SPORT MEGA-EVENT VOLUNTEERS' MOTIVATIONS
AND POSTEVENT INTENTION TO VOLUNTEER:
THE SYDNEY WORLD MASTERS GAMES, 2009

TRACEY J. DICKSON,* SIMON DARCY,† DEBORAH EDWARDS,† AND F. ANNE TERWIEL‡

*Centre for Tourism Research, University of Canberra, Canberra, ACT, Australia
†UTS Business School, University of Technology Sydney, Ultimo, NSW, Australia
‡Faculty of Adventure, Culinary Arts and Tourism, Thompson Rivers University, Kamloops, BC, Canada

Investment in mega-sport events is frequently justified on the basis that there are infrastructure and social legacies that remain after the event. This research explores the claims of a social legacy through a pre- and post-Games survey of volunteers at the Sydney World Masters Games 2009 (SWMG). Through online surveys the research explores pre-and post-volunteer motivations, postevent volunteering intentions before the Games and actual volunteer behavior after the Games. The pre-Games survey supports previous research that a desire to be involved in the event motivates people to volunteer. However, the postevent expression of motivations shifted to a more altruistic focus. The postevent volunteering intentions as indicated in the preevent survey would support the claim of a social legacy; however, this was not supported by the postevent measures of volunteering levels. The use of a pre- and postevent survey has highlighted that the timing of measures of motivations can influence responses and one may not depend on preevent intentions as an indicator of postevent behaviors.

Key words: Volunteer; Events; Motivation; Intentions; Sydney; World Masters Games

Introduction

Mega-events, with their significant public and private investment and media focus, provide a unique opportunity for host communities to benefit from legacies that remain beyond the life of the event. The wide array of legacies may include new or renewed stadia, urban redevelopment, increased sporting par- ticipation, and a social legacy of enhanced volunteer- ing. This article focuses on the latter and in particular the changes in volunteering behavior 3 months after volunteering at a mega-sport event.

Getz (2007) indicated that mega-events are of a particular size and significance that set them apart from other events and, further, may be defined as those that "are typically global in their orientation

Address correspondence to Tracey J. Dickson, Associate Professor, Centre for Tourism Research, Faculty of Business, Government and Law, University of Canberra, University Avenue, Canberra, ACT, 2617, Australia. Tel: + 61 (0)2 6201 2465; Fax: +61 (0)2 6201 5239; E-mail: Tracey.Dickson@canberra.edu.au

and require a competitive bid to 'win' them as a one-time event for a particular place" (Getz, 2008, p. 408). Many of these events are sporting events such as the Olympics, Paralympics, World Masters Games, and the Fédération Internationale de Football Association (FIFA) World Cup. Other authors refer to these same events as special sport events (L. Dwyer & Fredline, 2008) or large-scale sport events (Coalter & Taylor, 2008). In addition to aspects such as scale and a bid process, a further dimension of mega-events is the distinction between those that are multisport events, such as the Olympics and the Masters Games, versus those that are single sport events, such as world cup soccer or rugby events (Dickson, Benson, Blackman, & Terwiel, 2013).

Volunteers at Sporting Events

While it has previously been discussed that volunteers are essential for many sporting events, particularly mega-events (Allen & Shaw, 2009; Costa, Chalip, Green, & Simes, 2006; Dickson et al., 2013; Doherty, 2009; Giannoulakis, Wang, & Gray, 2008; Love, Hardin, Koo, & Morse, 2011; MacLean & Hamm, 2007; Shaw, 2009), it is only recently that volunteers have become a significant topic of study (Giannoulakis et al., 2008; Love et al., 2011; Wang, 2004). The following sections explore two areas of foci that underpin this current research: mega-event volunteer motivations, and volunteer legacies. The review will focus on sport event motivations, with a particularly emphasis on large and mega-events, as it is the authors' contention that the episodic and unique nature of mega-sport events motivate people differently from smaller events or routine sport volunteering situations, a finding supported by previous research (e.g., Dickson et al., 2013; Farrell, Johnston, & Twynam, 1998; Giannoulakis et al., 2008; Khoo & Engelhorn, 2011). Discussion of motivations in the diversity of sporting contexts, including regular volunteering situations, has been addressed extensively in other literature (e.g., Beacom, 2007; Cuskelly, Auld, Harrington, & Coleman, 2004; B. Dwyer & Yongjae, 2011; Fairley, Lee, Green, & Kim, 2013; Hur, Ko, & Valacich, 2007; Laurin, 2008; MacLean & Hamm, 2007; Won Jae & Green, 2008).

