposed to women taking part in the modern Olympic Games. However, the author reminds that this ideology should be analyzed taking in consideration the historical, social and cultural circumstances of Europe in the late 19th century, and it might also reflect Coubertin's race and gender in his particular time.

Coubertin himself considered that Olympism is open to changes. Characteristics of the movement have been adapted to different historical, political, social and cultural realities. Even though this development was slow as a result of negotiated power relations between the different agents that were involved, it can be reasoned that the Olympic movement demonstrates certain flexibility (Binder, 2001). In the education field, renewal and re-examination is necessary to guarantee that the movement is

neither an ideological inscription nor a romantic ingenuousness of the past (Culpan & Wigmore, 2010).

2.2. Olympic Games x Olympism

While some authors argue that the idea of Olympism is effective in promoting education and building a better society through sport, others consider that the current structure of the Olympic Games follow such a commercial perspective that the values of Olympism were left aside.

This is not a recent discussion. Kidd (2013) says that, back in 1925, Pierre de Coubertin resigned from the IOC after realizing that the organization was neglecting the original educational mission of the Games, as the main concern started to be the technical side of the competition.

Brown (2012) defends that even though Olympic Games are enthusiastically celebrated all over the world, the ethos of Olympism is still unclear. He comprehends the movement was created in a social and political crisis context, but the modern spectacle of the Games would have suppressed the original concept formulated by Coubertin. According to him, the significance of Olympism is in constant transformation and contradiction, so studies should focus more in this mutability than on the true meaning of the movement. Brown sees an inconsistency between Coubertin's concept of Olympism and the status of the Olympic Games, the

biggest product of the Olympic Movement. Going through historical Olympic facts, as the Nazi Games in 1936, the American and Soviet boycotts in 1980 and 1984 and the terrorist attacks in Munich 1976, the author affirms that Olympism has now a marginal or even a superficial role in the Olympic Games. He draws a parallel with Foucault's laugh when reading philosophers that promote a universal and eternal truth. The Olympism would have been elevated to an almost "holy" concept. By forcing Olympism as an enlightened movement and master of truth, and imposing its logic to other people, researchers would allow institutions like the IOC to legitimize their power to regulate the Olympic Games. He concludes that "rationalizing the use of Olympism as a tool for moral transformation within crisis discourse is inherently dangerous [...] particularly for physical educators and the profession at large, as they may become the unwilling 'scapegoats' of the crisis" (Brown, 2012, p. 161).

Arnold (1996), however, sees rationality in the Olympism. He focuses on the values propagated by the movement and considers it a liberal philosophy present in democratic nations. "They may admit different forms of institutional and cultural expression, but when taken together they undergird and constitute the spirit of Olympism" (Arnold, 1996, p. 93). In opposition to the criticism about the Olympic Games tendency to follow a

commercial path, he compares Olympism to a religion, as neither should be condemned by a few sinners or miscreants.

The game of tennis, for example, is not to be mistaken for the International Tennis Federation. What distinguishes practices from institutions is that the former are concerned with the promotion of their own internal goods, whereas the latter are additionally, and necessarily concerned with the promotion of external goods in the form of power, status, prestige and money. (Arnold, 1996, p. 96)

Donnelly (1996) affirms that the amateurism from Olympism is already merged to the professionalism of the modern Olympics, creating a concept he calls Prolympism. The two alternative configurations of sport practice became a dominant sport culture. “The impact of this combined ideology is that it tends to reinforce and reproduce itself; it marginalizes alternatives; and it creates a momentum that tends to draw all sport in that direction” (Donnelly, 1996, p. 30). He mentions two main evidences for that: television and sponsors, who have influenced the course of the Olympic Movement since the early 20th century, and the difficulty for indigenous games to stay alive. In Prolympism, athletes would professionally pursue success at high performance level, influencing school and recreational sports

and the youth participation. The amateur practice of sports was “swallowed” by a result-oriented sport manifestation.

This professionalization of athletes is also one of the ten factors mentioned by Chatziefstathiou (2012) that contribute to the discussion on whether Olympism can still be considered an inspiring philosophy. The author also highlights the rise of nationalisms during the Olympic Games; the involvement of politics in the competition; the accelerating commercialization; discrimination (such as race, gender or ethnicity); the Eurocentric and Western character of the Olympic Movement; corruption and bribery of IOC members; sustainability issues; and, more recently, betting and gambling.

To fight this negative perception, Kidd (2013) defends that if the Olympic Games still want to demonstrate the importance of Olympism, they must rethink the process of selecting the host city. He acknowledges that the IOC is worried about long-term legacy, but it “should be made a much more explicit and important criterion, so that bid books would stress the ways cities would advance the Olympic Movement’s educational and social goals, rather than the facility and organizational plan” (Kidd, 2013, p. 468).

2.3. Olympic Education

As mentioned before, one of the main characteristics of Olympism is the belief that sports can improve education among youth. Likewise, the Olympic Movement points out education as one of the main benefited areas from the Olympic Games legacy. Binder (2005) says that every city trying to host the Olympic Games must develop an education programme:

The challenge for all who believe that sport and physical activity provide a context for learning about life is how to realize these aims. As de Coubertin himself writes, it is not enough to talk about them; they must be practiced. The legacy of Olympic education, particularly at the elementary and middle school age level could serve as a 'bridge' between the striving for excellence by elite athletes and the reaching for dreams by a young child jumping over a school bench. What greater legacy could there be? (Binder, 2005, p. 15)

Coubertin considered that an educational reform was the best way to support France in its political and social crises. Müller (2004) presents five points that the Olympic Education should promote, all of which can be traced back to Coubertin's philosophical legacy:

1. Development of the whole human being, creating a balance between mind and body;

2. Motivation for human perfection working as hard as possible, with scientific and artistic triumphs having the same importance of sporting performance;
3. Strong connection between sporting activity and ethical principles such as fair play and equality of opportunity, including the ideal of amateurism, which has been almost totally abandoned in international sport today;
4. The defense of peace and goodwill between countries, reflected by respect and tolerance in relations between individuals;
5. The promotion of moves towards emancipation in and through sport.

Chatziefstathiou (2012), however, sees a current vague utilization of the term “Olympic education” as any kind of knowledge associated with the values of Olympism. The author then identifies two major understandings on “what is Olympic education”. The first one is Olympism inside PE classes, in a pedagogical approach to develop education through the physical experience. The other is “Olympism beyond school”, where young people would transcend the schools limits to the wider community, for a deeper discussion about the values of sport.

Regarding those values, Teetzel (2012) noticed that generally there is a recognition that ideas of fairness, equality and ethical behavior

contribute to education through sport. The author considers that examples of past injustices and bad behavior linked to the Olympic Games should not be ignored, but at the same time, they do not reduce the potential educational value of the competition. “Educational programmes based on the philosophy of Olympism could be made more realistic by acknowledging the problematic historical and social issues attached to the pursuit of the Olympic ideals” (Teetzal, 2012, p. 329).

Connecting Olympism and general goals of education, Kidd (1985) expressed the following topics of correspondence (p. 10):

- Mass Participation: the expansion of opportunities for sport and play, to create what de Coubertin called “the democracy of youth”;
- Sport as Education: the development of opportunities that are genuinely educational, that assist both individuals and groups in the process of knowledge;
- Sportsmanship: the fostering of a high standard of sportsmanship, that de Coubertin called “the new code of chivalry”;
- Cultural Exchange: the integration of the visual and performing arts into the Olympic celebrations;
- International Understanding: the creation of a movement whose membership transcends racial, religious, political and economic

categories, a brotherhood that promotes understanding and thus contributes to world peace; and

- Excellence: the pursuit of excellence in performance.

Binder (2001) considers that for teachers to implement the concept of Olympism inside the school, they must have the basic information about the Olympic culture, including symbols, ceremonies and history. Naul (2008) refers to this as the knowledge-oriented approach, in which Olympic related institutions usually publish booklets, brochures, books, toolkits, folders, etc., to spread values of the Games. Naul (2008) identifies other three worldwide approaches. The experimental approach, emphasizing children's participation in school Olympic festivals, competitions and events; the physical achievement approach, focusing on the idea of individual and social success after deep effort and systematic training for body, mind and spirit; and the lifeworld-oriented approach, connecting students' own social experiences with sports and Olympics to their understandings of other areas of life.

Culpan & McBain (2012) suggest a different and constructivist pedagogical approach, that would distance itself from the typical Olympic Education towards the "Olympism Education", applied within a contextualized PE curriculum. The authors analyze that Olympic Education

programmes are built in a passive structure, by exposition to information and not through active participation. They criticize IOC's promotion of a "one-size-fit-all" Olympic education agenda, which goes against a cultural and pedagogical contextualization of Olympism, affecting its relevance and educative worth. "In utilizing constructivist frameworks in Olympism education, teachers could engage learners in constructing their own knowledge by connecting their sport and movement experiences with lived and authentic contexts" (Culpan & Mcbain, 2012, p. 99). That means, for example, to understand strategies of a game, debate on the moral base and become a critical consumer of sports. The constructivist learning is divided into three levels: psychological, social and critical.

The psychological level considers learning an interpretative process based on previous thoughts and experiences, resulting on individual impressions of the reality. In the Olympism education field, it could be used to explore moments of tension in sports, such as teamwork, respect on other cultures and opponents, and promote a personal, authentic and active position taking by students.

Social constructivism considers the learner as a person influenced by the environment and its social interactions. Here, the practice of sports is a

strong tool to promote Olympism, sharing movements with others and thinking about the moral and ethical dilemmas in sports.

The critical constructivism is considered an indispensable component for Olympism education, as it criticizes how cultural, political and economic powers influence sport practice and knowledge construction. Using pedagogies allied to constructivism, learners would “have opportunities to holistically critique physical activity, sport and Olympism” and also to develop “a critical consciousness that will encourage them to take social actions against injustices, inequalities, rampant consumerism and non-ethical and non-virtuous behaviors” (Culpan & Mcbain, 2012, p. 125).

Kohe (2010) also encourages educators to reexamine their understandings of the Olympic Movement with critical questions related to significant global issues, such as environmental sustainability, globalization, politics, and social justice and equality. Teachers should not present the Olympic official material as the only history. He defends a pro-olympic approach that “employs critical literacy pedagogies to teach children not only the positive aspects of the games, but also broader historical and social concerns related to sport, sporting cultures and sporting ideals” (Kohe, 2010, p. 491).

Lenskyj (2012) seems to agree to that, saying that in the field of Olympic Education there is a vast deficiency of critical, analytical skills and nuanced thinking. The materials generated by Olympic-related institutions would not be studied by school boards, allowing the Olympic industry to have their interest served, while the critical education is left apart.

At the school level, with the ongoing problem of over-worked teachers on whom new demands are increasingly made, it is not so difficult to understand the attraction of ready-made curriculum materials and offers of presentations by Olympic athletes, in contrast to the time-consuming task of developing their own curriculum units that are critical of the Olympic industry. However, all educators could take an important step towards challenging Olympic industry hegemony by posing two key questions: “Who pays?” and “Who benefits?” (Lenskyj, 2012, p. 272)

Liu (2012) sees two strong factors about Olympic Education, as it “emerges in the vacancy of a global education and offers a counter-balance by presenting the nation within a world system. Also, the power relation patterns between students and teachers within OE differ from the ones in traditional education” (p. 31). Students would be more attracted by Olympic

symbols and sports participation, making Olympic Education more interesting.

Binder (2012) defends another positive view of Olympic education. She mentions that since the first edition of the modern Games, the world is inspired by passionate stories of athletic performance every four years. Those athletes are role models, and this movement is able to help teachers and coaches to allow children to rethink behaviors, understanding of life and appreciate physical education.

