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Assessing volunteer satisfaction at the London Olympic Games and its impact on future volunteer behaviour

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ABSTRACT

In recent years, volunteering has received strong research attention from both scholars and practitioners. For the most part, involvement in volunteer activities has been identified as an important determinant of future volunteering. Through revalidating an existing instrument, the purpose of this study was to assess the dimensions of volunteer satisfaction at the 2012 London Olympic Games and its impact on future volunteer behaviour. The findings of this study shed light on the identification of volunteer satisfaction factors in the mega sporting event setting, particularly for a unique type of volunteer (i.e. media worker) assigned to a special set of tasks. Unlike Galindo-Kuhn and Guzley's results that revealed participation efficacy and group integration to be strong predictors of volunteer satisfaction, organizational support was the primary predictor for media centre volunteers' re-participation intention towards future volunteering programmes.

KEYWORDS

Volunteer satisfaction; volunteer behaviour; mega sporting events; Volunteer Satisfaction Index (VSI); instrument revalidation

The Olympic Games are the biggest and likely most popular sporting event of the world. For the 2012 London Olympic Games, more than 10,000 athletes from more than 200 countries competed over 17 days (BBC Sport 2012). Because hosting a mega event provides numerous benefits for the host community, many cities and countries seek to host the Olympic Games. For example, almost 10 cities declared their intentions to host the 2012 Summer Olympic Games and about four or five participated in the Olympic bidding processes. The decision of the Olympic bidding process is made usually seven years prior to the Olympic Games to provide adequate time for the host city to prepare for the event (International Olympic Committee n.d.). The Olympic Games carry numerous short- and long-term legacies for the host community. Directly, the host city receives significant economic benefits through tourism, including visitor spending and job creation (Gratton, Shibli, and Coleman 2005; Gratton and Taylor 2000; Misener and Mason 2008). Other than tourism, the benefits of hosting the Olympic Games come from finance, infrastructure, and culture (Greater London Authority 2003). For example, right after London won the Olympic

bid in 2003, the British government proposed five legacy commitments: (1) sport involvement of Londoners, (2) creating new job, business, and volunteer opportunities, (3) transforming East London, (4) delivering a sustainable Games and developing sustainable communities, and (5) showcasing London as a diverse, creative, and welcoming city (Department for Culture, Media, and Sport 2008). Many of these legacies were continued even after the Games ended.

Although the most visible benefits of the Olympic Games are mainly found in the areas of architecture, urban planning, city marketing, sports infrastructure, and economic and tourist development, the importance of intangible long-term effects (e.g. production ideas, cultural values, education, popular memory, intercultural experiences, volunteerism) should not be overlooked (Crompton 2004; Gratton and Taylor 2000; International Olympic Committee n.d.). One of the most important legacies pointed out by the International Olympic Committee (IOC) is volunteerism. The successful legacy of Olympic volunteerism can be a positive attitude towards volunteering, increased rate and level of volunteer involvement, and enhanced volunteer support to host other events in the community (Doherty 2009). Volunteers play a significant role in hosting the Olympic Games and also have a great impact on the host community.

The involvement of volunteers at the Olympic Games has a long history. Volunteer organizations (e.g. Boy Scouts) started helping at Olympic Games in the early 1900s and volunteers have officially been a part of the Olympic Games since the 1948 London Games (London Organising Committee for the Olympic and Paralympic Games; LOCOG 2013). Since then, most Olympic Games have been hosted with the great support of volunteers. For example, approximately 60,000 people volunteered for the 2004 Athens Olympic Games and 100,000 volunteers were officially engaged in the 2008 Beijing Olympic Games (Beijing Organising Committee for the Olympic Games 2008). Also, 70,000 people volunteered to host the 2012 London Olympic Games. Following Doherty's (2009) calculation for the Sydney Olympic Games, volunteers in the London Games generated approximately 7 million hours of labour, which is equivalent to \$70 million for paid staff. Members of the organizing committee of the London Olympic Games named their volunteers the 'Game Makers' to reinforce and honour their contribution of time and effort to host the Games (LOCOG 2013). Also, the London Games purposely recruited more than 2000 volunteers aged 16–18 through the Young Games Maker programme (LOCOG 2013). It is likely that all these efforts were made because the organizing committee realized the importance and long-term benefits of volunteering, as stated in the legacy goal of the 2012 London Games. Major events like the Olympic Games cannot be successfully hosted without the help of volunteers (Cuskelly, Hoyer, and Auld 2006) and these major events also provide volunteers an opportunity to work for community development and leave a long-term legacy of volunteerism in the community (Doherty 2009; Downward and Ralston 2006; Lynch 2001).