Research on Sport Event Volunteer Motivations

Previous research has explored the motivations and experiences of volunteers at sport events, including the Olympics (de Moragas, Moreno, & Puig, 2000; Fairley, Kellett, & Green, 2007; Reeser, Berg, Rhea, & Willick, 2005), other large and mega-sporting events (Farrell et al., 1998; Giannoulakis et al., 2008; Gratton & Preuss, 2008; Khoo & Engelhorn, 2007, 2011; Twynam, Farrell, & Johnston, 2002; Williams, Dossa, & Tompkins, 1995), the Manchester Commonwealth Games (Downward & Ralston, 2006; Smith & Fox, 2007), and a single study of a national Masters Games (Allen & Shaw, 2009; Shaw, 2009). Sport event volunteer motivations have been investigated using a range of instruments, such as the Special Event Volunteer Motivation Scale (Farrell et al., 1998) and the Volunteer Motivations Scale (Bang, Alexandris, & Ross, 2009), of which the most commonly used is an adaptation of the Special Event Volunteer Motivation Scale (SEVMS). This scale has been used across a range of sport event types and scales (Table 1). The original 28 items of the SEVMS drew upon human services research (Cnaan & Goldberg-Glen, 1991) and a review of event management literature (Farrell et al., 1998).

The SEVMS has been used with volunteers at a World Junior Curling championship (Twynam et al., 2002) and Special Olympic volunteers in Malaysia (Khoo & Engelhorn, 2011). It has also been adapted and used at a regional marathon event (Strigas & Newton-Jackson Jr., 2003) and later at golfing events (Love et al., 2011; MacLean & Hamm, 2007). A further adaptation of Strigas and Jackson Jr.'s (2003) "second generation" of the SEVMS has been used with Olympic volunteers (Giannoulakis et al., 2008). For the smaller scale events, the analysis of the SEVMS items highlighted a strong sense of "purposiveness," altruism, or a giving back to the community (Farrell et al., 1998; Giannoulakis et al., 2008; Khoo & Engelhorn, 2007, 2011). In contrast, for mega-events such as the Olympics there is a focus on the significance of the event itself, where being involved in the Olympics or a similar mega-event may be an end in itself, rather than event volunteering being part of an ongoing volunteering career or plan (Dickson et al., 2013; Giannoulakis et al., 2008). However Dickson et al. (2013) argue

Table 1

A Summary of Results From Research Using Adaptations of the SEVMS in Sport Events

Authors	Event (Single or Multisport)	No. of Items	Item Loading	Timing of Data Collection	n	Responses to Items	No. of Components and Labels (Variance)
Farrell et al. (1998)	Canadian Women's Curling Championships, 1996 (Single)	28	Not indicated	Not indicated	137	4.9:1	4 (49.7% of variance) Purposive (25.7%) Solidarity (10.3%) External tradition (7.5%) Commitments (6.2%)
Twynam et al. (2002)	World Junior Curling Tournament, 1998 (Single)	27	0.3	Postevent	192	7.1:1	4 (49.9% of variance) Solidarity (16.5%) Purposive (15.7%) Commitments (9.1%) External tradition (8.6%)
Khoo and Engelhorn (2007)	13th Malaysian Paralympiad, Kuala Lumpur, 2006 (Multi)	28	0.3	Pregames during orientation sessions	301	10.8:1	5 (62.4% of variance) Purposive (18.0%) Solidary (16.7%) Commitments (12.2%) Family traditions (9.3%) Use of free time (6.2%)
Giannoulakis et al. (2008)	Athens 2004 Summer Olympics (Multi)	18	0.45	2 months preevent & during event	146	8.1:1	3 (46% of variance) Olympic related (26%) Egoistic (12%) Purposive (8%)
Khoo and Engelhorn (2011)	2006 National Special Olympics, Iowa, USA (Multi)	28	0.3	Preevent or during orientation sessions	289	10.3:1	5 (57.4% of variance) Purposive (17.1%) Solidary (14.0%) Commitments (11.0%) External traditions (8.6%) Family traditions (6.7%)
Dickson et al. (2013)	Vancouver 2010 Winter Olympics & Paralympics (Multi)	36	0.5	1 month preevent	2,066	57.4:1	8 (58.3% of variance, loadings over 0.5) All about the Games (26.03%) Transactional (12.99%) Variety (6.31%) Application (5.01%) Availability (4.33%) Altruistic (3.61%) 2 excluded as less than 2 items (3.02%, 2.81%)
This research	Sydney World Masters Games 2009 (Multi)	41	0.5	Pregames: 2 days Postevent: 3 months	786 662	19.1:1 16.1:1	To be determined

that there are several limitations with volunteer motivation research. These include the variations in the instrumentation used, small sample sizes relative to the items in the motivational scales, a small number of longitudinal studies that are affected by changes in instrumentation, and, where factor analysis was applied, there were variations in the loadings applied (Dickson et al., 2013). Khoo and Englehorn (2007, 2011) are the only researchers to have used the same instrument across similar event types, albeit with one questionnaire being translated into Malay (Khoo and Englehorn, 2007).

