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Involvement with the Olympic and Paralympic Games and the values of sport

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ABSTRACT

This investigation aims (1) to describe how people associate sport with human values and (2) to analyse the relationship between media involvement with the Olympic Games and those values. Drawing upon the theory of human values [Rokeach, M. (1968). The role of values in public opinion research. *Public Opinion Quarterly*, 32(4), 547–559. https://doi.org/10.1086/267645], we tested whether involvement with Rio 2016 and PyeongChang 2018 Olympic Games could affect perceptions of the association between sport and human values. Involvement with Olympic Games was compared to involvement with Paralympic Games. Results indicated the existence of three values of sport (human values associated with sport): (a) equality, (b) social recognition, and (c) friendship. Involvement with Olympic and Paralympic Games have different effects on perceptions of values of sport. Involvement with Paralympic Games positively affected values of equality and social recognition. But involvement with Olympic Games did not affect such values. Implications for theory and practice are discussed.

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Human values have been defined as 'desirable trans-situational goals, varying in importance that serve as guiding principles in the life of a person or other social entity' (Schwartz, 1994, p. 21). The guardian of the Olympic Movement, the International Olympic Committee (IOC) was established in 1894, emphasizing the guiding principles of justice, respect, equality, international understanding, peace, and excellence (Chatziefstathiou, 2012). Nowadays, the IOC labels friendship, excellence, and respect as the Olympic values (IOC, 2014). Despite being labelled Olympic values, they are human values, which should be positive guidelines for human behaviour in any social context. In this research, we investigate whether involvement with the Olympic Games can be related to perceptions of human values in sport contexts.

The IOC has used different strategies to promote human values. For example, the IOC's Olympic Solidarity has promoted human values, mainly through the financial support of developing countries' National Olympic Committees (IOC, 2020a). The

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Olympic Education, Culture, and Legacy programme is the largest of Olympic Solidarity programmes and has the aim of promoting Olympic values among young people (IOC, 2020a). Additionally, since 2004, every city bidding to host the Games should plan an Olympic Education Programme as part of the application package (Binder, 2012). In 2005, the IOC created the Olympic Values Education Programme to guide and provide material for individual Education Programmes, which are conducted by National Olympic Committees or Olympic Academies (Binder, 2012). Despite the importance of these programmes, they have some limitations. On their official website,[1] the IOC acknowledges that education programmes are a 'work in progress' and only 21 of those initiatives have happened so far.

As the most visible sport event in the world, the Olympic Games represent a powerful instrument for the IOC to transmit values to people who get engaged with the Games (Chatziefstathiou, 2012; Koenigstorfer & Preuss, 2018; Milton-Smith, 2002). This is consistent with the by-law to rule 48 of the Olympic Charter, which proposes that, 'It is an objective of the Olympic Movement that, through its contents, *the media coverage of the Olympic Games should spread and promote the principles and values of Olympism*' (IOC, 2007, p. 90, emphasis added). Research has confirmed that the IOC has tried to use the Olympic Games to communicate human values through different types of media (Millington & Darnell, 2014; Petca et al., 2013). The strong media appeal of the Games supports this strategy. Figures about the Olympic Games audience are impressive. For instance, it was estimated that half the world or about 3.6 billion people watched the Rio 2016 Olympic Games (Baker, 2016). Therefore, the massive exposition should be an excellent channel to promote such values among people who get involved with the Games via media.

Scholars have proposed that media coverage is particularly intensive in the countries of the host city (Hiller & Wanner, 2011; Ritchie et al., 2010). Hosting the Olympic Games cannot go unnoticed by the host residents (Hiller & Wanner, 2011). Prior to the Games, locals can follow athletes' preparation, promises of legacies, public investments, the progress of constructions, and other topics related to the event. During the event, sporting competitions dominate the schedule of different TV channels around the world for two weeks. For example, the most popular cable TV provider in Brazil made available 16 channels to its subscribers, covering 100% of the live competitions of Rio 2016 during the Games. Four of those channels could also be streamed via the internet, making the Games available almost everywhere, via computers, tablets, and smartphones (Sportv, 2016).

The aims of the study are (1) to describe how people associate sport with human values and (2) to analyse the relationship between media involvement with the Olympic Games and those values. The rationale is that if the IOC has been effective in promoting the association between sport and human values (values of sport) through the Olympic Games, then a higher involvement with the Games via media may strengthen perceptions of the values of sport. We test this in the context of the two most recently hosted Olympic Games: Rio 2016 and PyeongChang 2018.

Literature review

Human values in sport

Over the years, sport governing bodies have proposed their own sets of values. The IOC has used friendship, excellence, and respect as the Olympic values (IOC, 2014). The

International Paralympic Committee (IPC) has named courage, determination, inspiration, and equality, the Paralympic values (Chatziefstathiou, 2012). Even international federations of specific sports have created their own set of values. For instance, World Rugby, the sport governing body for Rugby has highlighted integrity, respect, solidarity, passion, and discipline as its core values (World_Rugby, 2019). Despite the differences, according to the definitions of Schwartz (1994) and Rokeach (1968), they are all *human values* that may be associated with the sport – in the context of the Olympic Games, the Paralympic Games, or any other games. The problem of selecting a limited set of values and creating a label (e.g. Olympic values) is that other important values representing that event may be missing. For example, Olympic Solidarity specifically mentions the importance of tackling discrimination in sport (IOC, 2020a). However, equality is not an Olympic value (at least it is not part of those labelled as official Olympic values by the IOC).

The literature has reported different values as Olympic values (Chatziefstathiou, 2005; Koenigstorfer & Preuss, 2018; Pruschenck & Kurscheidt, 2017; Rabelo et al., 2016). Koenigstorfer and Preuss (2018) affirm that the values have changed over the years and 'the IOC does not provide a finite and consistent list of values that reflect the Olympic Values' (p. 5). Because of this lack of consistency, previous investigations have explored possible dimensions to represent Olympic values (Chatziefstathiou, 2005; Koenigstorfer & Preuss, 2018; Milton-Smith, 2002). In a conceptual article, Chatziefstathiou (2005) proposes that the inconsistency has led to the conclusion that no fixed list of Olympic values should exist. Milton-Smith (2002) adopts an ethical approach arguing that the modern Olympic Games are associated with perceived values of globalization, such as winning at any price, commercial exploitation, intense national rivalry, cheating, and corruption. According to Milton-Smith, this illustrates an increasing disparity between Olympic rhetoric (or the three official values) and reality. The lack of consistency in the definition of Olympic values supports our option for investigating human values, rather than Olympic values.