Volunteer management at a mega event like the Olympic Games is a crucial part of event management. The organizing committee should investigate which parts of the event need volunteers, calculate how many volunteers are needed for each position and consider when, where and how to recruit and train volunteers and effectively manage those volunteers during the event (e.g. Gladden, McDonald, and Barr 2005; Kim, Chelladurai, and Trail 2007). The biggest challenge of volunteer management in small-scale sporting events is recruiting a huge number of volunteers for a relatively short period (Kim, Zhang, and Connaughton 2010). However, the volunteer managers of mega events like the Olympic

Games face different types of worries. Because such mega events are rarely hosted in their home communities and many people consider volunteering at such mega events as once-in-a-lifetime opportunities, numerous people want to be involved in mega events as volunteers (Bang 2011).

It is not unusual for several hundred million people from all over the world to apply to volunteer at the Olympic Games. Thus, the organizing committee must be able to handle those millions of applications, select applicants based on need, and train them to be ready for the world's biggest sporting event. The organizing committees of mega events like the Olympic Games usually invest years to recruit, screen, select, and train their official volunteers and sometimes go through multiple volunteer recruitment and selection processes for the different departments and positions of the event and the different roles for volunteers (Doherty 2009; Kim, Zhang, and Connaughton 2010; Kim 2013). For example, for the 2012 London Olympic Games, the recruitment of official Olympic volunteers began two years prior to the event. To select 70,000 volunteers (i.e. the Game Makers), the organizing committee interviewed 100,000 people from among 240,000 applicants. Those selected to become volunteers participated in at least three training sessions based on their volunteer duties. Also, many of them volunteered in the London Prepares series test events to understand and experience how mega sporting events are run (LOCOG 2013). Thus, the organizing committees of mega events need to ensure that these selected volunteers are working effectively for the success of the event and are happy about their volunteering experiences at the event. Because the major service providers at the event are volunteers, the level of volunteer services directly influences the event's success.

Furthermore, the organizing committee has no legitimate or legal power to force dissatisfied and unhappy volunteers to stay until the end of the event because volunteers do not work under a legal contract. Also, dissatisfied volunteers are not likely to engage in volunteering after the event because of their negative experiences. Specifically, to leave volunteerism as a legacy, the effective management of volunteers is critical.

The major interests of the host community of mega sporting events such as the Olympic Games include the legacies of the mega event left in the host community (e.g. Greater London Authority 2003). Recently, the intangible legacy of the Olympic Games such as volunteering has received strong attention from several researchers and practitioners (Crompton 2004; Doherty 2009; Gratton and Taylor 2000; International Olympic Committee n.d.). Involvement in volunteer activities is an important determinant of future volunteering (Hall et al. 2006). That is, to host a future event, the community or organizing committee of the mega event should rely heavily on the involvement of volunteers who possess experience of similar events and are willing to volunteer again (Doherty 2009). To leave the intangible and cultural legacy of volunteerism in the host community, the quality of volunteering experiences during the event is critical. For some volunteers, volunteering at major sporting events is their first formal volunteering experience and their positive experiences at the event can propel them to a future volunteering position at another event or in community organizations (Doherty 2009). Thus, the experiences of Olympic volunteers (i.e. volunteer satisfaction) should be carefully examined.

The reason that job satisfaction has been continually researched in the business setting is directly related to employees' turnover and retention intentions (Galindo-Kuhn and Guzley 2002; Seashore and Taber 1975; Spector 1997). Research on volunteer satisfaction has shown that volunteer satisfaction predicts volunteer retention and turnover behaviours

relatively well (Cheung, Tang, and Yan 2006; Finkelstein 2007; Omoto and Snyder 1995). The relationship between volunteer satisfaction and future volunteer behaviours can be accurately revealed by using a longitudinal research approach. However, the intention to engage in a certain behaviour is the best predictor of future behaviour (Tett and Meyer 1993), an idea that is also supported by the theory of planned behaviour (Ajzen 1991). Thus, it is worthwhile to investigate the relationship between volunteer satisfaction and volunteers' intentions to engage in future volunteer opportunities. Indeed, such researchers as MacLean and Hamm (2007) and Twynam, Farrell, and Johnston (2002) have investigated the relationship between the satisfaction of volunteers at mega sporting events and their future volunteer intentions.

Although researchers have stressed the close relationships between volunteer satisfaction and future volunteer intentions, which aspects of volunteer satisfaction matter for future volunteer intentions are not well investigated (Doherty 2009). In addition, it is rare to find research exploring the relationship between volunteer satisfaction at a mega event and future volunteer intention with a valid and reliable scale assessing different facets of volunteer satisfaction. More importantly, only a limited amount of research has dealt with volunteers with special tasks and responsibilities.