2.4. Olympic Education Programmes

This section will review previous studies about Education Programmes developed by OCOGs. There is little academic research about it, and most of the schools' experiences are reported in a descriptive way, not rigorously examined (Chen & Henry, 2017). It is important to consider the educational pedagogies chosen by each host city to understand what were the goals and particularities of the programmes.

The common argument is that the popular nature of the Olympic Games serves as an inspiration to teach human virtues and increase sport participation. This influence can “provide crucial links for Olympic Games Host City organizers (such as LOCOG) to leverage opportunities not only in

their initial bids but also throughout (and beyond) the staging process” (Kohe & Bowen-Jones, 2016, p. 1215).

The review will start with the programme developed for the Calgary 1988 Winter Olympic Games, followed by Japanese projects for the 1964 Summer Olympics and the 1972 and 1998 Winter Olympics, and all the Summer Olympic Games from the 21st century: Sydney 2000, Athens 2004, Beijing 2008 and London 2012.

2.4.1. Calgary 1988

Binder (2012) describes this Olympic Education Programme, named as “Come Together: The Olympics and You”, as an integration between Winter Olympics content and knowledge production in different subject areas. Established by the Calgary 1988 Organizing Committee, the project distributed resources to all elementary schools of Canada in 1987. The local public was, according to the author, uniformed about the culture of Winter Games, including symbols, history and sports. A manual was produced to integrate Olympic and sport-related information with learning activities in five themes:

- The Olympic Spirit: Olympic history, symbols and traditions;
- Winter and the Olympic World: studying winter Olympic nations;
- The Olympic Winter Sports: Movements and rules of each sport;

- The Olympics Are for People: Being an athlete, a spectator, a coach; and
- Calgary Hosts the Olympics: the city, bidding for an Olympics, organizing the Games, the Olympic venues (Binder, 2012, p. 281).

In response to the busy schedule of teachers, the material was produced to be user-friendly and simple. Each theme included background information for the teachers, reading cards for elementary school students and activity pages tagged to specific areas, such as Science and Physical Education. This content was designed to be a guide, allowing teachers to adapt learning activities according to their own programmes. For junior high and senior high school students, the content focused on specific learnings. For example, bobsleigh was used to discuss the concept of centrifugal force in a physics class. As the material arrived at the schools long in advance to the Games, teachers could include Olympic content in their curriculum planning.

The Canadian Olympic Committee carried out an evaluation of the programme in 1990, and 97% of the teachers answered they would use the materials again, confirming the flexibility of the content. An important aspect is that the Ministry of Education and teachers experts in development process were included in the designing of the programme. This plural point of views “included gender equity, representation of the multiple cultural

heritages of the Canadian people, particularly aboriginal people, and respect and representation of people with disabilities, assuring a balanced approach in all textual and graphic components” (Binder, 2012, p. 282).

However, the curriculum developed by the Calgary 1988 Education Programme was mostly classroom-based, and there was a deficiency on the promotion of physical activities and sport practice.

2.4.2. Tokyo 1964, Sapporo 1972 and Nagano 1988

Masumoto (2012) analyzes the three Education Programmes promoted in Japan for the Tokyo 1964 Summer Olympic Games, the Sapporo 1972 Winter Olympic Games and the Nagano 1988 Winter Olympic Games.

The author says that the Tokyo 1964 Games was the first time Japan discussed Olympic Education. The programme was designed by the Ministry of Education and aimed the promotion of peace, guided by the movement of Olympism, and influenced by a period of cultural, economic and political reconstruction after the war. It was mostly a theoretical approach, with guidebooks distributed to all school levels.

In these textbooks, the main issues included the enhancement of the children’s international attitudes, public etiquette and manners, understanding the Olympics, the stories of Olympic heroes/heroines,

the beautification of land, and the heartfelt attitude to welcome the Games throughout Japan. According to these educational objectives, Japan's eagerness to join the world system after the World War II is clearly visible in the Olympic education of Japan then. (Masumoto, 2012, p. 1266)

The torch relay also enhanced the notion of peace promotion, as it "could express an apology and the reconciliation of Japan to the Asian countries towards the War in the Pacific and the proclamation as the rebirth of new Japan which should aspire for a peaceful country" (Masumoto, 2012, p. 1268). In addition, the last bearer was Yoshinori Sakai, a student born near the city of Hiroshima and known as "the atomic boy".

Masumoto (2012) conclusion about the Tokyo Education Programme, however, is that it vanished right after the Olympic flame was extinguished. It was a relevant education movement only before and during the Games, demonstrating that the main goal was not the promotion of a legacy in Japanese schools, but the presentation of an open, renovated and peaceful nation to the world.

Eight years after hosting the Summer Olympics, Japan organized 1988 Sapporo Winter Games. The education programme this time was not spread across the nation, but conducted mainly at the host city. Masumoto

(2012) says that guidebooks were distributed to every school in the municipality and the focus was to understand and support the Olympics and create a cheerful and pacific atmosphere among Japan and other countries. One of the innovations from this education project was the creation of an exchange programme, in which 10 elementary schools, 2 junior high schools, 7 high schools and 3 kindergartens not only changed letters, photos and art works with students from the USA and France but also visited foreign schools. Again, the torch relay was an important milestone for the education programme with 500 students being official bearers or escort runners. The Opening Ceremony also had the presence of schools, for the Olympic choir and a skating performance, which involved almost 1300 Sapporo students. But the lack of legacy is repeated from Tokyo 1964, as “Olympic education in Japan was not continued after the Closing Ceremony of the Sapporo Winter Games ended with its farewell performance” (Masumoto, 2012, p. 1273).

Ten years later, the Education Programme of 1998 Nagano Winter Games was inspired in the Hiroshima Asian Games programme called “One Community, One Country”, when the citizens of the city welcomed and supported international athletes (Masumoto, 2012). The mayor of Nagano, visiting the competition, decided to apply the idea for the Winter Games

education programme. It was named “One School, One Country”, and organized in a partnership between the Nagano Olympic Organizing Committee, the Nagano International Friendship Club and the Education Board of the city.

Before the start of the Games, students from all 75 schools in Nagano were divided in groups and learned about the culture and language of all participating countries. Masumoto (2012) says that when the athletes arrived, students visited the village and sang their national anthems in their native language. At the Opening Ceremony, 150 children had a dancing and singing performance.

Masumoto (2012) explains that once again Japan ceased the Olympic Education right after the end of an Olympic cycle. This happened because the programme was based on exchange activities. The dissolution of the Organizing Committee, together with the graduation of children and the moving of teachers made the actions weaker and weaker every day. The author did not mention physical education activities from these programmes.

Masumoto (2004) conducted a survey to Physical Education students from the Tokyo Metropolitan University to investigate their current knowledge about the Olympics. Among the results, only 1.7% of the participants knew how to explain the colors of the five Olympic rings, 7.2%

knew the Olympic Motto (*citius, altius, fortius*) and none of the participants was aware of the concept of Olympism. The author says that, despite Japan being an Olympic host for three times, and getting good Olympic results, there is still a lack of a continuous and systematic Olympic Education from elementary to higher education in the national education system.

2.4.3. Sydney 2000

The Sydney 2000 programme started three years before the competition, in 1997, targeting young people from eight to 18 years old. Crawford (2000), former education manager for the Sydney Olympic Games, presents the National Education Programme as an understanding of the significance of education in terms of legacy, reaching 10,500 schools communities in Australia.

Among the initiatives of the programme, Crawford (2000) highlights the O-News, an Olympic students' newspaper, ran for the first time in the history of the Games. This newspaper addressed different areas related to sports, such as "culture, technology environment and the other key Olympic themes, as well as providing an important avenue for the communication of SOCOG messages on ticketing, transport, volunteers, and other aspects of Games planning." (Crawford, 2000, p. 141). Another publication mentioned is the "Aspire", the 2000 Olympic Games Resource distributed to schools,

containing a CD-ROM, teachers' guidebook, posters, video and internet activities. The focus of the programme was the spread of sport values and Olympic history, more than physical education.

Companies such as the Westpac Bank, Coca-Cola and IBM sponsored these publications and put their logos in the material. Lenskyj (2012) criticized the relationship between OCOG and sponsors, as "their cynical exploitation of 'Olympic spirit' rhetoric and pseudo-educational initiatives were key components of the campaign to reach children and youth" (p.126). The association with Australian children was controversial since before Sydney was chosen as the Olympic host. During the bid process, 160,000 young students were mobilized to sign petitions asking the IOC to choose the city (Lenskyj, 2012).

Cashman (2005) observed a lack of evaluation of all aspects about the Sydney Education Programme. The author says that its impact is, therefore, unknown, and that "it is also unfortunate that Crawford's proposal that the Post Games Report detail 'the historical development of the programme with recommendations for future organizing committees', was not implemented" (p. 238).

2.4.4. Athens 2004

The Athens Olympics Games in 2004 are often pointed out as a negative example of legacy. Pictures of abandoned sports facilities and the economic crisis faced by Greece in the last decade led experts, media and public opinion to consider that "welcoming back" the Olympic Games after 1896 did not produce great results for the country.

In the education field, Kellis & Mountakis (2005) say that the Athens 2004 Programme was unique, for both its complexity and the wide dissemination to schools. The authors highlight two initiatives: a theoretical approach, starting as a pilot study in 1999 with 45,000 children that had as one of the results the creation of the subject "Olympiad" in the curriculum, for one hour per week; and the sport participation approach, with 2,000 additional PE teachers hired during the period.

The goals of the programme were to teach the history and importance of the Olympic Games, uphold the principles and values of sports, promote volunteerism, develop personal skills in sporting events and life and increase the awareness about importance of exercise for health (Grammatikopoulos, Tsigilis, Koustelios, & Theodorakis, 2005).

An evaluation of the programme revealed its importance in the school schedule and the power to spread the Olympic values in Greece. Nevertheless, it also showed that "schools' resources, including facilities and

equipment, did not have the appropriate quality level to support the programme. This problem was to some extent addressed by a financial support from the Ministry of Education” (Grammatikopoulos, Hassandra, Koustelios, & Theodorakis, 2005).

According to the authors, another critical problem found in the evaluation of the programme was the lack of information and, consequently support, by the schools’ principals. Many of them were not aware of the educational material.

2.4.5. Beijing 2008

The education programme developed by the Beijing 2008 Organizing Committee was the largest ever implemented by a host city. Brownell (2009) explains that there were “academic and professional conferences, textbooks and courses for schools and universities, educational television and radio shows, magazine and newspaper essays, websites, museum exhibitions, teacher training classes, public lectures, and more” (p. 41).

One of the main aspects about the Beijing 2008 Education Programme is the divergence between researches regarding the use of the project as a political tool.

Law (2010) says that the Chinese state turned Olympic Education into host education, emphasizing a gap between Chinese citizens and people from other countries. “It broadened the scope of Olympic education from mainly Olympism to a broader, multileveled-multidimensional citizenship education, with more emphasis on national and local dimensions than on the global one” (Law, 2010, p. 351).

Law (2010) highlights the structure of the OCOG, as the Communist Party members occupied a great number of key positions. He says that Liu Jingmin, Executive Vice President of the OCOG in 2007, admitted the organization had 650 Communist Party members and 22 party groups. According to the author, Chinese government turned the Beijing Olympic Games into a governmental event and took advantage of its broader socialization agenda to provide Olympic education in a citizenship education framework.