Koenigstorfer and Preuss (2018) conducted a comprehensive empirical investigation to reduce a large number of statements to some dimensions representing Olympic values. We learn two important things from Koenigstorfer and Preuss' multiple factor analyses. First, for people from two Western countries (the U.S.A. and Germany), 12 statements (items) describing human values varied together and represented three dimensions: achievement in competition, friendly relationship with others, and appreciation of diversity. Second, we learned that former participants of the International Olympic Academy rated the proposed human values as elements that are applicable or very applicable to describe Olympic values (the mean scores were at least 5, in a 7-point scale). However, what we do not know from Koenigstorfer and Preuss' study is whether those respondents saw the items as something applicable or very applicable to describe human values. In the best-case scenario, those respondents *did* see those items as very applicable to describe values. In this scenario, the best we can say is that they saw those values as something that describes the Olympic Games. However, we are still not able to know how much those values might have affected their professional, social, or personal lives. Despite multiple strengths, their study does not allow us to make inferences about the effectiveness of the Olympic Games to inform and promote human values in communities.

Rather than looking for Olympic values, we draw upon the theory of human values (Rokeach, 1968, 1973; Schwartz, 1994; Schwartz & Bilsky, 1987) to investigate the association between sport and human values. We call this association, values of sport. In this study, we use the Council of Europe [CEE] (2001) definition of sport, which encompasses 'all forms of physical activity which, through casual or organized participation, aimed at expressing or improving physical fitness and mental wellbeing, forming social relationships or obtaining results in competition at all levels' (CEE, 2001, p. 3). Rokeach (1968) proposed that human values transcend specific situations and objects (e.g. the Olympic Games) as they are related to modes of conduct and end-states of existence. According to this theory, human values belong to higher hierarchical entities. Rokeach (1968) explained this using the concept of the value system, which represents a higher-order or an arrangement of indicators of values. He proposed that a value system exists to help people to make choices beyond the functions of individual elements alone. Rokeach pointed out that similarities of culture, social system, occupation, education, and religion, to mention just a few, represent higher-order contexts that shape value systems. Therefore, in the literature, we find studies about cultural values (Schwartz, 1999), social values (Dowling & Pfeffer, 1975), education values (Winter, 2009), and religious values (Rokeach, 1969). In this research, we investigate values of sport, that is, human values pertaining to the higher-order context of sport.

Rokeach's (1968) theory of human values originated from an attempt to expose the hidden value system that is usually associated with media reports. Rokeach defends that the media reproduce 'the values of the status quo', that is, the media replicate the existing state of affairs that is present in the society. For instance, in countries with a white majority, media tend to reflect the hidden value system of a white society, which places a high value on freedom and a low value on equality (Rokeach, 1968). Applying the concept to the current study, the media about the Olympic Games may have been reflecting the hidden value system of their owners, placing a high value on competitiveness and supremacy and a low value on equality and participation. Rokeach (1968) distinguishes between terminal values (where one wants to end up) and instrumental values (how one wants to get there).

Schwartz (1994) defined human values as 'desirable trans-situational goals, varying in importance that serve as guiding principles in the life of a person or other social entity' (p. 21). Implicit in the definition of values as goals is that values (1) serve the interests of some social entity, (2) can motivate action, (3) function as standards for justifying action, and (4) can be learnt through experiences of individuals (Schwartz, 1994). Schwartz et al. (2012) have applied the concept of a social entity at a macro level and made efforts to find a list of universal human values, which should be present in different countries. They found moderate support for 19 values in 10 countries. Following Schwartz's (1994) and Schwartz et al. (2012) concerns with effects of different cultures on values, we tested the association between human values and sport in two countries, Brazil and South Korea, the hosts of the two most recent Olympic Games, Rio 2016 and Pyeong-Chang 2018, respectively. Brazil and South Korea are representatives of Western and Eastern cultures, respectively. Beyond stereotypes, cultural differences may indicate the different proportions of emphasis in individualism and collectivism (Earley, 1993; Ward et al., 2020). These differences may reflect different perceptions about sport and its relationship with human values. Therefore, a cross-cultural comparison is important.

Involvement with Olympic Games

Based on the by-law to rule 48 of the Olympic Charter (cited above), the IOC has tried to use the massive presence of the Olympic Games in the media (mainly during the event) to communicate human values. Before making any assumption about the effectiveness of this strategy, we need to know the extent to which people get involved with the Olympic Games via the media. If the IOC strategy has been effective, then people who have been involved with the Games should perceive more positive values of sport. For this reason, we started asking the participants of this research how much they got involved with the Olympic Games via media.

Shank and Beasley (1998) define sport involvement as 'perceived interest in and personal importance of sport to an individual' (p. 436). This definition approaches sport in a broad sense; allowing it to be replaced by different entities such as sport event, sport participation, or sport spectatorship. Havitz et al. (1994) define involvement with sport and physical activity as 'an unobservable state of motivation, arousal or interest that is evoked by a particular stimulus or situation and has driven properties' (p. 39). Beaton et al. (2011) propose that involvement can be either attitudinal or behavioural. They argue that people use cognitions (attitudes) to decide about actions (behaviours). Funk et al. (2011) proposed that attitudinal involvement with sport events informs behavioural involvement; thus, they suggested that a behavioural measure of involvement should suffice.

Recent studies have shown that involvement with mega-events can affect attitudes toward the event (e.g. satisfaction, support) (Al Hallaq et al., 2020; Davies & Jaimangal-Jones, 2020). Other studies have shown that involvement with a product can affect attitudes toward values. For example, Kim and Heere (2012) show that symbolic value (a dimension of involvement) of global brands (e.g. Nike) could lead people to different attitudes toward human values (e.g. respect for labour practices). They report that people who are more involved with some famous sporting goods brands care little about the respect of human rights during production. Joergens (2006) found that ethical issues had little (if any) effect on consumers' behaviours toward fashion brands. This study was not intentionally directed to sporting goods brands, but participants spontaneously mentioned Nike, to exemplify how they would *not* be willing to boycott a brand just because they have been connected to human rights violations during production. From the positive side, Iwasaki and Havitz (2004) found that involvement with leisure sport affects attitudes toward commitment and loyalty to sport participation. Involvement with sport (and non-sport) entities has produced both negative and positive effects on attitudes. Based on that, involvement with the Olympic Games should bring positive effects on attitudes toward the relationship between sport and human values. We tested this assumption.