Similar to other mega sporting governing bodies, the major source of revenue for the IOC is the sale of broadcasting and media rights. For instance, NBC spent more than \$1 billion to purchase the media rights from the IOC during the 2012 London Olympic Games (Donegan 2011). Furthermore, when compared with previous Olympics, an increased number of journalists from more than 170 countries created a media presence at the 2012 London Olympics. As the 2012 Games also played an important role combining traditional media and new digital media to broadcast the Games to wider audiences across the universe (London Organising Committee of the Olympic Games and Paralympic Games 2012), a large number of paid workers and volunteers were indispensable for smooth media operations.

In most cases, people who work for media operations have numerous responsibilities and duties, including managing press boxes, coordinating interviews and news conferences, providing access to and escorting athletes and officials, creating, coordinating and organizing event information and disseminating event information to the public through diverse media channels (Pedersen et al. 2011). Due in part to their extensive responsibilities and work duties, media operation workers tend to work extra hours without additional compensation, including the volunteers who work for media operations. Considering that numerous journalists and millions of viewers across the globe relied heavily on media operations at the 2012 London Games, it is evident that media operation workers and assisting volunteers were essential for the success of the event. Therefore, to better capture the importance of media centre volunteers at the 2012 London Olympics, the purpose of this study was to assess all facets of media centre volunteers' satisfaction and their impact on future volunteerism.

Literature review

Volunteer satisfaction

Several researchers have studied volunteer satisfaction using various theories and models. Among these, social exchange theory can help us understand the essential perception of

volunteer satisfaction. The basic premise of social exchange theory is that individuals act based on a subjective cost analysis (Blau 1994; Zafirovski 2005). Volunteers in sports may make choices in their behaviours as an exchange of various opportunities such as satisfaction in personal value fulfilment, learning new things, self-confidence, and establishing career-related networks (Doherty 2009; Sherr 2008). Furthermore, the relationships between volunteer satisfaction and its outcomes (e.g. retention and turnover) can be explained through social learning theory (Miller and Wheeler 1992). Social learning theory posits that individuals and situations mutually influence each other to produce certain behaviours because people learn within social contexts (Bandura 1977). That is, a volunteer may stay or leave a job or organization based on which seems better for the volunteer (Mischel 1983). Also, based on the degree of volunteer satisfaction in the event, volunteers may return or not return for the next opportunity (Miller and Wheeler 1992).

Volunteer satisfaction has been measured from various perspectives, such as leisure satisfaction and job satisfaction. To understand how volunteers become satisfied with their volunteer duties, the job satisfaction perspective seems more appropriate and is used in most sport management and volunteer management research. Thus, volunteer satisfaction has been considered a concept similar to job satisfaction among paid employees. Job satisfaction is defined as the level of an individual's contentment with his or her job. Job satisfaction can generally be distinguished as affective job satisfaction or cognitive job satisfaction. Affective job satisfaction is the degree of positive emotion an individual possesses about the overall job, which is measured as a unidimensional construct, but cognitive job satisfaction refers to the extent of an individual's satisfaction with particular areas of the job but is usually measured as a multidimensional construct which consists of pay, benefits, working hours, and work duties (Moorman 1993). Cognitive job satisfaction is a more objective and logical approach to evaluate the various facets of a job; thus, cognitive job satisfaction is used more frequently than affective job satisfaction, including for volunteer satisfaction. Multidimensional measures have been adapted to measure volunteer satisfaction in various areas including community volunteering (Finkelstein and McIntyre 2005; Finkelstein 2007), recreation (Silverberg, Marshall, and Ellis 2001), and sporting events (Costa et al. 2006; Doherty 2009; Farrell, Johnston, and Twynam 1998; Pauline 2011).

Measuring volunteer satisfaction

For the last two decades, researchers have been interested in volunteer satisfaction at sporting events. One of the earlier studies focussing on volunteer satisfaction in mega sporting events was conducted by Farrell, Johnston, and Twynam (1998). To measure volunteer satisfaction at the Canadian Women's Curling Championships, they focussed on three areas of satisfaction: satisfaction with volunteer experiences, organization of the tournament, and tournament facilities. In this curling event, volunteers were very satisfied with their overall experience. However, the three dimensions of volunteer satisfaction were included without any theoretical background and the validity and reliability of the items to measure the three dimensions were not rigorously evaluated. Later, Costa et al. (2006) adopted four dimensions of the Job Satisfaction Scale of Wood, Chonko and Hunt (1986) in studying volunteer satisfaction and its antecedents with volunteers at the Sunbelt IndyCarnival, an annual car race in Australia. The four dimensions are satisfaction with information, satisfaction with

variety and freedom, satisfaction with ability to complete tasks, and satisfaction with pay/rewards.