Brownell (2009) says that although the IOC recommends a separation from sports and politics, for the Beijing 2008 Olympic Education there was no requirement to translate and analyze the content, as the focus was mainly on infrastructure and operation issues. However, the author disagrees about the political exploitation of the programme. She defends that the schools were free to design their own activities, which focused on

the individual pursuit of excellence and health in a friendly connection with the rest of the world. This would contrast to “the old socialist morality” which was “born in war and emphasized sacrifice for the collective in order to survive in a hostile world” (Brownell, 2009, p. 62). The author also affirms that the idea of patriotic education was not linked to politics, but to sports heroes. Brownell (2009) defends that the Olympic global symbols, such as the mascots and rings, are incompatible with the Communist Party educational programmes, therefore politics did not play an essential role.

The author’s conclusion about the Beijing 2008 Olympic Education is that this was an educational reform, in which teachers were free to create their own material, and that the emphasis was on active and practical activities. If these two conditions remain in the system, Brownell (2009) says, “there is hope that the creativity and dynamism of Olympic education will live on” (p.63).

Liu (2012) acknowledges the Chinese programme was primarily government-led, but he considers that the main goal was to teach Chinese people and students who had limit exposure to the Olympic Movement about the Games, and inspire a deeper comprehension of the Olympic values. The author says Olympic Education promoted internationalism instead of nationalism among youth, which were intrigued with the Olympic content,

had new sports role models and got the opportunity to increase participation in physical activities. He also mentions a distinctive aspect of PE in Beijing 2008:

One unique characteristic of OE was to use sports as a primary means to educate students, which, therefore, provided the possibility to employ Olympism as a viable tool to reform current PE in China's educational system. By including PE into partial graduation requirement and compulsory exam systems, students encountered more mandate as opposed to education which was believed to have significantly decreased their enjoyment and enthusiasm. Also, hassles caused by students' safety issues and the minor role PE played in the educational hierarchy encouraged willing PE teachers to seek change. It was hoped that the promotion of OE could legitimize the role that PE played in the educational system and ultimately contribute to PE reform in Chinese schools. (Liu, 2012, p. 123)

Regarding the legacy of the programme, Liu (2012) considers the fact that Chinese government sustained the Education Programme as both positive and negative. Positive, because they were able to reach hundreds of millions of young people. However, after the Beijing 2008 Games were over,

so was the pressure to continue the programme. “To be sure, OE did bring vitality and dynamism to China’s education and instill Chinese students with new ideas and possible changes in power relations at school. Nonetheless, it lasted too briefly” (Liu, 2012, p. 142).

2.4.6. London 2012

The London 2012 Organizing Committee was the first one in history to explicitly attempt to use the Games with the aim of inspiring a generation and changing young people’s way of life (Girginov, 2016). The mission was to increase primarily youth-based physical activity and sport participation (Kohe & Bowen-Jones, 2016).

Named “Get Set”, the programme started in September 2008, right after the Beijing 2008 Olympic Games. The target-public were children and young people from three to 19 years old. Get Set was run by the OCOG, together with the Department of Education and other key national education providers and Olympic sponsors (Chen & Henry, 2017).

The content, still available on the programme official website, includes interactive digital resources, such as classes suggestions, athletes’ stories and sport-related videos to promote physical activity and Olympic and Paralympic values. Everything is free and only requires a registration for download. It was designed as a flexible, cross-curricular and useful

content not only to PE but also to other relevant areas such as Mathematics and Humanities. According to the website, more than 20,000 schools joined the programme and over 80% of the children and teachers agreed that the programme contributed for an increase in sports participation and promotion of the school's ethos and community activation.

Kohe & Bowen-Jones (2016) conducted a research in two British schools, one from London and one 120 miles from the capital. Students, from 11 to 13 years old, filled self-report questionnaires about their attitudes toward the Olympic and Paralympic Games, with questions about inspiration, ticketing, Olympic Park engagement, PE and physical activities. Findings show that in both schools, students were involved in or at least aware of formal and informal Olympic-related activities in the school or community environment, and the enthusiasm towards the Games were similar in both schools. However, results indicate a wide variety of impressions when it comes to inspiration levels, ticketing acquisition and PE. In addition, the research says that young people who “do not collectively hold positive attitudes towards physical education, sport and physical activity might, we suggest, make it difficult to implement legacy agendas and/or for physical educators to work on inspiring participation and attitudinal change” (Kohe & Bowen-Jones, 2016, p. 1224). The authors

argue that hosting and promoting Olympic Games do not guarantee a legacy. They may inspire young people, but it is still hard to distinguish when the event is responsible for increasing sport participation, attitudinal shift or long-term social change.

While it might seem logical to use the Olympic Games to provide positive physical activity and sporting experiences that might better the long-term vigour of the UK's youth, we contend here that this process cannot always be universally guaranteed or uniformly implemented. Rather, legacy engagement, pre-Olympic experiences and physical activity and sport increases should better account for the nuances of young people's attitudes, beliefs and complexities of their lived experiences (certainly those beyond the immediate host city environment) and be better mapped against the local context. (Kohe & Bowen-Jones, 2016, p. 1223)

Chen & Henry (2017) analyzed the schools' experiences of engagement in the London 2012 Education Programme, their capacity of adapting the Get Set to their curriculum and the outcomes for the school and students. The authors conclude that one of the points that might obstruct Get Set goals is that, by adding more workload to the school curriculum, it would be necessary to hire new staff members or rearrange responsibilities

among teachers to have someone focused on the programme. In the schools where teachers “were more willing to take on extra jobs, the programme was more likely to be delivered effectively and vice versa” (Chen & Henry, 2017, p. 8). Authors perceived the same problem of lack of resources about the schools’ sport facilities and equipment. The authors found positive results in their study cases with four schools from the county of Leicestershire, such as increase in leadership, communication and confidence among students. Regarding physical activities, participants said the programme increased the variety of sports offered, “no longer being limited to ‘traditional’ sports like football but extending to new and different activities” (Chen & Henry, 2017, p.11).

2.5. *Transforma*: the Rio 2016 Education Programme

This section starts with a brief overview of the Brazilian educational system, in order to provide some context to the reader. Then, the author will describe the Rio 2016 Olympic Education Programme, including the main numbers, goals and activities. Finally, the PE teachers training, main topic of the research, will be explained in details.

2.5.1. Brazilian Educational Context

For a deeply understanding of the pedagogical approaches of the Rio 2016 Education Programme, it is necessary to comprehend the context in

which it was developed. Brazil, with a population estimated at 206 million people, has approximately 180,000 public schools where more than 45 million students are enrolled, from day care to adult education. More than 90% of the young population between 4 and 17 years old is registered in an educational institution (National Census, 2015).

However, the conditions are far from ideal. Less than half of these schools have sewage system, a computer lab or a library. About 90% of the schools have no science lab. A quarter of them are not embraced in a garbage collection system. Teachers have no individual or group room in 44% of the institutions. One third of the schools have no access to the Internet, and only 28% are accessible to people with disabilities (National School Census, 2016).

These problems affect the school environment and the quality of teaching in all disciplines. Until the last year of elementary school, only 30% of the students learned the appropriate reading and interpreting skills. As for Mathematics, the reality is even worse. Only 14% of students know how to solve problems properly (National School Census, 2016).

Physical Education teachers face one particular problem quite hard to solve. Only one third of Brazilian schools have a sports facility. This is a problem in a country so socially unstable, as raising questions of critical

awareness and emancipation through Physical Education “can only take place if we seek to ensure conditions that will enable students not only to experience but also to pronounce themselves in this world with regard to others” (Betti, Knijnik, Venâncio, & Neto, 2015, p. 438).

The quality of the students’ learning is directly affected by the teachers’ conditions, which include both their qualification and given incentives. In Latin America, most studies have focused on teacher salaries in Brazil, perhaps because of the accessible data and the researches’ interest to study its large education system (Psacharopoulos, Valenzuela, & Arends, 1996).

Costa (2013) explains that the expansion of access to low-cost education in Brazil until the mid-2000s affected the middle school teacher and teaching conditions. The precariousness of the work was manifested mainly in four circumstances: training, remuneration, career planning and working conditions. High school coexists with professors without a degree and qualification for the discipline they teach. They work in too many schools, without adequate physical and pedagogical infrastructure. Because they are played close to the minimum by law, teachers give excessive number of classes and have many shifts. The number of students per class is also disproportionate.

The condition of teachers' remuneration in Brazil is very unequal, both in the different levels of education, and according to the region and administrative dependence. There are regions where it has been consistently very low, as in the northeast, where the supply of jobs is also scarce; in more economically developed states and municipalities, such as Rio de Janeiro, wages are slightly better, but they are not at all competitive when compared to the cost of living (Gatti & Barreto, 2009).

Brazil owes a great debt to the education professionals. To reverse this situation, policies cannot dissociate training, fair remuneration, career and working conditions (Costa, 2013). Like all educators, it is fundamental that the PE teacher is able to guarantee to its students full learning of the contents, contributing to the formation of a citizen, demystifying the idea that PE classes are moments in which the student relax and "play a ball", as if it was just leisure and enjoyment (Torres & Xavier, 2015).

2.5.2. The Development of the Programme

With the pilot project created in 2013 in 15 schools of Rio de Janeiro, and being officially launched in 2014, the *Transforma* Programme concentrated all educational activities from the Rio 2016 Games Organizing Committee.

Transforma had three main objectives: to promote Olympic and Paralympic values among young people; to engage students in the Olympic Games; and to increase the number of sports offered to students.

The content produced aimed four different profiles. First, there were the Primary and Secondary School students. Official figures from the Rio 2016 Organizing Committee indicate that more than 8 million students from approximately 16,000 public and private schools in more than 3,000 cities were reached by at least one of the *Transforma* initiatives. This number includes 17 schools from countries with consulates in Rio de Janeiro, which were paired with Brazilian schools in a cultural exchange activity. Some students received live training in order to empower them as leaders and program representatives in their schools. These students were called young agents.

The second group was composed by pedagogical coordinators. Almost 5,000 of these professionals, responsible for the mediation between teachers and curricular proposals, were trained to promote Olympic and Paralympic content as a source of knowledge for diverse school subjects. The goal was that, for example, the Geography class discussed the nations attending the Olympic Games, or that a Chemistry class addressed topics such as doping among elite athletes.

Third group was the tutors of young agents, and any staff of the school could perform this function. The obligation was to support students in the activities proposed by the *Transforma*. In some colleges, teachers were tutors. In others, inspectors were responsible for advising the students. The pedagogical coordinator received instructions and teaching material for training the tutor of young agents.

Finally, the last group included the Physical Education teachers, who were responsible for the physical activities of the Education Program. The mission was to take new sports to the school, and to promote Olympic and Paralympic values and a healthier life among students.

The main activities of the *Transforma* Programme were:

- School challenges: competitions between schools around the country on a theme related to the Olympic Games that promoted the values of the sport. In total, 1771 schools from 713 cities participated of the challenges, that included: the creation of an Olympic torch with recycled material and its virtual relay; the production of a song for the Brazilian fans to support the athletes; a photography activity that showed interesting places of the city "to the Olympic and Paralympic mascots"; the organization of a volunteer campaign (among the projects, students donated hair to a cancer-fighting NGO, presented plays in hospitals and

promoted clean-up efforts in public parks); and a challenge that promoted fair play among students. Winning schools awards were also related to the Olympic Games, such as visits to sports arenas, licensed Rio 2016 products and official Olympic Torches. The voting process was online and opened for the public, encouraging engagement between the school, family and friends.

- Digital lessons: In order to promote Olympic and Paralympic content in a multidisciplinary way for different regions in the country, *Transforma* produced digital lessons in the format of slides presentations, available for free on the program's website. The digital material was pertinent to the Elementary and Middle School, and included sports topics applied to Natural Sciences and Mathematics, Humanities and Languages. The diet of a gymnast, for example, was proposed for discussions about nutrition in a Biology class. There were 277 different lessons, downloaded 63,350 times by more than 10,000 teachers from 8,812 schools in 2,320 cities. Fifty-four of those lessons were translated to English and 50 to Spanish.
- E-Learning Platform: in partnership with the Brazilian Ministry of Education, *Transforma* organized an online learning space for Physical Education teachers, pedagogical coordinators and tutors of young agents. The face-to-face courses were taken to the web in a simplified way.