Behavioural involvement with the Olympic Games can happen in different ways inside the host community. Some people get involved by volunteering. Others, by working directly or indirectly with organizations that support the Games (e.g. the organizing committee). Residents may attend several events, matches, and social gatherings. Most of these opportunities are in the host city only. To avoid the influence of too many different types of involvement, we opted for investigating the relationship between involvement and perception of human values in a sample of non-host city residents. This

group has more limited options and individuals are more likely to get involved with the Games via media consumption. This reduces the influence of multiple ways of involvement in the results. Using different types of media consumption as a surrogate measure of behavioural involvement with the Games (Beaton et al., 2011; Funk et al., 2011; Shank & Beasley, 1998), we tested the effects of the involvement on their perceptions about the values of sport.

Paralympic Games as a point for comparison

To study human values, involvement with the Paralympic Games offers a valuable point for comparison with the Olympic Games. The Paralympic Games started as a humanitarian initiative, to give opportunities for people with disabilities to socialize and improve self-esteem (Legg & Steadward, 2011). Since Seoul 1988, the Paralympic Games are held immediately after the Olympic Games, in the same city. This proximity to the Olympic Games may have changed the way people see the Paralympic Games and athletes. Some scholars say that nowadays the Paralympic Games are seen as a mega-event, an elite competition for athletes with disabilities, one of the largest sporting events in the world (Misener et al., 2013). They are similar in some respects. For instance, the Paralympic Games have grown and become an attractive media product (Misener et al., 2013). They follow similar business models, relying heavily on their start product (the Games) to generate revenues from sponsors and TV broadcast rights, which have become the main source of revenue for both (IOC, 2020b; IPC, 2018). Following the IOC strategy, the International Paralympic Committee (IPC) has promoted their own set of values – courage, determination, inspiration, and equality – which they call the Paralympic values (Chatziefstathiou, 2012). They are all positive *human* values that should be associated with sport practices in any context.

Despite the similarities between Olympic Games and Paralympic Games, the comparison should be taken with caution, because they are still quite different events. The differences between them add importance to the comparison. The Paralympic Games as a commercial product have not reached yet the same status, magnitude, and gravitas as the Olympic Games (Misener et al., 2013). Commercially, the Paralympic is still a much less attractive event for both sponsors and broadcasters (IOC, 2020b; IPC, 2018). Additionally, the Paralympics Games are associated with a different ethos, which fosters equality and respect among participants and spectators (Brittain, 2009). The values of sport seem to be more visible in the Paralympic Games, as they create opportunities for sport performance for people within a wide range of disabilities, from blindness to mental and physical disabilities (Brittain, 2009). Depending on the involvement with the events, those differences may affect people's attitudes toward the values of sport.

Method

In this research, we focus on a special segment of host country residents: people who work with or study sport (in all its subdisciplines, including physical exercise, coaching, and physical education). These people are sport coaches, referees, athletes, trainers, fitness instructors, physical education teachers, and other individuals who work directly

with or study sport. Considering their field, they are likely to have an interest in watching the Olympic Games. They have specific knowledge about sport that may facilitate their understanding of messages that associate sport and human values. This segment should be able to answer our question about how much association exists between human values and sport. They also represent the segment with potential to apply human values in their social interventions (Koh et al., 2016).

Association between human values and sport – the values of sport

Asking about values in social interactions is very challenging because people tend to give socially desirable answers. Fisher and Katz (2000) noticed that people are motivated to bias their answers to the degree that the value is strongly prescribed within a social context. Human values are strongly prescribed in sport interactions. Therefore, had we asked the participants how important those values are in *their own* interactions and interventions, it is likely that we would have received very positive perceptions about them. To avoid this (and inspired by Rokeach's [1968] value-attitude system), we created a social distance between the respondent and the values. We asked participants for their perceptions about a general and apparently external human value, not connecting this value to either them personally or their professional intervention. That is, we asked the participants how strong the association between sport and a certain human value is. Because we are *not* asking whether that value is important in *their own* social or professional interactions, they are more likely to provide genuine opinions about it. However, despite the social distance created by the question, they are likely to use their own experiences to inform the answers (Rokeach, 1968).

Sampling and procedures

We conduct three studies. In study 1 (Rio 2016 context), we looked at the association between sport and human values to create the values of sport scale. We followed Churchill's (1979) steps on scale development. Specifically, we (a) generated items based on the literature, (b) tested the items for data reduction in one sample (Brazil sample A), and (c) tested the scales using a different sample (Brazil sample B) to assess the reliability and construct validity. Initially, the research team and three other researchers proposed a large number of items describing human values that could be associated with sport interventions. The original poll of items was reduced to 22 items, after multiple rounds of discussion, which eliminated items with similar meanings and unclear values. The items were created in English and translated to Portuguese by a native speaker. A third person, bilingual in English and Portuguese, back-translated the questionnaire to English. No major differences were found between the first and the final English versions of the questionnaire, indicating that the integrity of all items was maintained during the translation process. In the online questionnaire, the stem for the items to test the association read, 'Please, how strong do you believe the association between sport and the following factors is?' The items were responded to a 7-point Likert scale ranging from 1 (*extremely weak*) to 7 (*extremely strong*).

We applied a chain-referral (snowball) sampling technique to reach a large, purposive sample of people who work with and study sport in Brazil (Noy, 2008). We started by

contacting three universities in Brazil (one public, two private universities, not located in Rio). We asked colleagues from those universities to send the online questionnaire link to all their students, alumni, and other colleagues. Those individuals were also encouraged to forward the link to other sport students and/or professionals they might know. To develop and refine the instrument, two samples were selected: a sample of students (n = 541; Brazil sample A) and a sample of professionals (n = 278; Brazil sample B). Data from these two samples (Brazil samples A and B) were collected three months before Rio 2016, starting in the first week of May 2016.