Among various measures of volunteer satisfaction, Galindo-Kuhn and Guzley's (2002) Volunteer Satisfaction Index (VSI) presents good validity and reliability characteristics. According to the researchers, volunteers are different from paid employees (e.g. no pay) and the job satisfaction measures designed for paid staff may not be suitable to measure volunteer satisfaction. After reviewing various articles on paid employees and volunteer satisfaction, they proposed the VSI, which measures volunteer satisfaction in five areas: communication quality, work assignment, participation efficacy, organizational support and group integration. Communication quality refers to the nature and kind of communication between volunteers and the organization; it measures information flow, information clarity and recognition/feedback. Work assignment involves volunteer duties, specifically the fit of volunteers' skills and abilities with work assignments. Participation efficacy means that volunteers' contribution may be the expression of volunteerism and benefiting others. Organizational support involves the role of the organization to provide educational and emotional resources to volunteers from training to engagement. Educational support is related to job or organization-related training while emotional support includes creating a positive relational environment between volunteers and paid staff of the organization. The last dimension, group integration, refers to the social relationships between volunteers and other volunteers or paid staff.

Since its introduction, several researchers have adopted the VSI in their volunteer studies (e.g. Wong, Chui, and Kwok 2011; Pauline 2011). For example, Pauline (2011) measured volunteer satisfaction at a Professional Golf Association (PGA) event using the VSI. In her study, volunteers were relatively satisfied with all five areas of the VSI (i.e. participation efficacy, organizational support, group integration, work assignment and communication quality). However, Pauline did not include any rigorous validity or reliability tests except Cronbach's alpha and barely reported the means and standard deviations. Except for Pauline's study, there is no known study using the VSI to measure volunteer satisfaction at sporting events. However, when researchers have investigated volunteer satisfaction at sporting events, they have found similar dimensions with one or several VSI items and included them as facets of volunteer satisfaction. For example, Farrell, Johnston, and Twynam (1998) examined satisfaction with the organization of tournaments as sporting events at a national level, which is relevant to organizational support and the communication quality dimensions of the VSI. Also, the volunteer satisfaction dimensions used in Costa et al.'s (2006) research on volunteers at an annual car race are somewhat similar to those used in the VSI. However, the five dimensions are not exactly captured by the VSI but are included by the VSI's satisfaction with organizational support, communication quality and work assignment.

Impact of volunteer satisfaction

Job satisfaction in the paid work setting has been popularly studied for several decades (Spector 1997). The reason that numerous researchers have been interested in job satisfaction is that job satisfaction is an antecedent of such critical outcome variables as turnover and withdrawal behaviours (Galindo-Kuhn and Guzley 2002; Seashore and Taber 1975; Spector 1997). With a similar reason, volunteer satisfaction has often been researched in

the last few decades. Because the organization or event relying on volunteers possesses relatively limited resources, turnover among volunteers represents too great a burden for the remaining volunteers or paid staff to recruit and train new volunteers; thus, the idea that identifying volunteer satisfaction facets increases the possibility of predicting retention-related outcomes has received considerable attention (Galindo-Kuhn and Guzley 2002). Volunteers' satisfaction level is a predictor of time spent as volunteers, volunteer tenure at an organization, and intention to continue volunteering (Cheung, Tang, and Yan 2006; Finkelstein 2007; Omoto and Snyder 1995). Although mega sporting events are held in a short duration and experience no problem in recruiting potential volunteers, research on retention and turnover (i.e. the intention for future volunteering) as the outcome of volunteer satisfaction is critical. Dissatisfied volunteers may not stay until the event ends and may not participate in volunteering at similar events in the future. Specifically, MacLeod and Hogarth (1999) suggested that satisfaction with specific job duties was an antecedent of intention to remain as a volunteer. That is, if the event is successfully managed and volunteers are satisfied with their experiences, those satisfied volunteers can become a future volunteer group in the community (Williams, Dossa, and Tompkins 1995).

Several studies conducted on volunteers at sporting events have demonstrated the close relationship between volunteer experiences and future volunteer intentions. MacLean and Hamm (2007) found that >95% of volunteers at the 2005 Canadian Women's Open Golf Championships was willing to volunteer at other golf events and 76.4% was likely to continue volunteering in sports while 83.3% showed interest in future volunteering in general. Also, according to Twynam, Farrell, and Johnston (2002), almost a half of the volunteers at the 1998 World Junior Curling Tournament reported that their likelihood of volunteering in the future had increased. Also, Downward and Ralston (2006) investigated the post-event volunteering intentions of 2002 Commonwealth Games volunteers. One year after the event, 85% of volunteers were willing to volunteer for other major sporting events, 68% reported their volunteering interest in another major event in general and 43% showed increased interest in volunteering in general. However, these studies have not successfully shown how the quality of volunteer experiences influences future volunteer intentions (Doherty 2009). In her research on volunteers at the 2011 Canada Summer Games who experienced the costs of the event (i.e. task overload and personal inconvenience), Doherty (2009) found that contribution to the community and a positive life experience were positively related to future volunteer intentions.