Teachers could interact with each other and received a Rio 2016 certificate upon completion of the online course.

- Paralympic School Guide: produced in partnership with the Brazilian Paralympic Committee and available for download on the *Transforma* website, this book promoted Paralympic values and activities for schools. The objectives were to improve teaching conditions in schools that had students with disabilities, and to raise awareness among non-disabled students about the importance of acting in a respectful way.
- Teaching Olympic Values: also available for download on the *Transforma* website, this publication was produced by the IOC and adapted by the Brazilian Olympic Committee to the national reality. It contains a series of activities to present the Olympic Movement and encourage the practice of sports among students.
- Sports Festivals: in partnership with the sport federations, *Transforma* organized sports experimentation events opened to the public of all ages. The objective was to provide the first contact of the local community, usually low-income areas, with Olympic and Paralympic sports not popular in Brazil. In addition, symbols such as the mascots and the Olympic Torch were part of the festival, with the intention of engaging

the population in the Rio 2016 Games. In three years, 24 Sport Festivals gathered more than 20,000 people.

2.5.3. Physical Education Teachers Sport Training

This research investigates the sports training of PE teachers, the main tool of the *Transforma* Programme to achieve the goal of increasing the number of sports practiced in Brazilian schools.

Most students complete Primary and Secondary School learning in PE classes only what is called the "magic four": football, basketball, volleyball and handball. This limits the motor skill repertoire, reinforcing the limitation of knowledge and possible practices by means of a comprehensive programme (Martins & Silva, 2014). Media has a strong role in this, since people understand that the sports they watch should be the sports taught at school (Brandt et al., 2015).

In order to promote varied motor skills and healthier life-style among young people, *Transforma* divided Olympic and Paralympic sports into seven categories according to their nature.

Invasion sports were those in which athletes need to occupy the opponent's space, like football, field hockey or rugby. Rebound sports gather similar movement, for example badminton, tennis and golf. Record

sports were those in which the goal is to go further or faster, such as athletics, cycling and swimming. The combat sports obviously involved sports such as boxing, judo and taekwondo. Aesthetic and rhythmic included artistic gymnastics, synchronized swimming, diving, etc. Precision sports worked the targeting skills of athletes in sports like golf, archery or shooting. Lastly, there were the sports with nature interaction, where the environment can influence the outcome, such as sailing, BMX and canoeing.

The sports training was a partnership with the sports federations, which offered, during one day, a professional with expertise in the sport, whether an athlete or a coach. *Transforma* then invited Physical Education teachers to a workshop with this federation member, who taught the basic rules and movements of their sport to teachers. It was, therefore, a training of trainers.

Many of the teachers had in the training their first contact with the sport. Most federations, in addition to teaching the necessary content, showed teachers how to improvise sports equipment, as they are often very expensive and schools' budgets tends to be short. In this way, the teacher would receive all the essential resources to promote an initial contact between his students and the new sport, teach values and motor skills. Betti (2009) says that the most important thing in running or in the long jump is

not the synthetic floor and official boxes of sand, but the desire to run faster and jump further. The fun in any collective sport is to take the territory of the opponent and achieve the target, not the weight of the balls, dimension of the facilities or the official rules of the federations.

The sports training did not aim to discover talents and young athletes, but to extend the sports offer in Physical Education classes of Brazilian schools. Both teachers and members of the federation were volunteers and did not get payed to participate in the training. Each day, two sports were offered, in a half day course. Teachers who wanted could stay the entire day in the training and learn two different sports. Overall, *Transforma* organized 54 sports training courses in four Brazilian states. There were 1700 teachers and 18 different sports, including 13 Olympics sports (athletics, badminton, fencing, artistic gymnastics, rhythmic gymnastics, golf, field hockey, wrestling, synchronized swimming, rugby, tennis, table tennis, archery) and five Paralympics sports (wheelchair basketball, bocce, five-a-side football, goalball and sitting volleyball).

These trainings took place in schools participating in the program or in Olympic Villages, public spaces for community sports. Over 95% of the participant teachers worked in public schools, and many taught in needy areas.

The demand for sport by members of the popular classes as a means of social elevation, especially by those living in violent communities, can represent a form of self-realization and overcoming the condition of lacking of full citizenship rights (Vianna & Lovisolo, 2011).

In 21 of the 54 training sessions offered, teachers received a formulary to evaluate the activity. It was an close and open questionnaire, regarding eight topics: relevance, applicability, duration, if the time was well spent, if the content was learned, the quality of infra-structure, performance of instructors and general comments. This was the only evaluation done by the *Transforma* Programme regarding the PE teachers training. There is no evidence if they applied the knowledge in their classes and if it had any impact on students.

Chapter 3. Methodology

This chapter will describe the methodology used in the research, which investigates the training offered by the Rio 2016 Education Programme to PE teachers. The goal is to discover if teachers implemented different sports in their classes after the training, what were the main factors influencing this process and what was the impact on students.

The first section of the methodology briefly explains the concept of professional development evaluation and will serve as a theoretical rationale for the quantitative and qualitative analysis.

Next, the author clarifies his involvement with the topic of study. The third part will explain how the data was collected. Finally, the chapter ends with details of the data analysis.

3.1. Professional Development Evaluation

Such as the Ancient Olympic Games, professional development has been a part of education since the time of the early Greeks (Guskey, 2000). Professional development refers to skills and knowledge achieved for individual and career development, and incorporates different learning opportunities (Bashevis & Weidenseld, 2014). Those trainings occur in groups or individually, formal classes or workshops. Organizations are

giving more value to the ability of transformation in response to new technologies, opportunities or demands (Bryan & Schwartz, 1998).

Regarding professional development in the school environment, DiPaola & Hoy (2013) consider that the improvement of the teachers' abilities as something crucial to the student learning and the school success.

However, despite of the efforts in promoting professional development, a significant number of educators still see the evaluation of this process as something expensive and time-consuming, and usually consider it an unwelcome and unnecessary discussion (Guskey, 2000).

Good evaluations require the talent to ask good questions and a basic knowledge about how to find valid responses. If properly conducted, evaluations can gather data capable of helping decision making for future projects (Guskey, 2000).

3.2. Data collection

The instrument used by the researcher to collect data was an online survey. Both closed-ended and open-ended questions were asked.

3.3. Triangulation Validating Design

This research employs the Triangulation Design, a mixed method to get different but complementary data about the same topic. It allows the researcher either to compare and contrast quantitative statistical results with

qualitative findings or to validate quantitative results with qualitative data (Creswell & Plano Clark, 2007).

Among the possible models in the Triangulation Design, the author chose the Validating Data Model, in which both types of data are collected in one survey instrument. As Creswell & Plano Clark (2007) mention, “because the qualitative items are an add-on to a quantitative survey, the items generally do not result in a rigorous qualitative data set. However, they provide the researcher with interesting quotes that can be used to validate and embellish the quantitative survey findings” (p. 65).

3.4. Sample

The sample is composed by 105 PE teachers from the state of Rio de Janeiro who joined the sports training offered by the *Transforma* Programme, and that worked for at least one public school at the time. The list was obtained from the Rio 2016 Organizing Committee. The entire population was composed by 1100 teachers. The email was sent to all of them, but only 105 answered the survey,

3.5. Design of Questionnaire

The survey starts with five demographic questions. The following enquiries were made according to Guskey’s (2000) framework for

professional development evaluation. His theory includes five levels. Each level has an impact on the following one and, therefore, on the quality of the training programme.

The first level of evaluation measures the initial reactions of the teachers towards the training. Some educators refer to it as the “happiness quotients”, since it would expose only the enjoyment value, not its quality or worth. However, “measuring participants’ initial satisfaction provides data that can help improve the design and facilitation of professional learning in valid ways” (Guskey, 2000, p.82). Six closed-ended questions and one non-compulsory open-ended question were made at this level.

The second level considers the participants’ learning. The objective is to assess whether the teacher has acquired the knowledge and skills intended with the training. This level can also evaluate new behaviors or dispositions. Seven closed-ended questions and one non-compulsory open-ended question were made at this level.

The third level measures the organization support. In the school environment, for example, the attitude of the principle towards the professional development of teachers might have a considerable impact on the results. This level also assesses the school resources. Six closed-ended

questions and one non-compulsory open-ended question were made at this level.

The fourth level is the participants' use of the new knowledge and skills. The goal is to find out if the training had any effect in the professional practice. "Unlike Levels 1 and 2, these data cannot be gathered at the end of a professional learning program or activity. Enough time must pass to allow participants to adapt the new ideas and practices to their settings" (Guskey, 2000, p.85). One closed-ended question were made at this level.

Finally, the fifth level evaluates the students' learning outcomes. It "addresses the bottom line in education: What was the impact on students? Did the professional learning benefit them in any way?" (Guskey, 2000, p.85). Six closed-ended questions and one non-compulsory open-ended question were made at this level.

All the closed-ended questions use the Likert-scale from 1 (strongly disagree) to 5 (strongly agree). The researcher chose this model because it is commonly applied to measure respondents' opinions, and the scale with 5 points is simpler and faster when compared to the 7 points. This is important considering that PE teachers usually have a busy routine.

3.6. Researcher's Connection to the Topic

This section will clarify the author's involvement with the topic. From August 2014 to August 2016, the author worked on the Organizing Committee for the Rio 2016 Olympic and Paralympic Games. He was responsible for the communication area of the Education Programme. This included the production of content for the project's website, social media, interviews, coordination of communication campaigns and strategic meetings.

On the other hand, the author's parents are teachers in public schools in the state of Rio de Janeiro. Therefore, the author considers himself well informed about both realities involved in the Education Programme: the Olympic Movement and the Brazilian public education system.

3.7. Data Analysis

The first research question, "After the Physical Education teachers training, were different sports implemented in the classes?", is addressed with a descriptive analysis of the survey's fourth level.

The second research question, "What factors influenced the implementation of different sports?", will be analyzed through binary logistic regression. Logistic regression allows researchers to investigate the effect of more than one independent variables at the same time when the outcome variable is dichotomous, which is the case of this research, as one

of the goals is to verify which factors influenced the outcome of PE teachers introducing or not a new sport in their classes.

Multiple logistic regression has been gaining popularity among researchers, which can be attributed to the easy access to advanced statistical software that executes comprehensive analysis (Peng, Lee, & Ingersoll, 2002). The software used in this research is the SPSS, one of the most common statistical packages, which can provide data management, analysis and output the results to tables, graphs or text.

The logistic regression model can be described as the following:

$$\text{logic}(p) = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_kx_k$$

Where p is the probability of the PE teachers to implement the sport, b (b_0, \dots, b_k) are the regression coefficients to be estimated based on the data and X (X_1, \dots, X_k) are the independent variables. The logit transformation is defined as the logged odds:

$$\text{odds} = \frac{p}{1-p} = \frac{\text{probability of presence of characteristic}}{\text{probability of absence of characteristic}}$$

and

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right)$$

The third research question, “What was the impact of the training on students’ participation?”, will be examined by a descriptive analysis followed by the qualitative answers from the open-ended questions. The researcher will read the answers on the survey and separate them according to the levels mentioned before, which will characterize themes. Then, each theme will be carefully analyzed in order to identify subthemes.

This thematic analysis is “particularly idiosyncratic and can involve a focus on repeated words or phrases, case studies or evidence of answers to the research question/s which have been devised” (Grbich, Approaches, & Data, 2006, p. 17). This data will also be used to support the discussions about the two previous research questions.