In study 2 (Rio 2016 context), the same procedures were followed to get a sample of professionals and students (n = 466). Individuals in this third sample (Brazil sample C) responded to the questionnaire in September/October 2016, starting a month after Rio 2016, immediately after the Paralympic Games. The last day of data collection was 21st October, two months after the end of the Olympic Games, a month after the Paralympic Games. We decided to stop data collection at that point because people might forget about what they did or watched during the Games. The demographic characteristics of all three samples are described in Table 1. Three respondents were eliminated from the final sample because they reported they attended the Games.

In study 3 (PyeongChang 2018 context), to collect data in South Korea, we followed the same procedures we did in study 2 (Rio 2016 context). The back-translation procedure was repeated for the Korean version of the questionnaire. No major differences were found between versions. The same online questionnaire used to collect data from the third sample in Brazil (sample C) was used in South Korea. We applied a chain-referral (snowball) sampling technique to reach a large, purposive sample of people who work with and study sport. We started by contacting two universities (both public, not located in PyeongChang). Data in South Korea were collected in March/April 2018, starting a month after the 2018 Winter Games. This period matches the period of the third data collection in Rio. Demographic characteristics of the sample (n = 570) are described in Table 1.

Respondents from Brazil samples A and B responded to the sections about the values of sport and demographic questions. Respondents from Brazil sample C and Korean sample, who answered the questionnaire after the Games, also responded to the same sections plus a section about Olympic Games and Paralympic Games behavioural involvement, based on how much time they had spent, on average per day, during the Games, (a)

Table 1. Demographic characteristics of samples used in the study.

	Brazil	Brazil	Brazil	South Korea
Label	A	B	C	–
Sample size	541	278	466	570
Sport students?	Yes	No	Yes	Yes
Sport professionals?	No	Yes	Yes	Yes
% of professionals	0%	100%	33.9%	71.7%
Age				
M	21.9	37.4	28.0	22.9
SD	4.4	11.5	10.9	4.6
Gender				
Female	33.3%	38.8%	62.7%	38.8%
Male	65.6%	57.2%	37.1%	60.2%
Prefer not to say	1.1%	1.8%	0.2%	1.0%

watching the Games events on TV and (b) using the internet to watch, read, post, and/or comment about the Games (this includes any type of social media they might have used). The sum of the on-average minutes per day they spent with the Olympic Games represents their behavioural involvement with the Olympic Games (a + b). The same procedure was used to measure behavioural involvement with the Paralympic Games: (c) watching Paralympic Games events on TV and (d) using the internet to watch, read a post, and/or comment about the Paralympic Games. Paralympic Games behavioural involvement was represented by c + d.

Data analysis

We used study 1 to verify the psychometric properties of the new scale and to promote data reduction. We conducted an exploratory factor analysis (EFA) with varimax (orthogonal) rotations, looking for non-correlated factors, with Brazil sample A (n = 541). Kaiser's eigenvalue-greater-than-one rule and a Scree test were used for data reduction (i.e. to check possible factors or dimensions of the values of sport). Following Hinkin (1995) and Tabachnick and Fidell (2007), we looked at factor loadings of individual items (keeping items with a factor loading equal to or larger than .40) and cross-loading items (eliminating items that loaded high in more than one factor).

Still, in study 1, we conducted a confirmatory factor analysis (CFA) with Brazil sample B (n = 278) to confirm the factor structure proposed by the EFA, and to check validity and reliability (Churchill, 1979; MacCallum et al., 1992). We used Tucker-Lewis Index (TLI), comparative-of-fit-index (CFI), and root mean square error of approximation (RMSEA) to check the measurement model goodness of fit. Convergent validity was evaluated through the average variance extracted (AVE). Discriminant validity was evaluated through the Wald chi-square test for parameter equalities (Bagozzi et al., 1991; Guo et al., 2008). Reliability was inferred from internal consistency (Cronbach's alpha) and from composite reliability (rho) (Raykov & Marcoulides, 2011).

In studies 2 and 3, we confirmed the measurement model and tested the structural model using covariance-based structural equation modelling (SEM), with data collected after the Games in Brazil (n = 466; sample C) and South Korea respectively (n = 570). To compare the results in the two different contexts, we first checked the measurement invariance, conducting a multiple-group CFA (Chen et al., 2005; Steenkamp & Baumgartner, 1998), then, after confirming the measurement invariance, we ran a multi-group SEM using the nested models approach (Bollen, 1989; Byrne, 2006) to compare the structural models in the contexts of Rio 2016 and PyeongChang 2018. To partial out effects that might exist due to the differences between students and professionals, we used professional status (student × professional) as a control variable, by adding direct paths from this variable to all criteria. Age and gender were also added as control variables.

Results

Scale properties

In study 1, results of the EFA provided statistical support for a three-factor model for the values of sport scale. Inspection of factor loadings for the initial 22 items showed that

none of the items loaded below .40 in at least one factor. However, cross-loading in more than one factor eliminated items 3, 5, and 6 from further analysis, producing a final scale with 19 items. The Kaiser-Meyer-Olkin index (KMO) was .957, indicating the data were sufficient for EFA. Bartlett's test of sphericity (χ^2 (231) = 5498.54, $p < 0.001$) showed that there was a patterned relationship between the items. Table 2 shows the EFA results. We named the first-factor *equality* (nine items), the second, *social recognition* (seven items), and the third, *friendship* (three items). Social recognition is here defined as admiration for respect and preparation to attain results.

Results of the first CFA (from Brazil sample B) show that the measurement model fits closely the data (Table 3), confirming the three-factor solution found in the EFA. The significant results of the Wald chi-square test for parameter equalities support discriminant validity (Table 3). The measures showed good convergent validity and reliability (Table 4). Some higher values of alpha and rho, mainly in social recognition and equality, may indicate some redundancy among items.

Measurement invariance

Before testing measurement invariance, we tested the measurement model via single-group CFA (Chen et al., 2005; Steenkamp & Baumgartner, 1998). The single-group CFA for the Brazilian sample C confirms the good psychometric properties of the scale. The measurement model fits the data reasonably well and the Wald chi-square tests support discriminant validity (Table 3). Convergent validity was confirmed for social recognition and equality, but the value of AVE for friendship was a little below .50, because of the low factor loading of the third item (Table 4). We did not delete this item, because it has a significant individual contribution to the scale. The item loads well above .40 on this scale (Stevens, 1996) and it loads better in the other two

Table 2. Exploratory factor analysis, varimax (orthogonal) rotation.