Methods

Sample and procedures

The sample of this study included volunteers who worked at the 2012 London Olympic Games, particularly in the media centre. The questionnaire was administered using a convenience sampling approach via an oral intercept method. To collect the data, researchers travelled to London, United Kingdom, on game days, approached volunteers inside the venue and requested their participation in this study. Upon agreement, the researchers explained the purpose of the study and that the questionnaire would take around 10 minutes to complete. The researchers initially attempted to collect 300 surveys; however, a total of 135 useful questionnaires was collected due in part to limited site access.

Instrumentation and analytic technique

To measure volunteer satisfaction, the VSI was adapted from previous research (Galindo-Kuhn and Guzey 2002) with 22 items under four sub-dimensions: organizational support, participation efficacy, empowerment and group integration. In terms of items for intention to re-participate in a volunteer programme, five items were adopted and modified from previous studies (Jang and Feng 2007; Lam and Hsu 2006; Yoon and Uysal 2005). Demographic items and participation information followed at the end of the survey. All items were measured on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Confirmatory factor analysis (CFA) was conducted to evaluate the measurement model before testing the relationship between volunteer satisfaction and intention to re-participate in a volunteer programme with the latest version of AMOS software. The following criteria were used to assess the goodness of fit of the measurement model: chi-square statistic (χ^2), normed chi-square (χ^2/df), root mean square error of approximation (RMSEA), standardised root mean square residual (SRMR) and comparative fit index (CFI). A structural equation modelling (SEM) analysis was then conducted to test the relationship between volunteer satisfaction factors and intention to re-participate in a volunteer programme. Finally, validity and reliability estimates, including factor loadings, factor correlations, average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha, were calculated.

Results

Descriptive analyses

Demographically, most respondents were male (62%) and Caucasian (66%) and the sample was a well-educated group with >60% holding a college degree or an advanced (i.e. professional or graduate) degree. Their average income was between \$20,000 and \$60,000 with a mean age of 36.6, and most had previous experience in volunteering before participating in this event. The mean score ranges for motivation factors and intention to re-participate items were above the scale midpoint (see Table 1), indicating a strong level of satisfaction with volunteering at the 2012 London Olympic Games. In particular, the mean scores for intention to re-participate suggest that a majority of respondents were highly motivated to re-participate in future volunteering programmes (i.e. >80%).

Confirmatory factor analysis

CFA was performed to determine how well the items represented the proposed constructs. The initial hypothesized measurement model with four volunteer satisfaction sub-dimensions (i.e. organizational support, participation efficacy, empowerment and group integration) was not supported by the CFA ($\chi^2/df = 2.343$, CFI = .82, RMSEA = .100, SRMR = .073). The results also indicated very high correlations among three volunteer satisfaction factors (i.e. organizational support and empowerment with $r = .97$ and participation efficacy and empowerment with $r = .88$), implying a threat to discriminant validity. In addition, several items showed factor loadings below the .707 needed to satisfy convergent validity (Anderson and Gerbing 1988). Accordingly, the empowerment factor was removed from the subsequent

Table 1. Descriptive statistics for volunteer satisfaction factors and intention to re-participate in volunteer programme.

Factor	Item	<i>M</i>	<i>SD</i>
Organizational Support	The availability of getting help when I need it	4.15	.83
	The support network that is in place for me when I have volunteer-related problems	4.03	.88
	The way in which the organization provides me with performance feedback	3.99	1.01
	The amount of information I receive about what the organization is doing	3.98	.99
	How often the organization acknowledges the work I do	4.10	1.03
	The amount of permission I need to get to do the things I need to do on this job	4.02	.91
	The degree to which I feel I belong in the organization	4.11	.90
	The degree to which the organization communicates its goals and objectives to the volunteers	4.08	.91
Participation Efficacy	The difference that my volunteer work is making	4.15	.93
	How worthwhile my contribution is	4.10	.92
	The amount of effort I put in as equalling the amount of change I influence	4.22	.85
Group Integration	My relationship with other volunteers at the event	4.21	.80
	The friendships I have made while volunteering	4.18	.86
Re-participate Intention	I am interested in re-participating in a volunteer experience	4.23	.73
	I want to re-participate in a volunteer experience	4.26	.71
	I intend to re-participate in a volunteer experience	4.27	.78

analysis and several items with low factor loadings and high modification indices were removed to establish discriminant and convergent validity. Furthermore, as the empowerment factor was not a significant driving force for volunteer retention in the original research by Galindo-Kuhn and Guzley (2002), its removal seemed appropriate for establishing the content validity of the measure.