Chapter 4. Findings

This chapter presents the results from the data analysis. The data was collected through an online survey from October 13 to October 28, 2017.

The findings are presented in three parts. The first one is descriptive statistics, including percentage and mean. The second part presents the results from the logistic regression analyzed in the SPSS software. The third part includes results from the qualitative content.

4.1. Descriptive Statistics

In this section, the summary of the demographics of the respondents and the items in each evaluation level will be presented, allowing a simpler interpretation of the data.

4.1.1. The Demographics of Respondents

The researcher collected data from 105 PE teachers (n=105) that joined the Rio 2016 Education Programme sports training and that worked for at least one public school at the time.

As seen in the table 1 below, the male and female distribution is practically even, male corresponding to 47.6% and female to 52.4%. It indicates that the attendance of male and female PE teachers to the *Transforma* sports training was almost equivalent.

The average age of participants is 42.1 years. The youngest PE teacher to answer the survey was 23 years old, and the oldest respondent was 60 years old. For the age distribution, the most respondent age group is between 31 and 40 years old, corresponding to 38.1% of the participants, followed by PE teachers from 41 to 50 years old, which represent 31.4% of the sample.

Table 1. The Demographics of Respondents

Variable	Group	N	Percentage
Gender	Male	50	47.6
	Female	55	52.4
Age	20 – 30	9	8.6
	31 – 40	40	38.1
	41 – 50	33	31.4
	51 – 60	23	21.9
Years of teaching	0 – 5	9	8.6
	6 – 10	22	21
	11 – 15	21	20
	16 - 20	16	15.2
	More than 20	37	35.2
Number of schools	1	39	37.1
	2	47	44.8
	3	15	14.3
	More than 3	4	3.8
Total		105	100%

Considering the work experience, 35.2% of the respondents have been teaching for more than 20 years, being the largest group, followed by 15.2% of the participants who have been teaching from 16 to 20 years. The group less experienced, teaching for up to five years, has the smallest number of participants and corresponds to 8.6% of the respondents.

The last demographic aspect considers the number of public schools PE teachers were working for when they joined the *Transforma* sports training. The most frequent answer, chosen by 44.8% of the participants, was two schools, followed by those worked for one school at the time, equivalent to 37.1% of the sample.

4.1.2. First Level: Participants' Reactions

The first level of Guskey (2000) professional development evaluation refers to the participants' first reactions to the training. The researcher asked six closed-ended questions at this level, regarding the relevance, applicability, quality of instructors, number of instructors, length and infrastructure of the PE teachers sport training.

In order to verify the reliability of the items and verify if they were properly measuring the same level, a Cronbach's Alpha Test was performed. The result ($\alpha=0.749$) indicates internal consistency between the items.

Table 2. Teachers' First Reactions

Variable	Degree of agreement					Mean	Rank
	Strongly disagree	Disagree	Undecided	Agree	Strongly agree		
1. Participants' reactions (Cronbach's alpha=0.749)							
1.1. The training was relevant	1 (1.0%)	3 (2.9%)	3 (2.9%)	49 (46.7%)	49 (46.7%)	4.35	2
1.2. The content was applicable	1 (1%)	6 (5.7%)	4 (3.8%)	56 (53.3%)	38 (36.2%)	4.18	3
1.3. The instructors' performance was good	0 (0%)	1 (1%)	2 (1.9%)	49 (46.7%)	53 (50.5%)	4.47	1
1.4. The number of instructors was appropriate	2 (1.9%)	10 (9.5%)	9 (8.6%)	57 (54.3%)	27 (25.7%)	3.92	5
1.5. The length of the training was appropriate	1 (1%)	33 (31.4%)	17 (16.2%)	42 (40%)	12 (11.4%)	3.30	6
1.6. The infrastructure of the training was appropriate	0 (0%)	6 (5.7%)	13 (12.4%)	52 (49.5%)	34 (32.4%)	4.09	4
Total						4.05	

As seen in the table 2 above, most of the respondents ($n=53$, 50.5%) strongly agreed that the instructors' performance was good, and only one respondent disagreed about it. Regarding the relevance of the training, 49

respondents, corresponding to 47.6% of the sample, agreed and strongly agreed it was relevant, and 3 respondents disagreed about it. Next, 56 participants (53.3%) agreed that the training content was applicable in their PE classes, and 6 participants disagreed (5.7%). Considering the infrastructure of the training, 52 respondents (49.5%) agreed it was appropriate, and 6 respondents (5.7%) disagreed. When it comes to the number of instructors, 57 respondents (54.3%) agreed it was appropriate, and 10 respondents (9.5%) disagreed. Finally, when asked about the length of the training, 42 teachers (40%) agreed it was appropriate, while 33 teachers (31.4%) disagreed. The overall agreement on the participants' reaction level was rated as 4.05 out of 5, which is in the range of "agree".

4.1.3. Second Level: Participants' Learning

The second level of Guskey (2000) professional development evaluation refers to the participants' learning of new knowledge and skills, and changes in behavior. The researcher asked seven closed-ended questions at this level. They measured if the PE teachers understood the goals of the training, the rules of the sports, the movements of the sports, how to build the sports equipment with alternative material, if they received teaching support material, if the training made them want to improve their classes

and if they felt prepared to do it after the training. A Cronbach's Alpha Test result ($\alpha=0.808$) indicates internal consistency between the items.

Table 3. Teachers' Learning

Variable	Degree of agreement					Mean	Rank
	Strongly disagree	Disagree	Undecided	Agree	Strongly agree		
2. Participants' learning (Cronbach's alpha=0.808)							
2.1. I understood the goals of the training	1 (1%)	1 (1%)	3 (2.9%)	44 (41.9%)	56 (53.3%)	4.46	1
2.2. I learned the rules of the sport	0 (0%)	10 (9.5%)	11 (10.5%)	58 (55.2%)	26 (24.8%)	3.95	4
2.3. I learned the movements of the sport	0 (0%)	3 (2.9%)	12 (11.4%)	57 (54.3%)	33 (31.4%)	4.14	3
2.4. I learned how to build the sports equipment	4 (3.8%)	6 (5.7%)	15 (14.3%)	52 (49.5%)	28 (26.7%)	3.90	5
2.5. I received supportive teaching material	11 (10.5%)	21 (20%)	28 (26.7%)	34 (32.4%)	11 (10.5%)	3.12	7
2.6. The training made me want to improve my class	0 (0%)	2 (1.9%)	5 (4.8%)	47 (44.8%)	51 (48.6%)	4.40	2
2.7. I felt prepared to teach the new sport	1 (1%)	12 (11.4%)	18 (17.1%)	58 (55.2%)	16 (15.2%)	3.72	6

Total	3.95	
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The results show that most of the respondents (n=56, 53.3%) strongly agreed that they understood the goals of the training, while only one respondent (1%) strongly disagreed about it. The second highest rated variable is the desire to improve the class. Among the 105 respondents, 51 (48.6%) strongly agreed that the training made them want to improve their class, and 2 respondents (1.9%) disagreed. When it comes to the gain of new knowledge, participants rated learning the sports' movements (average 4.14) ahead of learning the rules (3.95) and how to build the sports equipment (3.90). Next, 58 respondents (55.2%) agreed that they felt prepared to teach the new sport after the training, and 12 respondents (11.4%) disagreed. The variable with the smallest agreement average was about the teaching material. 32.4% of the respondents agreed to have received teaching material to support the training, 26.7% were neutral and 20% disagreed about it. The overall agreement on the participants' learning evaluation level was rated as 3.95 out of 5.

4.1.4. Third level: Organization Support

The third level of Guskey (2000) professional development evaluation refers to the school support and resources. For the study, the

researcher asked six closed-ended questions at this level. They measured if the school facility was appropriate, if sports equipment were available, if the school encouraged the teacher to join the training, if the board of the school gave permission to the teacher to join the training, if the teacher felt more valued in the school after the training and if PE is valued in the school. The Cronbach's Alpha Test result ($\alpha=0.689$) indicates slightly internal consistency between the items.

Table 4. Organization Support

Variable	Degree of agreement					Mean	Rank
	Strongly disagree	Disagree	Undecided	Agree	Strongly agree		
3. Organization support (Cronbach's alpha=0.689)							
3.1. My school had the appropriate sport facility	18 (17.1%)	27 (25.7%)	12 (11.4%)	36 (34.3%)	12 (11.4%)	2.97	5
3.2. My school had the appropriate sports equipment	36 (34.3%)	42 (40%)	16 (15.2%)	9 (8.6%)	2 (1.9%)	2.04	6
3.3. My school encouraged me to join the training	12 (11.4%)	7 (6.7%)	31 (29.5%)	24 (22.9%)	31 (29.5%)	3.52	3
3.4. I received permission to join the training in my work days	10 (9.5%)	13 (12.4%)	19 (18.1%)	29 (27.6%)	34 (32.4%)	3.61	2
3.5. I felt more valued in my school after the training	6 (5.7%)	11 (10.5%)	24 (22.9%)	36 (34.3%)	28 (26.7%)	3.66	1
3.6. PE is valued in my school	6 (5.7%)	12 (11.4%)	31 (29.5%)	39 (37.1%)	17 (16.2%)	3.47	4
Total						3.21	

As seen in the table 4, the two variables with smallest rates are the ones regarding the school resources. When it comes to sports equipment, 40% of the respondents disagree that they had the appropriate material, followed by 34.3% of respondents strongly disagreeing and 15.2% neutral. The

percentage of teachers that agreed to have the appropriate sport equipment is 8.6%. Next, when it comes to sports facilities, 34.3% of the participants agreed to have an appropriate space for sport practice, while 25.7% disagreed. The other four questions measure the support and value given by the school to the teacher and have higher means than the questions about resources. Considering the value given by the school, 34.3% of the PE teachers agreed to feel more valued after the training, and 37.1% agreed that Physical Education is valued in their school. When the training happened at the same time of their classes, 32.4% of the teachers strongly agreed to have received permission to join, and 29.5% of them were neutral about being encouraged by the school to participate of the training, while other 29.5% strongly agreed to receive permission.

4.1.5. Fourth Level: Use of New Knowledge

The fourth level of Guskey (2000) professional development evaluation refers to the participants' use of new knowledge and skill. In the case of this study, this level will measure if the PE teachers implemented the sport they learned at the *Transforma* training in their classes. Only one question was asked in the survey regarding this level.

Table 5. Use of New Knowledge

Variable	Answer	N	Percentage
Did you teach the sport after the training?	Yes	87	82.9
	No	18	17.1
	Total	105	100%

As seen above in the table 5, from the sample of 105 PE teachers, 87 (82.9%) included the sport from the *Transforma* training in their classes, and 18 (17.1%) did not teach the sport after the training.

4.1.6. Fifth Level: Students' Learning Outcome

The fifth and last level of Guskey (2000) professional development evaluation refers to the students' learning outcome. At this level, the researcher asked six closed-ended questions to the 87 teachers that implemented a sport after the *Transforma* training. Items measured, from the perspective of the PE teacher, if the students seemed to like the new sport, if they participated more actively, if the new sport was able to enhance the relationship between students, if students that consider themselves not talented in the traditional sports participated more with the new activity and if girls were more active. The Cronbach's Alpha Test result ($\alpha=0.812$) indicates internal consistency between the items.