	Factor 1	Factor 2	Factor 3	h^2
Item 1			0.729	0.606
Item 2			0.655	0.635
Item 4			0.680	0.506
Item 7		0.594		0.710
Item 8		0.676		0.624
Item 9		0.728		0.677
Item 10		0.403		0.473
Item 11		0.690		0.550
Item 12		0.661		0.694
Item 13		0.726		0.684
Item 14	0.793			0.751
Item 15	0.731			0.713
Item 16	0.745			0.737
Item 17	0.761			0.806
Item 18	0.750			0.711
Item 19	0.646			0.684
Item 20	0.672			0.675
Item 21	0.762			0.754
Item 22	0.759			0.720
Eigenvalue	11.771	1.603	1.087	
% of variance	53.51%	7.28%	4.94%	
% of cumulative variance	53.51%	60.79%	65.73%	
Cronbach's *α*	0.717	0.894	0.946	

Table 3. Fit indices and Wald chi-square test for parameter equalities.

	Sample		
	Brazil sample B ($n = 278$)	Brazil sample C ($n = 466$)	South Korea sample ($n = 570$)
Wald test			
χ^2	69.49	102.84	97.20
df	3	3	3
p	< 0.001	< 0.001	< 0.001
CFA			
CFI	0.973	0.928	0.947
TLI	0.968	0.917	0.942
RMSEA (90% CI)	0.054 (0.043; 0.064)	0.083 (0.076; 0.090)	0.073 (0.070; 0.076)
SEM			
CFI		0.925	0.937
TLI		0.913	0.931
RMSEA (90% CI)		0.069 (0.063; 0.075)	0.066 (0.063; 0.069)

samples. The reliability of the measures was confirmed, with the same caveat of possible redundancy of some items (Table 4). On average, respondents perceived the values of sport as very strong (means of all three factors were above 5, on 7-point Likert scales) (Table 4). The CFA for the Korean sample confirms the good psychometric properties of the scale in the context of the Winter Olympic Games. The measurement model fits the data reasonably well and the Wald test supports discriminant validity (Table 3). Convergent validity and reliability were confirmed for all constructs (Table 4). Korean respondents also perceived the values of sport as very strong.

To test the measurement invariance of the scale measuring the values of sport, we tested a series of three hierarchically nested models: Model 1 (unconstrained model); model 2 (factor loadings invariant); and model 3 (factor loadings and intercepts of indicators invariant) (Chen et al., 2005; Widaman & Reise, 1997). Each pair of models is nested in this hierarchy because a set of parameters was constrained to be equal across groups in the more restricted model. The chi-square difference test between model 2 and model 1 ($\Delta\chi^2 = 116.36$, $\Delta df = 16$, $p < 0.001$) is significant, indicating that the more restricted model failed the test of measurement invariance across groups. However, the difference in the CFI between model 1 ($CFI_1 = .947$) and model 2 ($CFI_2 = .942$) was only .005, indicating invariance (Chen et al., 2005). The point estimates of RMSEA are very close (ΔRMSEA = .001), with an almost perfect overlapping between confidence intervals: model 1 ($\varepsilon 1 = .088$; 90% CI = .083; .093) and model 2 ($\varepsilon 2 = .089$; 90% CI = .085; .094), supporting the measurement invariance between models 1 and 2. In other words, factor loadings for the values of sport scale were invariant between the Brazilian and the Korean samples.

The chi-square difference test between model 2 and model 3 ($\Delta\chi^2 = 537.36$, $\Delta df = 10$, $p < 0.001$) is significant, indicating that the more restricted model fails the test of measurement invariance across groups. CFI and RMSEA differences offer some at confirmed the assumption of measurement invariance between model 2 and model 3. The difference in the CFI between model 2 (CFI2 = .942) and model 3 (CFI3 = .917) was above .01 (Cheung & Rensvold, 2002), whilst the point estimates of RMSEA are slightly different between models 2 ($\varepsilon 2 = .089$; 90% CI = .085, .094) and 3 ($\varepsilon 3 = .105$; 90% CI = .101, .110). Results indicated that factor loadings are invariant, but the intercepts may not be invariant between the Brazilian and the Korean samples for the scale. Scholars acknowledge that

Table 4. Item wordings, factor loadings (λ), average variance explained (AVE), Cronbach's alphas (α), composite reliabilities (ρ) and descriptive statistics (*M* and SD).

		Brazil Sample B ($n = 278$)						Brazil Sample C ($n = 466$)						South Korea Sample ($n = 570$)					
Factors	Items	λ	AVE	α	ρ	*M*	*SD*	λ	AVE	α	ρ	*M*	*SD*	λ	AVE	α	ρ	*M*	*SD*
Equality			0.67	0.946	0.948	5.20	1.49		0.63	0.899	0.902	5.07	1.58		0.74	0.964	0.964	5.15	1.08
	Opportunities to all, disregarding the gender	0.798						0.810						0.860					
	No gender discrimination in any activity	0.861						0.842						0.864					
	No gender discrimination in physical activities	0.870						0.870						0.845					
	Equal opportunities to sport practice to people from different genders	0.909						0.915						0.911					
	Participation opportunities disregarding the age	0.728						0.731						0.865					
	Participation opportunities disregarding the colour of the skin	0.827						0.801						0.867					
	Participation opportunities disregarding the socioeconomic status	0.764						0.782						0.878					
	Participation opportunities disregarding any physical deficiency	0.823						0.836						0.832					
	Participation opportunities disregarding any mental deficiency	0.744						0.468						0.810					