A follow-up CFA with sixteen items indicated an acceptable fit of the three-factor model. Although the chi-square statistic was significant ($\chi^2 = 155.214$, $p < .001$), it is sensitive in terms of the sample size and is not widely used to make a rejection or an

acceptance (Schermelleh-Engel, Moosbrugger, and Müller 2003; Vandenberg 2006). The normed chi-square ($\chi^2/df = 2.186$) fell within the suggested cut-off value of 3.0 (Bollen 1989) and the CFI value (.92) was in the acceptable range. The RMSEA value was somewhat inflated (RMSEA = .095); however, the SRMR value had a good fit (SRMR = .06; Hu and Bentler 1999).

To assess the reliability of the volunteer satisfaction factors and intention to re-participate in volunteer programmes, Cronbach's alpha scores and CR estimates were calculated. Cronbach's alpha scores for four factors were greater than the suggested cut-off value of .70 (Nunnally and Bernstein 1994), ranging from .76 (participation efficacy) to .91 (organizational support). In addition, CR estimates scored higher than the recommended cut-off value of .70 (Hair et al. 2010), ranging from .76 (participation efficacy) to .91 (organizational support), indicating that the four factors were reliable (see Table 2). After the reliability assessment, factor loadings were examined for convergent validity. As all factor loadings were significantly loaded onto each of the four factors (see Table 2), the four-factor measurement model with 16 items demonstrated convergent validity. Finally, discriminant validity was indicated by the correlations among the four factors as well

Table 2. Factor loadings, Cronbach's alpha, CR and average variance extracted values for volunteer satisfaction factors and intention to re-participate in volunteer programme.

Factor	Item	λ	α	CR	AVE
Organizational Support	The availability of getting help when I need it	.75	.91	.91	.56
	The support network that is in place for me when I have volunteer-related problems	.71			
	The way in which the organization provides me with performance feedback	.81			
	The amount of information I receive about what the organization is doing	.80			
	How often the organization acknowledges the work I do	.73			
	The amount of permission I need to get to do the things I need to do on this job	.76			
	The degree to which I feel I belong in the organization	.70			
	The degree to which the organization communicates its goals and objectives to the volunteers	.75			
Participation Efficacy	The difference that my volunteer work is making	.76	.76	.76	.51
	How worthwhile my contribution is	.64			
	The amount of effort I put in as equalling the amount of change I influence	.74			
Group Integration	My relationship with other volunteers at the event	.89	.80	.81	.68
	The friendships I have made while volunteering	.76			
Re-participate Intention	I am interested in re-participating in a volunteer experience	.83	.89	.89	.73
	I want to re-participate in a volunteer experience	.90			
	I intend to re-participate in a volunteer experience	.83			

as the AVE values. Correlations among the four factors scored less than .85, ranging from .391 to .805 (see Table 3), and the AVE values also exceeded the cut-off value of .50 (Fornell and Larcker 1981; see Table 2), indicating evidence of the discriminant validity of the measure.

Structural equation modelling analysis

After evaluating the measurement model, an SEM analysis was performed to test the relationship between volunteer satisfaction factors and intention to re-participate in a volunteer programme. The overall fit of the structural model was marginally acceptable; the chi-square statistic was significant ($\chi^2 = 222.197, p < .001$), but the normed chi-square ($\chi^2/df = 2.222$), CFI value (.90) and SRMR (.062) fell within the acceptable ranges while the RMSEA value was somewhat inflated (.095). The results of the structural relationships between two constructs (i.e. volunteer motivation and intention to re-participate in a volunteer programme) revealed notable findings. The second-order volunteer satisfaction had a significant impact on re-participation intention ($\gamma = .69$; see Figure 1). However, when the direct effects of the independent variables (i.e. organizational support, participation efficacy and group integration) were tested, organizational support was the only factor that showed a statistically significant influence on re-participation intention ($\gamma = .62$).

Discussion and implications

Given the increased popularity of the Olympic Games for various volunteering opportunities and the increased attention to provide short- and long-term legacies from the organizing

Table 3. Factor correlation matrix.

Variable	OS	PE	GI	INT
OS	1			
PE	.805 ^a	1		
GI	.510 ^a	.578 ^a	1	
INT	.672 ^a	.519 ^a	.391	1

OS: organizational support; PE: participation efficacy; GI: group integration; INT: Intention to Re-participate in volunteer programme.

^aCorrelation is significant at the .001 level (two-tailed).