Table 6. Students' Outcome

Variable	Degree of agreement					Mean	Rank
	Strongly disagree	Disagree	Undecided	Agree	Strongly agree		
5. Students outcome (Cronbach's alpha=0.812)							
5.1. The students seem to like the sport	0 (0)	0 (0)	5 (5.7%)	46 (52.9%)	36 (41.4%)	4.36	1
5.2. The students participated more actively than usual	0 (0)	1 (1.1%)	12 (13.8%)	51 (58.6%)	23 (26.4%)	4.10	4
5.3. The sport enhanced the relationship between students	2 (2.3%)	5 (5.7%)	45 (51.7%)	27 (31%)	8 (9.2%)	3.39	6
5.4. Students	0	1	10	51	25	4.15	3

that consider themselves not talented for traditional sports participated more than usual	(0)	(1.1%)	(11.5%)	(58.6%)	(28.7%)		
5.5. Students asked to play the sport again	0 (0)	1 (1.1%)	8 (9.2%)	48 (55.2%)	30 (34.5%)	4.23	2
5.6. Girls participation increased	1 (1.1%)	5 (5.7%)	25 (28.7%)	36 (41.4%)	20 (23%)	3.79	5
	Total					4	

As seen in the table 6 above, most of the respondents (52.9%) agreed that the students seemed to enjoy the sport. None from the respondents disagreed about it. Also most of the teachers (55.2%) agreed that the students asked to play the sport again, and only one teacher disagreed. Regarding students that seem to not consider themselves talented in the traditional sports (such as football, in Brazil), 58.6% of the respondents agreed that they participated more enthusiastically in the new sport. The same percentage of teachers agreed that students in general were more involved. Regarding girls' participation, 41.4% of the participants agreed that they were more active in the new sport, and 28.7% were neutral about it.

4.2. Logistic Regression Results

In order to find out what factors influenced PE teachers implementation of the sport after the *Transforma* training, the researcher performed a logistic regression analysis using the SPSS software.

The independent variables (X) were the first three levels of evaluation in the Guskey's (2000) framework: the PE teachers' first reactions, the acquirement of new knowledge and the school support. The dependent variable (Y) is the forth level, which indicates if the PE teachers implemented the sport after the training or not. It is a binary outcome, therefore the logistic regression method.

As mentioned before, in order to assure that the items were properly divided in the three levels, the researcher performed a Cronbach's Alpha Test and the results showed satisfactory reliability.

The significance level will designate the relationship between independent variables (X) and dependent variable (Y). In this research, if the significance level is over .05 then X does not have an effect on Y. On the other hand, if the significant level is equal or under .05, then X have an effect on Y.

Table 7. Logistic Regression With Levels

<i>Variables in the Equation</i>	B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1 ^a Age	-.010	.033	.092	1	.762	.990
Gender(1)	1.622	.739	4.812	1	.028	5.062
Number_schools	.585	.458	1.630	1	.202	1.794
Level1	-.414	.916	.205	1	.651	.661
Level2	1.788	.914	3.831	1	.050	5.980
Level3	.547	.514	1.131	1	.287	1.727
Constant	-6.568	2.661	6.094	1	.014	.001

A logistic regression analysis was conducted to predict the PE teachers implementation of new sports after the *Transforma* training using Guskey's (2000) three first levels as predictors: level 1 (teachers' reactions), level 2 (teacher's learning) and level 3 (school support). A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between teaching or not the sports (chi square = 21.53, $p < .001$ with $df = 6$). Nagelkerke's R^2 of .309 indicated a moderate relationship between prediction and grouping.

Table 7 demonstrates that level 2 ($p = .050$) and gender ($p = .028$) made a significant contribution to prediction. Level 1, 3, age and number of schools were not significant predictors. Exp(B) value indicates that when level 2 rate is raised by one unit, the odds ratio is 5.980 times as large, meaning that PE teachers are almost 6 times more likely to teach the sport

after the training. Regarding gender, men are 5 times more likely to teach the sport after the training.

In the following step, the researcher performed a second logistic regression analysis to investigate which items in level 2 were significant. As table 8 below shows, the item that measures if the PE teachers learned to build the sports equipment with alternative and cheap material at the training was the only significant ($p = .046$) inside level 2. Exp(B) indicates that when the agreement level of this item is raised by one unit, the odds ratio is 2.141 times as large, meaning that PE teachers are around 2 times more likely to teach the sport after the training.

Table 8. Logistic Regression with Level 2

<i>Variables in the Equation</i>		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1 ^a	Age	-.022	.038	.332	1	.565	.978
	Gender(1)	1.972	.877	5.058	1	.025	7.188
	Number_schools	.883	.533	2.741	1	.098	2.417
	Learned_Goals	-.584	.539	1.174	1	.279	.557
	Desire_improve	-.338	.550	.378	1	.539	.713
	Learned_rules	-.103	.513	.040	1	.841	.902
	Learned_movements	.926	.741	1.561	1	.212	2.524
	Learned_build_equipment	.761	.382	3.975	1	.046	2.141
	Received_material	.359	.354	1.031	1	.310	1.432
	Felt_prepared	.778	.499	2.433	1	.119	2.178
	Constant	-5.697	3.111	3.354	1	.067	.003

4.3. Qualitative Results

In order to answer the third research question-“What was the impact of the sports training on students?”- and provide extra content to the

discussion of the two previous questions, the researcher included one open-ended question by level in the online survey. Participants were asked to report their impression about the first contact with the training, their learning, the school support and the students' reactions during the implementation of the new sport. This question was not mandatory, and 43 teachers answered at least one of the questions. The table below shows the demographic information of the respondents.

Table 9. Demographics of Qualitative Respondents

Variable	Group	N	Percentage
Gender	Male	23	53.5
	Female	20	46.5
Age	20 – 30	2	4.7
	31 – 40	13	30.2
	41 – 50	18	41.8
	51 – 60	10	23.3
Years of teaching	0 – 5	2	4.7
	6 – 10	10	23.3
	11 – 15	6	14.0
	16 - 20	7	16.3
	More than 20	18	41.9
Number of schools	1	15	34.9
	2	18	41.9
	3	7	16.3
	More than 3	3	7.0
Total		43	100%

The researcher analyzed all the answers and grouped them according to similar themes. Then, the content was examined once again

and divided in more specific topics, called subthemes. Table 10 below shows the summary of themes and subthemes.

Table 10. Themes and Subthemes

Level	Theme	Subtheme
1 & 2	Analysis of the training	Duration Teaching material General evaluation Continuity
3	Analysis of the school	Sport equipment Sport facilities School board support
5	Students sport participation	Involvement of students who are not usually excited for PE First reactions Adaptation Feelings

One of the main complaints of the participants was about the duration of the training. All the five comments regarding this topic were negative, with quotes such as “the trainings were important but superficial due to the insufficient length”. Another negative evaluation was about the teaching material. Four teachers mentioned this subtheme and all of the comments criticized the lack of supportive material post-training, in quotes such as “my only criticism is the educational material, for later consultation. In some cases, we did not receive it even through email”.

However, when it comes to general evaluations about the programme, there were 11 positive comments against one negative one.

Complements such as “productive days with relevant and motivating learning”, “excellent, it was the only legacy to PE teachers” and “it helped me in the process of creating classes and in my professional development” are some examples, while the only criticism said that “there was a lack of education context to those who organized the training”.

All of the nine respondents that mentioned the continuity of the programme expressed their desire of having more training activities after the end of the Rio 2016 Games, in statements such as “the only problem is that it is over now” and “after *Transforma* was over I had no other opportunity to learn anything different”.

When it comes to the analysis of the school support, 16 teachers mentioned the sport resources, with 13 negative and three positive comments. Most of the criticisms was about the lack of sports equipment and appropriate facilities. Some examples are “there is a huge lack of sports equipment” and “it is a pity that our schools are in poor conditions of structure and sports equipment. I feel sorry for the children”.

The comments regarding the encouragement of the school board were more balanced. From the 19 teachers to mention this topic, ten had positive experiences and nine negative. Examples of quotes from teachers satisfied with the school support are “my principal absolutely encourage PE

in my school” or “the school board always supports my initiatives”.

Participants who had bad experiences mention “principles alienated with football” and “we are there just to fulfill the school schedule”.

From the teachers that commented about the students’ reactions to the new sport, only one teacher reported a negative experience, saying that “it is too hard to teach something new”, but without further explanation. Regarding the first reactions to the activities, four teachers said the students’ initial contact was challenging. Two of them mention that the reason for that is the “comfort zone”, referring to the fact that Brazilian PE classes usually offer only the traditional sports. All of them, however, said that after the students started to play the sport, they were immediately enjoying the new activity, “After the first instructions, they realized how pleasant that sport would be”, “with time they adapted to the novel”, “they complained at the beginning but the practice solved the problem”. Five teachers mentioned that students who usually do not enthusiastically participate in PE classes were more excited with the new sport: “Students that so far did not like PE started to participate more, and we were able to change the school. These new sports are now competing with the traditional ones”. In this context, badminton was cited four times: “there was a significant increase in the participation of students who were not active. Some sports, like badminton,

had 100% of the class playing”, “students who don’t like football felt included. In one class in which I decided the students choose the sport, they chose badminton, and I felt fulfilled”, “students who did not enjoy sports with balls were happy playing badminton” and “students that were not usually engaged in PE classes would demonstrate more interest and ask non-traditional sports every day, especially badminton”. Respondents also reported their perception of the students’ feelings when playing, as “they had shiny eyes”, “happy and very motivated”, “surprised”, “total satisfaction”, “curious”, “full enjoyment”. One of the respondents mentioned a partnership with another school who possesses a big lawn, in which they started to play rugby after the training, created a club and are turning the space in an official rugby field with the approval of the Rugby Federation of Rio de Janeiro. Only one teacher mentioned the increase in the participation of girls in the classes.

4.4. Extra Questions

In addition to the demographic information and the five levels of evaluation, the researcher asked two extra questions that were considered relevant in the analysis of the *Transforma* PE teachers training. Both questions were asked exclusively to those participants who confirmed teaching a different sport after the training.

The first question measured if the participants felt the need to look for further information about the sport before teaching it. As seen in the table 11 below, 74.5% of the teachers had to look for further information about the sport before teaching it, and 25.3% of them did not feel this need.

Table 11. Further Information

Question	Answer	N	Percentage
Did you have to look for further information about the sport before teaching it?	Yes	65	74.7
	No	22	25.3
	Total	87	100%

The second question investigated the level of agreement of teachers when asked if they wanted the *Transforma* Programme to keep working after the Olympic Games. Table 12 below shows that most of the participants (n=74, 85.1%) strongly agreed that they would like the programme to keep running after the Rio 2016 Games were over, followed by 11.5% (n=10) agreeing to it. Only 1 participant strongly disagreed about it.

Table 12. Maintenance of the Programme

Extra questions	Degree of agreement					Mean	Participants
	Strongly disagree	Disagree	Undecided	Agree	Strongly agree		
I wish the <i>Transforma</i> Programme had maintained its activities after the Rio 2016 Games	1 (1.1%)	0 (0)	2 (2.3%)	10 (11.5%)	74 (85.1%)	4.79	87

Chapter 5. Discussion and Conclusions

In this chapter, the researcher will explain the results from the data collection. To facilitate the understanding, the content will be divided according to the three research questions. The first question analyzed if the PE teachers implemented a different sport in their classes after the *Transforma* training. The second one addresses the factors that influenced this process. The third and final research question considers the impact of the PE teachers training on students.

Additional results which were found pertinent to the topic investigated but that do not respond specifically to any research question will be included in the discussion.

The author also clarifies the research limitations and provides recommendations to future researchers and the Olympic Movement. Finally, the conclusion of the study is presented.

5.1. Implementation of New Sports

RQ1: After the Physical Education teachers training, were different sports implemented in the classes?