Social recognition			0.59	0.909	0.909	5.57	1.06		0.60	0.910	0.911	5.44	1.10		0.77	0.959	0.958	5.21	0.99
	Mutual respect among people	0.823						0.788						0.861					
	Respect for the regulations of social organizations	0.807						0.842						0.864					
	Respect for the environment where sport is played	0.794						0.796						0.899					
	Use of excellent methods	0.645						0.671						0.894					
	Previous preparation to accomplish tasks	0.663						0.684						0.886					
	Adequate professional attitudes	0.848						0.859						0.882					
	Up-to-date knowledge	0.788						0.773						0.844					
Friendship			0.53	0.785	0.788	5.88	0.92		0.46	0.726	0.726	5.85	0.96		0.76	0.905	0.908	5.20	1.03
	Good relationship among people	0.714						0.620						0.857					
	Good relationship between coaches and athletes	0.808						0.857						0.874					
	Development of new friendships	0.662						0.519						0.887					
Behavioral involvement																			
Olympic Games	(a) Hours on TV											2.57	2.24					1.14	1.16
	(b) Hours on internet											1.09	1.48					0.91	1.39
	(a) + (b)											3.67	3.15					2.05	2.51
Paralympic Games	(c) Hours on TV											0.71	1.18					0.37	1.17
	(d) Hours on internet											0.37	0.71					0.54	1.54
	(c) + (d)											1.07	1.64					0.91	2.21

ull factorial invariance is difficult to achieve in cross-cultural comparisons; therefore, they propose that achieving factor loading invariance should be enough to assume partial invariance and allow structural comparisons (Cheung & Rensvold, 1999; Steenkamp & Baumgartner, 1998).

Structural models

We started testing single-group structural models. Results of SEM show that the model tested with Brazil sample C fits the data reasonably well (Table 3). No path coefficients from Olympic Games involvement to values of sport were significant. All path coefficients from Paralympic Games involvement to values of sport were significant (Figure 1, top). Results of SEM show that the model tested with the South Korea sample fits the data reasonably well (Table 3). Repeating the results found in Rio, the path coefficients from Olympic Games behavioural involvement to social recognition and equality were non-significant, while the path coefficients from Paralympic Games behavioural involvement to the same values were significant. Different from Rio's results, the coefficient from Olympic Games behavioural involvement to friendship was significant, but the coefficient from Paralympic Games behavioural involvement to friendship was not (Figure 1, bottom).

Using the nested model's approach (Bollen, 1989; Byrne, 2006), we compared the regression coefficients between the two contexts: Rio 2016 and PyeongChang 2018. Model 1 is the unconstrained model, where all single-headed arrows representing

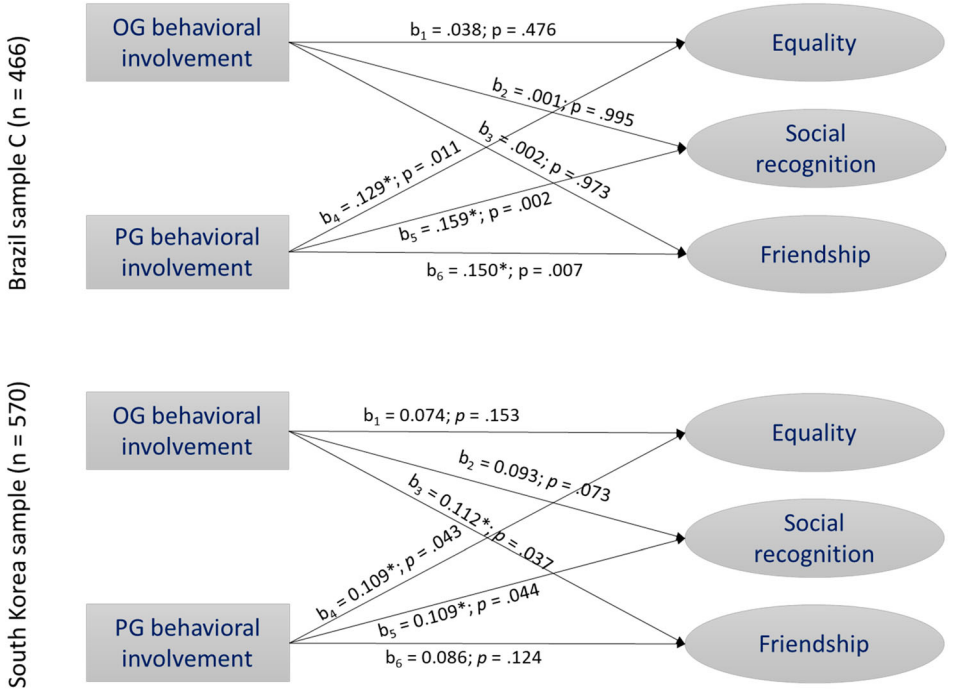

Figure 1. Effects of involvement with Rio 2016 Olympic Games (top) and with PyeongChang Winter Olympic Games (bottom) on the values of sport. *$p < 0.05$.

structural relationships (regression coefficients) in the model were freely estimated for each context. Model 2 is the constrained model, where those coefficients were forced to be equal for both contexts. Results showed that there is a significant difference ($\Delta\chi^2 = 119.44$, $\Delta df = 15$, $p < 0.001$) between the unconstrained ($\varepsilon 1 = .082$; 90% CI = .079, .086; $CFI_1 = .918$) and the constrained model ($\varepsilon 2 = .084$; 90% CI = .080, .088; $CFI_1 = .913$). We tested additional six models, relaxing the regression coefficients one by one. All models were statistically different from the unconstrained model, indicating that there is no structural invariance between the contexts of Rio 2016 and PyeongChang 2018.

Discussion

The aims of the study were (1) to describe how people associate sport with human values and (2) to analyse the relationship between media involvement with the Olympic Games and those values. We used the Paralympic Games as a point for comparison.