Figure 1. Structural equation modelling results.

committees, understanding volunteer satisfaction is crucial for their effective management and operations. As evidenced by the historical trends of volunteerism in mega sporting events, countless people have participated in the Olympic Games as volunteers and brought tremendous economic gains to the host countries (Gratton, Shibli, and Coleman 2005; Gratton and Taylor 2000; Misener and Mason 2008). More importantly, mega sporting events also bring numerous intangible psychological benefits to various stakeholders who participate in these once-in-a-lifetime events (Crompton 2004; Doherty 2009). As the major service providers at the Olympic Games are volunteers, the level of volunteer services directly influences the event's success. Even so, serious issues arise when a volunteer is dissatisfied, unhappy, unwilling to continue or quits. From the organizing committee's standpoint, retaining volunteers is critical for effective and efficient management and operation of the prestigious and high-profile mega sporting event held over a relatively short period of time. However, the organizing committees of mega sporting events can save tremendous time and effort on rigorous volunteer management processes while providing high-quality services to participants, spectators and other stakeholders. In turn, the experiences of the Olympic volunteers should be carefully examined as their experiences are often manifested by their level of satisfaction.

The findings of this study shed light on the identification of various volunteer satisfaction factors in the mega sporting event setting, particularly for a unique type of volunteer (i.e. media worker) assigned to a special set of tasks when compared with volunteers in other settings of the Olympic Games. Although previous research has reported positive relationships between volunteer satisfaction and retention (Finkelstein 2008; MacLean and Hamm 2007; Omoto and Snyder 1995; Pauline 2011), a limited amount of research has focussed on the specific aspects of volunteer satisfaction and the different types of volunteers with special skill sets and competencies. Therefore, the results of this study provide helpful insights into better understanding a unique volunteer group's satisfaction factors within the context of a mega sporting event. In particular, the overall volunteer satisfaction factor was significantly related to re-participation intentions via the high level of satisfaction from media centre volunteers. This research finding confirms the previous volunteer satisfaction research indicating that highly satisfied volunteers are more likely to participate in other volunteering programmes in various settings (e.g. Farrell, Johnston, and Twynam 1998; Johnson et al. 2017; Pauline 2011).

On the other hand, a unique volunteer group (i.e. media centre volunteers) reported different factors that led to volunteers' level of satisfaction, which ultimately influenced their intention to re-participate in volunteering programmes. These specific-task volunteers were satisfied with organizational support from the organizing committee; indeed, Galindo-Kuhn and Guzley's (2002) original study of volunteer satisfaction revealed the importance of participation efficacy and group integration among volunteers of an international non-profit organization. Stated differently, the media centre volunteers felt most satisfied when they received sufficient educational and emotional support from the organizing committee, which in turn compelled them to participate in other volunteer programmes. In most cases, volunteers in general emphasize personal values and contribution to the success of events as well as interaction with other volunteers (Clary et al. 1998; Farrell, Johnston, and Twynam 1998; Galindo-Kuhn and Guzley 2002; Knoke and Prensky 1984); however, volunteers with unique skills and duties place more emphasis on the kind of support they receive from the organization.

Although organizational support was the only factor that influenced the media centre volunteers' future behavioural commitment, this result does not mean that other volunteer satisfaction factors are not important for volunteer retention. Considering the mean scores for participation efficacy items and group integration items as well as the correlations among the aforementioned factors and re-participation intentions, statistically significant relationships were identified. There were no causal relationships between participation efficacy and re-participation intention or between group integration and re-participation intention; however, strong correlations among factors were revealed from the analysis. In other words, there was general positivity regarding participation efficacy and group integration on future volunteering even if media centre volunteers' degree of satisfaction in contributing to the sporting event's success and making interpersonal contacts with other volunteers were not strong driving forces for re-participation in future volunteering programmes.

The results of this research present several notable theoretical and practical implications that enhance and expand the volunteer literature in the context of mega sporting events and provide useful insights that sport managers can employ. With regard to theoretical implications, the findings reinforce the general understanding and knowledge of volunteer satisfaction research. Although previous research identified a strong relationship between volunteer satisfaction and behavioural commitment (Finkelstein and McIntyre 2005; Finkelstein, 2007; Silverberg, Marshall, and Ellis 2001), this study took another step to examine mega sporting event volunteers with special duties and responsibilities. Intuitively, volunteer satisfaction has a positive impact on volunteer retention in the sporting event context (Costa et al. 2006; Doherty 2009; Farrell, Johnston, and Twynam 1998; Pauline 2011); however, this research uncovered different volunteer satisfaction factors for volunteers with unique tasks. Unlike in previous research, volunteers working for a special unit (i.e. media centre) appreciate the experiences and support they receive from the organizing committee, which in turn makes them more committed to future volunteering opportunities. Due to the differences among various types of volunteers in terms of their duties and responsibilities, researchers can take different paths to better understand volunteer satisfaction factors depending on the work-related variations.