As stated by Toledo, Grix, & Bega (2015) there is a lack of evidence when it comes to Olympic initiatives referred to by the Olympic Movement

as positive legacies. One of these cases is the Rio 2016 Education Programme. Reports were mostly descriptive and limited to superficial information such as number of participants or events. This research had the intention to examine one of the three goals of the Rio 2016 Education Programme: the implementation of new sports in PE classes of public schools. The activity developed by the OCOG to achieve this goal was the training of PE teachers by sport federations. However, since the first training in 2014, there was no deep evaluation nor investigation whether the content was being applied in the school environment or not. Once the training was over, teachers would go back to their routine and no further data was collected.

Through an online survey, results from this research showed that most of the respondent PE teachers (82.9%) implemented a new sport after the training, evidencing for the first time its considerably high applicability. Therefore, such as Chen & Henry (2017) mention about the London 2012 Education Programme, there was an increase in the number of sports offered at PE classes in public schools of Rio de Janeiro after the Olympic Games.

The qualitative findings provided quotes that reinforce the importance of the training outcomes. One teacher said “it was an incentive that increased the level of my classes”. In another statement, the participant

understood the programme was “very useful, possible to apply and avoid the sameness”. According to other teachers, “it was the best professional development training I ever had”, “the only legacy directed to PE teachers”, “my only frustration was not being able to go to all the trainings” and “these were very constructive and relevant days, full of motivation and learning”.

5.2. Learning How to Build Sports Equipment

RQ2: What factors influenced the implementation of new sports?

In the second research question, the objective of the author was to investigate which factors had the greatest influence on the outcome of the PE teachers sport training. In other words, what aspects increased the chances of teachers implementing a new sport. To get that information, first the author had to define which factors to consider in the research. Guskey’s (2000) theory of the five levels of professional development evaluation was adopted. With this framework, it was possible to analyze education programmes in terms of the first reactions of the participants (level 1), their learning (level 2), the school support (level 3), the use of new knowledge (level 4) and the impact on students (level 5).

The researcher performed a logistic regression analysis. The independent variables were the three first levels, and the dependent variable the fourth level. The results showed that only the second level was

significant and had an impact on the implementation of new sports after the *Transforma* training. Then, another logistic regression showed that inside level two, the significant factor was the agreement level of PE teachers about learning how to build sports equipment with alternative and cheap material. The increase of one point in the agreement level of learning how to build sports equipment generated a possibility of teaching the sport more than two times bigger.

One possible explanation for this result is the Brazilian education context. As previously seen in the literature review, schools suffer from lack of resources and teachers do not have appropriate conditions to perform. Betti, Knijnik, Venâncio, & Neto (2015) mention that PE can only fulfill its duty if the school environment assures the basic conditions. This was supported by a descriptive analysis of the survey. More than 74% of the teachers answered that their schools do not have appropriate equipment, making the evaluation of this item the most negative one. The qualitative findings confirmed this reality in quotes such as “the school is small, with very few materials”, “there is no infrastructure for practice, no material”, “there is a huge lack of sports equipment” and “it is a pity that our schools are in poor conditions of structure and sports equipment. I feel sorry for the children”.

The factor that the *Transforma* training provided teachers the knowledge to build the sports equipment on their own, using alternative and cheap materials, gave them a way to work around the issue of insufficient school resources. After the training, sports usually played with high cost equipment, such as field hockey or tennis, could be offered with an effective improvisation of the material. In other words, teachers were able to overcome the lack of resources and rely only on their personal efforts to implement new sports.

Regarding the quality of the sports equipment, it is important to remember that the goal of the *Transforma* Programme was not to develop young athletes, but to promote the first contact of students with different sports, therefore increasing participation in PE classes. As Betti (2009) says, the most important thing at this stage is not the professionalism of the equipment, but to be able to play and enjoy the sport.

The findings also showed that, in accordance to what Brandt, Neu & Gama (2015) said, the flexibility of PE curriculum is essential to adapt the classes to different social contexts. Chen & Henry (2017) and Grammatikopoulos, Hassandra, Koustelios, & Theodorakis (2005), when analyzing the London 2012 and Athens 2004 Education Programmes, respectively, mentioned that the lack of resources in the school was also a

barrier to promote the Olympic Education. There is no record, however, of Olympic Education programmes developing a similar project to the *Transforma* one, to teach PE professionals how to build sports equipment.

This result could also indicate the effort of the IOC to encourage each host city “to define its own objectives, long-term strategy and vision from the beginning of the bid process and to look at how the Games can be a catalyst for development” (International Olympic Committee, 2013, p. 1). The development of the *Transforma* Programme took in consideration the Brazilian context. It went against the previous Olympic model of “one-size-fit-all”, criticized by Culpan & Mcbain (2012).

The logistic regression also showed that male teachers were more likely to teach a new sport after the training than female teachers were. As the number of respondents were almost equally distributed in terms of gender, it would be inconsistent to explain this finding without further investigation.

5.3. The Impact of the Training on Students

RQ3: What was the impact of the training on students’ sport participation?

As mentioned before, the lack of sports variety in PE classes causes two main problems for students. First, they have limited psychomotor learning. Different sports provide different movement abilities. Then, there

is the issue of students who suffer bullying for their body or performance in traditional sports, and end up hating and repelling PE classes (Vilaça & Marques, 2006).

Findings from the research showed that *Transforma* was able to tackle both matters. The first step was to make students positively receive the new sport and start to like it. Most of the respondents (94.3%) said that the students seemed to enjoy playing the new sport. The qualitative findings gave the impression that this process was not instantaneous, as many teachers said that it took some time to get the students adapted and “open minded” to a sport they were not familiar with. Quotes such as “they were reluctant at the beginning”, “they were suspicious before playing” and “there was some initial resistance” exemplify that. Media has a strong role in this matter, since people understand that the sports they watch should be the sports taught at school (Brandt, Neu, & Gama, 2015). However, once students started to play it, 23 out of 24 teachers mentioned the reactions to the novel were positive.

It is important to highlight that not only the students accepted the sports, and therefore had contact with different motor skills, but also, according to 85% of the teachers, they participated more actively than usual. The qualitative findings validated this result, as teachers said students “were

more stimulated and involved”, “motivated and happy”, “with shiny eyes and excited to play the sport”.

The survey shows that almost 90% of the students asked to play the sport again, and teachers confirmed this number in phrases such as “we were able to change the school. These new sports are now competing with the traditional ones”. This demonstrates that students are willing to go beyond the “magic four” if PE teachers have the knowledge to introduce new sports. In addition, as stated by Liu (2012), any activity related to the Olympic Games, such as the PE teachers sport training, might be more appealing to students.

Regarding the issue of students who do not appreciate PE classes, the results were very positive. Almost 88% of the respondents said that those students participated of the class more than usual, and the qualitative findings strongly support this number. One teacher said “there was a significant increase in the participation of students. Some classes had 100% of the students playing”. According to another respondent, “students who were not very involved in Physical Education until now participated more enthusiastically”. One teacher specified that those students who did not like football, the most popular sport in the country, “felt included in the new sports, especially girls”. These findings indicate that by helping the

implementation of new sports, *Transforma* facilitated teachers to attract students who were not engaged in PE classes and increased the level of sport participation in public schools. According to Kidd (2013), this is one of the goals of Olympic Education and Olympism, as he mentions the expansion of opportunities for sport and play to create what Coubertin called “the democracy of youth”.

Kohe & Bowen-Jones (2016) say in the analysis of the London 2012 Education Programme that young people who do not hold positive attitudes towards physical education and sports might make it difficult for the PE teacher to inspire participation and behavior change. In the case of *Transforma*, however, the introduction of new sports was efficient to attract students with low appreciation towards physical activity.

5.4. Additional Evaluation of the Training

Besides answering the three research questions, the author found relevant data related to the topic, which will be discussed in this section.

After the lack of resources of schools regarding sport equipment, the two items with lower levels of satisfaction were the training duration and the teaching support material. Quantitative findings indicate that one third of the participants considered that the length of the training was not enough. Qualitative findings validate this result, as all of the five mentions to the

time of training were negative. Teachers said “the trainings were important but superficial, due to the short duration”, “good but too fast”, “could take more time”. Some of them suggested that one day was not enough, and at least two would be necessary for a full learning. This situation is aggravated with the teaching material criticism. Again, around one third of the teachers disagreed of receiving any teaching material to support the training. Once more the qualitative findings show the same issue, as all of the mentions to the topic were negative. One teacher said “my only criticism is the educational material, for later consultation. In some cases, we did not receive it even through email”. One participant mentions that instructors promised to send it, but never did. Finally, the last criticism concerns the most significant item found in the research. One teacher complained specifically about the lack of printed material to support the process of building sports equipment. As some of the steps were not very simple, it would be important to have some sort of systematic tutorial. Maybe because of the lack of teaching material, 74.7% of the teachers said they felt the need to look for more information about the sport on their own before teaching it.

Apparently, the partnership with National Federations worked well, as the highest rate in the survey measured the quality of the instructors. Almost 97% of the teachers agreed or strongly agreed that the instructors’

performance was good. This shows that not only the athletes or coaches of the federations had the knowhow about the sport, but also they were capable of adapting their knowledge to the teachers' needs. This is a win-win relationship, as the federations promoted their sports, most of them not very popular in Brazil, and the teachers could improve their classes. Despite not being one of the *Transforma* main goals, the contact between teachers and federations at the trainings was continued in some cases after the training. For example, one teacher mentions in the survey that, after joining the rugby training, she invited the National Federation to give lectures in her school and received the donation of professional balls.

Finally, the last discussion topic concerns the maintenance of *Transforma*. The programme was discontinued right after the end of the Rio 2016 Games. This problem was also mentioned by Masumoto (2012) in the analysis of the education programmes from Tokyo 1964, Sapporo 1972 and Nagano 1998 Games, and also by Liu (2012), regarding the Beijing 2008 Games.

In the survey for this research, almost 97% of the teachers agreed or strongly agree that they wish *Transforma* would keep its activities after the Rio 2016 Games were over. Qualitative findings support this data, with quotes such as “I want more trainings like those”, “the programme should

go on for more time”, “the only problem is that it is over now”, “I miss the trainings” and “after *Transforma* was over I had no other opportunity to learn anything different”.

Even the website of *Transforma* was deleted, and the link now directs users to the IOC’s official page. The London 2012 Education Programme, Get Set, for example, is still available online and constantly updated, under the responsibility of the British Olympic and Paralympic Committees.

5.5. Limitations

This research looked at the Rio 2016 Education Programme and its initiative to increase the number of sports played in PE classes in public schools of Rio de Janeiro. The sport training was evaluated through an online survey answered by PE teachers. However, the author was not able to get a sample size larger than the 105 participant teachers. Due to the geographical distance between the author and the schools, it was not possible to try a personal approach, and the email and social media communication were found to be insufficient to increase the number of respondents. However, the mixed method was implemented, so that the qualitative content could increase the significance of the quantitative findings. Another constraint is the fact that the researcher only considered

the opinion of the PE teachers for the study. Other stakeholders, such as federation members, IOC and OCOG staff, school principals and students could provide important feedbacks about the sport training.

5.6. Recommendations

This section will address recommendations to researchers and the Olympic Movement.

5.6.1. Recommendations for Future Researchers

There is a lack of academic research about the educational legacy from the Olympic Games. Most of the official reports are merely descriptive and do not deeply analyze the outcomes of the projects. This absence of evidence raises questions about the true power of Olympic Games to promote benefits in the school environment. Therefore, future studies are essential to keep measuring the worthiness and improve the quality of educational programmes developed by the Olympic Movement or other mega sport events.

Regarding the *Transforma* sports training, it would be important for future studies to include the voice of other stakeholders, especially students, as the present research is based on teachers' perceptions only. In addition, although the training had a standardized methodology, it would be interesting to study the different outcomes from each sport offered. PE

teachers frequently mentioned badminton in the survey, for example, and a deeper study could investigate the reasons for that. Finally, future researchers could examine the reasons why male teachers were found to be more likely to teach new sports after the training.