An initial EFA and three subsequent CFA confirm the multidimensionality of the scale, with three dimensions: equality, social recognition (admiration for respect and preparation), and friendship. These dimensions show how respondents associate human values with sport and represent the values of sport. Considering previous investigations about Olympic values, current findings represent an important addition to literature and practice. First, in our findings, social recognition replaces and integrates the individual values of excellence and respect. For example, Koenigstorfer and Preuss (2018) proposed three independent dimensions of Olympic values: achievement in competition (i.e. excellence on the field), friendly relationship with others (i.e. friendship), and appreciation of diversity. The IOC labels friendship, excellence, and respect as the Olympic values (IOC, 2014). In our study, we have not found support to consider excellence and respect as independent factors. The interdependency between preparation to attain excellence and respect matches the terminal value of social recognition proposed by Rokeach (1968), where social recognition represents admiration for respect and previous honest efforts to attain results. Therefore, a practical suggestion for the IOC to improve the promotion of sport values is to consider promoting the association between preparation to attain excellence and respect using a broader perspective. The IOC has shown some support for programmes that promote the attainment of excellence with respect (e.g. anti-doping programmes). Such programmes are usually strictly linked to the sporting excellence of elite athletes. The IOC can adopt a broader perspective and promote respect and excellence beyond sport performance. For instance, recent investigations have shown that social and environmental legacies are the least expected ones by local residents as a consequence of hosting the Olympic Games (Rocha, 2020; Rocha et al., 2017). This seems to indicate that people do not see much excellence in the Games to promote respect for social and environmental issues. This is an area where the IOC and the Olympic Games can grow to promote the association between sport and human values. Preparation to attain excellence, in a broader sense, should be associated with respect to local communities.

Second, our results indicate equality and friendship as two additional dimensions to promote the values of sport. Equality is an official Paralympic value (Chatziefstathiou, 2012). Friendship is an official Olympic value (IOC, 2014). Koenigstorfer and Preuss

(2018) have found equality (appreciation of diversity) and friendship as dimensions of Olympic values. We have not tested Olympic or Paralympic values, nor asked people to point how much a value describes an event or a movement. Rather, we have tested the association between sport and human values. This association informs the application of Rokeach's (1968) terminal values to individuals' social and professional interactions. Rokeach's terminal values inform where people want to end up or how people desire to behave. Participants of the study see the terminal values of equality and friendship as factors closely related to human values in sport interventions. People seem to indicate that they want to behave in their professional interactions involving sport in such a way to show equality and friendship. This seems to indicate that the IPC and the IOC are on the correct path when they propose equality and friendship, respectively, as values to guide their actions. However, despite the official stated values, previous research has shown that the guardians of sport mega-events have failed to use those associations to promote human values (Lenskyj, 2016; Van Rheenen, 2014). For example, Lenskyj (2016) asserted that the IOC and the IPC (because they share the hosting cities) have demonstrably failed to promote an association between sport and equality when it awards the right to host the Games to countries that systematically ignore racism, sexism, homophobia or any other form of discrimination. Van Rheenen (2014) suggested that discrimination and human rights violations have been ignored in the context of sport mega-events. This supports Milton-Smith's (2002) thesis about the increasing disparity between rhetoric and reality in the use of Olympic values.

Results of study 2, conducted in the context of Rio 2016, showed that involvement with the Olympic Games is not related to the values of sport. Higher levels of involvement with the Olympic Games via media did not represent higher perceptions of the values of sport. We discuss two possible explanations for this finding. First, based on Rokeach's (1968) hypothesis that the media reproduce the values that are present in the society, the media about the Olympic Games seem to reflect the hidden value system of their owners, placing a high value on competitiveness and supremacy and a low value on equality and participation. Broadcasting the Olympic Games in the media may have not communicated human values, indicating that the IOC has not attained the objective proposed by the by-law to rule 48 of the Olympic Charter (IOC, 2007). Therefore, people who were more involved with the Games did not differ in their perceptions of the values of sport when compared to those who are less involved. Second, the IOC may have tried to use the Games to change the status quo and promote human values, but spectators may have found the message conflicting with the facts. Millington and Darnell (2014) state that the IOC has used the media to support modernist notions of development (e.g. by promoting human values). However, they acknowledge that the use of media has become a double-edged sword for the IOC because media consumption of the Olympic Games has opened avenues for disseminating current critiques of social and human rights violations in host countries. Along with sporting and cultural events, spectators of the Olympic Games have increasingly received information about problems caused in cities that host the event (Millington & Darnell, 2014). The literature has reported cases of human right violations in the context of the Olympic Games in all recently hosted events (Horne, 2018; Lenskyj, 2016; Suzuki et al., 2018; Van Rheenen, 2014).

Still, in the context of Rio 2016, results showed that involvement with the Paralympic Games affected perceptions of the values of sport. The Paralympic Games have not yet reached the same dimension as the Olympic Games, with differences residing mainly with the commercial appeal of the events (Misener et al., 2013). While the Olympic Games have been strongly associated with economic gains (Tomlinson, 2005), the Paralympic Games may still maintain a closer relationship with human values concern. Visible differences among para-athletes may facilitate the communication of certain values. Equality may have become an explicit message of the Paralympic Games. People may still see in the Paralympic Games a certain degree of sincerity and even naivety that seems to be lost in the Olympic Games (Lenskyj, 2016; Tomlinson, 2005), mainly due to the over-commercialization of the latter (Beech & Chadwick, 2013).

Despite the advantage enjoyed by the Paralympic Games in terms of communicating the values of sport, we suggest that this advantage may disappear if they continue to become more and more commercialized. For example, the modern technology used in protheses may create Paralympic athletes who can outperform Olympic athletes (Wolbring, 2012), generating a new commodity for sport on TV. Another factor that can damage the power of the Paralympic Games to communicate the values of sport is the use of unfair methods to improve performance. These have been similar to those used by Olympic athletes (e.g. doping) and/or unique to athletes with disabilities (e.g. 'boosting')[2] (Darcy, 2012). As the public become more aware of these issues, as they are in the context of the Olympic Games, this may create problems for the event to communicate, for example, the value of social recognition. Attaining the highest level of sport performance can have an inconvenient consequence. It can tarnish the image of inspiration and inclusion under which the Paralympic Games were created (Brittain, 2009). Additionally, as in the case of the Olympic Games, the Paralympic Games should use a broader perspective to promote the values of sport, moving beyond sport performance and elite athletes.