Another remarkable theoretical implication of this study is the validation and confirmation of the VSI developed by Galindo-Kuhn and Guzley (2002). Although the empowerment factor was not validated, the psychometric properties of other factors including organizational support, participation efficacy and group integration were established based on the results. Using the VSI, researchers can further investigate and differentiate satisfaction factors among various types of volunteers depending on their work duties. As numerous volunteers with diverse tasks and responsibilities are needed for smooth event operations, including facility operation, medical operation and translators or interpreters, among others, researchers can compare the various factors that have led to volunteer satisfaction and retention among diverse volunteer groups. As stated earlier, the results show that media centre volunteers who require media operation knowledge and skills care more for educational and emotional support from the organizing committee while other volunteers are more likely to be satisfied by their contribution and personal interaction (Galindo-Kuhn and Guzley 2002; Pauline 2011). As a limited number of studies have focussed on various aspects of volunteer satisfaction, this study supports use of the VSI in the sporting event context to better understand volunteer management dynamics.

Finally, as evidenced by Vecina, Chacón, and Sueiro (2009), volunteer satisfaction involves a complex process which is multifaceted and multidimensional. The current research buttresses the idea of the multidimensionality of the volunteer satisfaction construct and provides the possibility of cross-pollinating research designs. Indeed, some research has focussed on the relationships among various volunteer-related factors such as volunteer motivation and volunteer satisfaction (Farrell, Johnston, and Twynam 1998; Johnson et al. 2017; Lee et al. 2014; Reeser et al. 2005; Vetitnev, Bobina, and Terwiel 2018), organizational commitment and satisfaction (De León and Fuertes 2007) and previous experience and satisfaction (Love, Morse, and Ruibley 2013). However, most of the research has been conducted with a focus on overall satisfaction rather than examining specific underlying aspects of volunteer satisfaction. By taking the multidimensional VSI into account for complexities of sport volunteerism, researchers can better capture the underlying dynamics of volunteer motivation, volunteer satisfaction and volunteer behaviours and develop a comprehensive research design in a unified model.

The results of this study also present some practical implications not only for organizing committees of mega sporting events like the Olympic Games and FIFA World Cup, but also for small and mid-scale sporting events in general. First, volunteer managers who are in charge of coordinating volunteer roles and duties should consider providing educational and emotional support to volunteers with special tasks and responsibilities. Unlike their counterparts, volunteers who work as a special work unit (i.e. media centre) tend to put more emphasis on the assistance and support they receive during the sporting event. Stated differently, if such volunteers are satisfied with various supports from event organizers (e.g. technical support, training, information), they are more likely to become experienced volunteers who require less effort in recruitment, management and retention for future volunteer programmes. In addition, event organizers and organizing committees should provide recognition and positive feedback during and after the event. Such reinforcing efforts, as well as having shared goals and expectations, will make volunteers more committed, which in turn will help in developing effective management strategies to maintain current volunteers and recruit potential volunteers for future events. Finally, although participation efficacy and group integration were not strong driving forces for media centre volunteers' satisfaction or their future intentions, such factors contribute to volunteers' overall satisfaction. Therefore, event organizers and organizing committees should not neglect the importance of volunteers' interpersonal relationships with other volunteers or the provision of verbal and nonverbal appraisal that makes volunteers feel important and valued.

This study has several limitations that should be acknowledged. A major limitation is the small sample size. Initially, the researchers targeted a total of 300 survey participants. However, limited access to the event site led to collecting only 135 completed surveys. In general, most researchers recommend using a minimum sample size of 200 or 5 or 10 cases per parameter (Kline 2011) to conduct a CFA and/or SEM analysis. Although some recent research has revealed the appropriateness of a small sample size when conducting a CFA or SEM (Myers, Ahn, and Jin 2011; Wolf et al. 2013), common rules of thumb for determining the appropriate number of samples still exist (Bentler and Chou 1987; Bollen 1989) for accurately calculating the parameter estimates and model fit indices. Therefore, future study should collect more data to better capture the psychometric properties of the VSI.

Another limitation of this research is the somewhat simplified model used to understand the underlying dynamics of volunteers' decision-making processes. Although the purpose of this study was solely to focus on different aspects of volunteer satisfaction factors that could lead to volunteers' future participation intentions, other intervening variables may better explain volunteers' behavioural commitment. Indeed, some previous studies have incorporated volunteer motivation and previous experience in a unified model with volunteer satisfaction as a mediating variable (Downward and Ralston 2006; Farrell, Johnston, and Twynam 1998; Reeser et al. 2005; Vetitnev, Bobina, and Terwiel 2018) and found positive relationships among such factors. However, the findings provide little clue on which aspects of volunteer satisfaction matter the most when volunteers have different motivations and diverse volunteer experience. In turn, this provides an opportunity to conduct more comprehensive research by integrating multidimensional volunteer motivation and multifaceted volunteer satisfaction factors into a unified framework with other intervening variables (e.g. previous experience, work duties, size of event).

Disclosure statement

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