5.6.2. Recommendations for the Olympic Movement

In order to ensure that an Olympic programme creates a positive legacy, the IOC and OCOGs need to create an effective and systematic evaluation system, which goes beyond the simple description of the projects. This measurement needs to be implemented at the beginning of the activities, in order to identify and correct mistakes during the Olympic cycle, justify or increase the budget and generate useful data for the next host city.

In the case of the *Transforma* Programme, this study shows that there was a positive impact on PE classes. The most significant factor found was the concept of teaching PE professionals how to build the sports equipment with alternative and cheap material. This successful initiative, which requires a small budget, could be considered by the Olympic Movement, including the International Federations, in countries with lack of educational resources, such as Brazil. It is a way to disseminate Olympic sports that are not popular or considered too expensive. Nevertheless, even in areas with appropriate sports structure, this concept might be useful to

combine the implementation of new sports and the discussion about sustainability when reutilizing materials.

However, despite the positive evaluation and desire of continuity from teachers, *Transforma* was terminated right after the end of the Rio 2016 Olympic Games. The website of the programme, for example, gathered a great number of educational content, and it is not available anymore. To avoid that, it is important that the IOC, OCOGs and governments consider not only the implementation but also the future post-Games of these legacy projects since the bidding process.

5.7. Conclusions

The Olympic Movement relies on the argument of positive legacy to justify the high investments made by host cities in organizing the Olympic Games. However, this line of reasoning is often based on superficial and descriptive evaluations that do not meticulously measure the impact of the event on areas such as tourism, sustainability and education.

In this context of scarcity of data from more revealing and structured academic studies, the present research examined the Rio 2016 Games Education Program, called *Transforma*. The project's main objective related to physical activity was to implement new sports in PE classes. Brazilian schools are often limited to the magic four: football, basketball, volleyball

and handball. This reality affects students' motor skills and distances those who do not appreciate traditional sports from PE classes. This restricted number of activities goes against important aspects of the Olympism, the philosophical basis of the Olympic Movement, which advocates that sports should promote inclusion and social benefits.

The way found by *Transforma* to promote new sports was a partnership with National and Local Sports Federations, which offered an athlete or coach during one day to teach PE professionals the movements and rules of their sport and prepare them to take the content to the students. It was, then, a training of trainers.

The Rio 2016 Organizing Committee, however, did not carry out any evaluation of the activity. The information used to present the training as a legacy tool was limited to the number of teachers, schools and hours of course. More than a year after the end of the Games, there was no evidence if, in fact, new sport was inserted in the curriculum of PE classes.

The present research aimed this informational gap and indicated that the legacy was indeed positive. In the online survey, with open-ended and closed-ended questions, more than 80% of the 105 respondent teachers reported having taught new sports after training. The study also concludes that the factor that contributed the most to this result was the fact that

teachers learned to build sports equipment with cheap and alternative materials, thus circumventing the problem of lack of resources in Brazilian schools.

Finally, the impact of new sports on students was constructive. In addition to enthusiastically receiving the new activities and therefore gaining new motor skills, young people who repudiated PE classes showed an increase in sport participation, and teachers' perceptions indicated that the different sports made those students feel included.

Results demonstrate that *Transforma* collaborated in sports education in public schools of Rio de Janeiro. In Brazil, the "football country", it can be extremely difficult to open space to other sports, and *Transforma's* innovative methodology was efficient in this objective. However, the interruption of the education programme right after the Olympic Games, something observed in other editions of the competition such as Sydney 2000, Athens 2004 and Beijing 2008, contradicts teachers' desire to maintain the trainings and their significant educational potential.

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Appendix

Questionnaire of evaluation of the Rio 2016 Games Education Programme sport training

Dear Physical Education teacher,

The following questions aim to evaluate the sport training offered by *Transforma*, the Rio 2016 Games Education Programme. Your participation is essential so that we can find out if this activity left a legacy in the public schools of Rio de Janeiro.

Personal information

Age

Gender (male, female, I'd rather not answer)

How long have you been teaching PE?

In how many schools were you teaching when you joined the training?

It's time to evaluate the training offered by *Transforma*.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The training was relevant.					
The content of applicable					
The instructors' performance was good					
The number of instructors was appropriate					
The length of the training was appropriate					
The infrastructure of the training was appropriate					
I understood the goals of the training					
I learned the rules of the sport					
I learned the					

movements of the sport					
I learned how to build the sports equipment					
I received supportive teaching material					
The training made me want to improve my class					
I felt prepared to teach the new sport					

Comments about the training

Teacher, here you can comment whatever you want regarding the sports training. Criticism or compliments, your opinion is worth a lot!

Evaluation about your school

Consider only the public schools you worked for. Please remember that no personal information will be disclosed.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My school had the appropriate sport facility					
My school had the appropriate sports equipment					
My school encouraged me to join the training					
I received permission to join the training in my work days					
I felt more valued in my school after the					

training					
PE is valued in my school					

Comments about the structure and support of your school

Teacher, in this space you can tell more about the relationship with your school. Board support, infrastructure, sports equipment, whatever you want.

After the training, did you teach the sport you learned to your students?

YES/NO

Did you have to look for further information about the sport before teaching it?

YES/NO

Now, tell us a little bit more about the students' reactions.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The students seem to like the sport					
The students participated more actively than usual					
The sport enhanced the relationship between students					
Students that consider themselves not talented for traditional sports participated more than					

usual					
Students asked to play the sport again					
Girls participation increased					

Comments about the students' reactions

Teacher, tell us more about how your students received the new sport!

Every detail is important.

Regarding *Transforma's* activities...

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I wish the <i>Transforma</i> Programme had maintained its activities after the Rio 2016 Games					

국문 초록

2016 리우 올림픽 교육 프로그램의 체육 수업에의 효과

-리우데자이네루 공립 학교를 중심으로-

Eduardo Butter Scofano

글로벌스포츠매니지먼트 전공

체육교육과

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올림픽 무브먼트는 올림픽 게임 개최지가 스포츠 축제가 2주 이상의 기간 동안 성공적으로 달성해낼 것을 확증하는 행사이다. 쿠베르탱이 제안한 것처럼 올림피즘(Olympism)의 개념을 발전시킬 때 경쟁은 변화의 기폭제가 될 것이며, 그 지역은 투어리즘, 지속가능성, 교통과 교육 등 유산으로서의 혜택을 누리게 될 것이다. 그러나 많은 연구자들은 토너먼트 개최지의 효과적인 사회경제적 발전에 대한 증거가 부족하다는 점을 발견하였다.

31 번째 올림픽 게임이 남아프리카에서 처음으로 개최되었다. 브라질의 도시인 리우데자네이루는 7년 전인 2009 년에도 개최지로

선정되었다. 유산은 비딩 과정에서 주요한 역할을 한다. 올림픽 혜택의 유지를 위해 조직위원회는 Transforma 라고 불리는 교육 프로그램을 개발하였다. 또한 Transforma 는 올림픽 게임과 관련된 가치와 지식을 촉진하기 위해 리우데자이네루 공립학교에서의 스포츠 증진을 목적으로 한다.

브라질의 학교들은 체육시간에 “마법의 4”라고 불리는 축구, 농구, 핸드볼, 배구 만을 가르치는 것으로 알려져 있다. 그 원인은 학생들의 두가지 주요 문제들에 있다. 하나는 제한된 운동 기술로, 다양한 스포츠들이 다른 운동 능력을 권장하기 때문이다. 다른 하나는 체육수업을 피하거나 피로워하는 등 전통 스포츠를 즐기지 않는 젊은이들의 특성 때문이다.

다양한 스포츠 참여를 위해서 Transforma 는 브라질 정부와 지역 스포츠 연합들의 도움을 받아 교사들의 훈련을 조직하였다. 선수들과 코치들은 교사들을 스포츠와 관련된 기본적인 물과 무브먼트를 가르치고, 이러한 지식들이 학교에서 적용될 수 있도록 지도하였다.

이 연구는 리우데자이네루 공립학교에서 체육 시간에 뉴 스포츠를 실행하는 목적이 달성되었는지 그리고 어떠한 요소들이 과정에 영향을 미쳤는지, 학생들에게 어떤 영향이 있었는지 조사한다. 이를 통해 최초의 올림픽 유산으로서의 2016 리우 올림픽 게임 교육 프로그램의 효과성을 검증한다.

연구를 수행하기 위해 Transforma 트레이닝에 참여한 105 명의 체육 교사들을 모집하였으며, 온라인을 통해 개방형 및 폐쇄형

설문조사를 수행하였다. 질문들은 Guskey(2000)을 바탕으로 하였으며, 5 차원의 전문성 개발 평가를 수행하였다. 이 모형은 트레이닝에 대한 참여자들의 첫번째 반응과 교육 수준, 학교의 지원, 지식의 사용과 학생들의 결과를 측정한다.

첫 번째 조사 결과 82.9%의 참여자들이 트레이닝 이후 체육 수업에 다양한 스포츠를 포함하였다. 두 번째로 연구자는 로지스틱 회귀분석을 수행하였으며, 체육 교사들이 트레이닝을 통해 배운 뉴 스포츠 중 새롭고 저렴한 스포츠 장비의 도입이 가장 유의한 것으로 나타났다. 이 결과는 브라질 학교들의 환경을 나타내는 것으로 보인다. 기존 연구들과 마찬가지로 대부분의 응답자들은 자원의 부족을 호소하였다. 교사들은 적은 비용으로 스포츠 장비를 도입하는 방법을 배워 그들의 노력만으로 학교의 자금 문제를 극복할 수 있었다. 세 번째로는 학생들의 트레이닝 효과를 조사하였다. 교사들은 처음에는 몇몇 학생들이 주저하였으나 새로운 활동에 매우 만족하였다고 응답했다. 양적 결과와 질적 결과 모두 참여의 증진을 나타내었다. 체육 수업을 피한 젊은이들은 뉴 스포츠를 필요로 하고 즐기는 것으로 나타났다. 대부분의 교사들은 학생들에게 스포츠를 다시 하도록 권장하고, 그들은 새로운 활동들을 포함하기 위해 준비한다면 “마법의 4”를 이겨낼 수 있을 것이라고 하였다.

Transforma 는 리우데자이네루 공립 학교에서 스포츠 참여 증진에 효과적인 프로그램임이 밝혀졌다. 그러나 이 프로그램은 97%의 참여교사들의 지속 요청에도 불구하고 리우 2016 게임의 폐막식과 함께 종료되었다. 연구자는 올림픽 무브먼트가 교육

프로그램과 같은 유산 프로젝트의 연속성에 관하여 비딩 단계에서 시작하여 개최지를 선정할 때까지 신중하게 고민하여 게임이 종료되면서 끝나버리지 않기를 제안한다. 이렇게 새로운 시도의 효과를 보다 체계적으로 평가하는 것은 측정과 향상을 위해, 그리고 올림픽의 투자 가치에 대한 비용과 지원을 정당화하는데 필수적이다. 또한, 연구자는 교사들이 낮은 비용의 장비들을 이용한 스포츠 장비 도입 방법을 고려하면 브라질과 유사한 교육현실의 국가들에 있어 자원의 부족 뿐만 아니라 풍족한 환경에서도 다양한 스포츠를 장려하고 지속 가능한 도구로서의 유산적 프로그램을 마련할 수 있을 것이라 생각한다. 마지막으로 추후 연구자들이 이해관계자들, 특히 학생들의 목소리에 집중한 연구를 수행할 것을 제안한다.

주요어: 올림픽 유산, 체육, 리우 2016 조직위원회, Transforma, 교육 프로그램, 스포츠 트레이닝, 스포츠 참여

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