Results showed that there was no structural invariance between the contexts of Rio 2016 and PyeongChang 2018, indicating that the magnitude of the relationship between involvement and the values of sport varies between the contexts – Rio 2016 and PyeongChang 2018. The difference in cultural contexts may explain different magnitudes (Earley, 1993; Schwartz, 1994; Ward et al., 2020). Differences in perceptions of values based on different cultures (as supported by Schwartz's (1994) and Schwartz et al. (2012) findings) can explain the different magnitudes of the relationships in our model. However, despite the lack of structural invariance, the direction of the relationships is almost the same in both contexts. For instance, in PyeongChang 2018 (as in Rio 2016), we found positive and significant relationships between behavioural involvement with Paralympic Games and values of equality and social recognition. We also found non-significant relationships between behavioural involvement with the Olympic Games and the same values. However, unlike the results from Rio 2016, in the PyeongChang 2018 study, we found a significant relationship between behavioural involvement with the Olympic Games and friendship. An explanation for this might be the widely publicized political use of the Games to create bonds of friendship between South Korea and North Korea. The most visible example was North and South Korea's participation under one flag in the women's ice hockey tournament during PyeongChang 2018 Olympic Games (Reid & Hong, 2018). Therefore, the

significant association between behavioural involvement with the Olympic Games and friendship may be a consequence of specific circumstances associated with PyeongChang 2018. Despite some criticisms about the real intentions behind that act, we should not deny that the goodwill from the South and North Korean governments might have created a favourable environment to promote values of friendship.

In both contexts, the lack of association between involvement with the Olympic Games and the other two dimensions of the values of sport – equality and social recognition – indicates an important venue for policy changes. The IOC has mainly adopted a policy of passive supporter of human values, using media and very localized programmes to promote the so-called Olympic values. They have shown little action to inform a strong commitment to promoting human values. One way to change the policy is to become an active actor in the field of human rights. This has the potential to improve commitment because positive actions toward human rights are linked to positive human values (Beetham, 1999). The IOC posture toward human rights has been very passive (Horne, 2018). To become an active supporter of human rights, the IOC can change its policy toward human rights in host cities. For instance, they can have a clear policy on how they can work with organizing committees and local governments of host cities to propose long-term, strategic initiatives to create a strong bond between the Olympic Games and human rights. A good starting point should be a clear position from the IOC regarding how host cities/countries deal with human rights (Lenskyj, 2016; Van Rheenen, 2014). The IOC cannot control the national policy of sovereign countries. However, the IOC should not turn a blind eye to clear cases of human right abuses in some countries when their cities bid for the Games (Horne, 2018; Kidd, 2010). Denying hosting rights to countries with poor history in human rights and monitoring human right abuses in previous hosts would enable the IOC to signal that they have a proactive and positive policy toward caring for human rights. This policy change has the potential to improve the association between the IOC (and the Games) and the promotion of human values.

Considering that the IOC and Olympic Movement seem to live a crisis of credibility (MacAloon, 2016), changes in policy to promote human values seem timely. A collective of presidents from four traditional National Olympic Committees proposed that the Olympic values have lost their credibility and acknowledged that it has become increasingly difficult 'to communicate the Olympic values and benefits that arise from bidding and hosting the Games' (Mennel et al., 2014, p. 6). Partially supporting their criticism, our findings indicate that the Olympic Games have not been an effective strategy to communicate the values of sport. The commodification and over-commercialization of the Games can be an explanation for this. Bayle (2016) asserts that, through the economic appeal of the Olympic Games, the IOC has definitely entered the commercial marketplace, which has led it to forget its original values and social objectives (p. 756). Bayle suggests that the Olympic Movement has developed a fragile image because the IOC has done little to question how it creates and reports values. The Olympic Games, which now has a public image of big business (MacAloon, 2016), seems an ineffective means to communicate the values of sport. Results of the current research confirm this, as involvement with Rio 2016 and PyeongChang 2018 did not lead to higher perceptions of the values of sport. Bayle (2016) proposed that, rather than over-relying on the power of the Olympic Games to communicate human values, the IOC should adopt a

more strategic approach and invest in social responsibility. While we agree that investing in social responsibility can be a good approach to communicate values, we argue that something additional is necessary regarding the image of the Olympic Games – the most visible product of the Olympic Movement. Dissociating the image of the Olympic Movement from the image of the Olympic Games (which has been called the Olympic Sports Industry by MacAloon, 2016) is not possible. Therefore, in addition to investing in social responsibility and education programmes, the IOC needs to reshape the image of the Olympic Games if they want to communicate human values associated with sport. Changing policy toward human rights, mainly in host cities/counties, can be a good start.

Limitations and future studies

We acknowledge that this investigation has some limitations. From a methodological point of view, we have not utilized a random sample in either Brazil or South Korea. Therefore, we cannot extrapolate the results of the current study to the whole target population in those countries. We tried to minimize this limitation by increasing the sample size in both locations. Future studies with larger budgets might investigate a random sample in the host city and in some non-host cities and compare results. In doing so, they should control for variables such as attendance, volunteering experience, and other types of involvement, which are more readily available for host city residents.

The use of media consumption as a surrogate measure of behavioural involvement has strengths and limitations. As a strength, media consumption seems to be the most democratic measure of behavioural involvement, because any person can be involved with the Olympic Games and Paralympic Games via media, irrespective of their location. As a limitation, media consumption might not be the only indicator of involvement. Future studies may add, for example, a measure of attitudinal involvement and additional measures to know more about how people consume the Olympic Games via media. For instance, measures of trust and sincerity of media messages may be integrated to the model.

We have investigated attitudes toward the association between human values and sport. Rokeach (1973) identifies gaps between reported values (attitudes) and actual behaviours in different contexts. This should not be different in the context of the current study. Filling the gap between reported values and actual behaviours is a challenge that remains for future studies. For example, researchers may consider the use of ethnography via participant observation to investigate actual behaviours of sport professionals and how these are related to their attitudes toward values.

The innovative way to test the association between human values and sport and the creation of the values of sport scale are important contributions to theory from the current study. Future studies may apply the conceptual framework developed in this study to investigate perceptions of the values of sport in cities and countries hosting the Olympic Games and Paralympic Games and other sport mega-events. Longitudinal studies are also an important venue for future studies. For example, controlling for the level of attitudinal and behavioural involvement with the Games, one might investigate how perceptions of values of sport vary before and after Games.

Notes

1. https://www.olympic.org/olympic-values-and-education-program/initiatives. Accessed on 20 October 2020.
2. Boosting is the term used when some athletes with spinal cord injury use different strategies (e.g. breaking toes on purpose) to increase their blood pressure and, consequently, enhance their performance. Most of them do not feel the pain because of their spinal cord injury, but the body reacts increasing the blood pressure.

Disclosure statement

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