With the limited research that has used the same or similar instrument at the same time, it is unclear as to whether motivations are stable across other dimensions. These dimensions include the wide variety of event types (mega, national, etc.), size (competitors and volunteers), and number of sports (single vs. multi), or whether motivations vary by event context and over time. There are two other areas that have yet to be explored in the sport event volunteering research. Firstly, it is not clear how the timing of data collection (e.g., preevent, during, or postevent) impacts on respondents' assessment of their motivations (Hibbert, Piacentini, & Dajani, 2003). Secondly, it is still not well understood whether event volunteering motivations reflect a sport-specific interest, such as golf; a general interest in sport; or a broader interest in volunteering generally (Love et al., 2011; MacLean & Hamm, 2007). Both commonalities and differences in these volunteer motivations have been identified as important considerations. For example, Hallmann and Harms (2012), in a study of two different major sporting events, investigated the determinants of volunteer motivations and how those motivations affected future volunteer engagement, and whether there were differences in motivation based on the type of event. They found significant differences in volunteer motivation based on the type of event as well as intrinsic factors being more important for volunteer motivation than extrinsic factors.

A Volunteer Legacy: Postvent Volunteering Intentions

There is interest in the array of desired event legacies that includes the potential social legacies of volunteering for mega-events (e.g., Dickson, Benson, & Blackman, 2011; Gratton & Preuss, 2008; Karadakis, Kaplanidou, & Karlis, 2010; Nichols & Ralston, 2012), yet there is little research that has explored volunteer legacies or provided empirical evidence for their actuality. For sport and volunteer managers mega-sport events present a unique challenge in realizing volunteer legacies (Bang, Won, & Kim, 2009; Doherty, 2009; Twynam et al., 2002; Williams et al., 1995). Also, due to the episodic nature of mega-events, the opportunity for the host community and volunteers to participate are limited. The prestige that accompanies mega-events and the opportunity to enhance a resumé may affect motivations, and legacy potential may differ from other sport events, and may even be considered ideographic.

Conducting postevent research of mega-event volunteers' behavior is notoriously difficult to achieve as mega-event organizing committees often have sunset clauses that limit access to volunteer databases. Much of the research that purports to explore the legacies of sport event volunteering actually only considers preevent or in-event intentions and their implications on future volunteering. They have not considered what is actually occurring postevent. For example, Love et al. (2011) surveyed volunteers during a PGA golf event in Madison in 2008 that, in part, investigated behavioral intentions after the event, while Doherty (2009) conducted a survey of volunteers just 1 month after the 2001 Canada Summer Games to "provide a sense of the volunteer legacy of [the] Games" (p. 200). The small study by Hallmann and Harms (2012) of single-sport event volunteers is another example, where the purpose of the study was to determine the influence of motivation on future voluntary engagement. However, the studies were conducted soon after the events were held and only asked about "intentions" to volunteer. While they found that volunteer motivation that is based on actual volunteer engagement has a significant impact on the intention to engage in future voluntary work, they did not measure actual postevent volunteering behaviors.

Finally, no research has been conducted sufficiently long after an event to demonstrate a legacy in either an increase in volunteering hours or the number of people volunteering as a result of their event experience (Dickson et al., 2013). This article provides an opportunity to address this gap in the sport event volunteer motivation literature. The

study explores the 2009 Sydney World Masters Games (SWMG) volunteers: their motivations for volunteering, their reflection on volunteering motivation, and their volunteering behaviors after the Games. With a focus on the legacy of events, the research explores intentions to increase postevent volunteering by examining volunteers' postevent behavior to see whether the preevent intentions are actualized. While this research does not address issues of consistency, instrumentation, or longitudinal research needs, it does address sample size issues as well as ensuring that item loadings support the strength of identified components.

Research Context

The SWMG was the largest participatory event held internationally in 2009 and the largest event held in Australia for that year (Mehaffey, 2009). It had a competitor base of over 26,000 as well as up to 6,000 volunteers (Sydney 2009 World Masters Games Organising Committee, 2009a). The World Masters Games is an international multisport event governed by the International Masters Games Association. The philosophy of the Games is that it is open to all sportspeople of all abilities once age criteria for sport has been met of being either over 25 or 35 years of age depending on the sport. The World Masters Games have been held approximately every 4 years since they began in Toronto, Canada in 1985. Prospective host cities bid for the right to hold the World Masters Games and enter into a contract with the International Masters Games Association (http://www.imga.ch/). The SWMG was the seventh summer World Masters Games and attracted 26,000 competitors in 28 sports held in 72 venues across western Sydney, many of which were used for the Sydney 2000 Olympic and Paralympic Games. To support event operations it was estimated that around 6,000 volunteers would be needed. Sydney met this target with some 6,300 volunteers registered, of which 5,900 were trained (Sydney 2009 World Masters Games Organising Committee, 2009b).

Research Design

The study was conducted in two stages utilizing a preevent and a postevent survey. The research design utilized an online questionnaire that incorporated a scale-based instrument with a series of quantitative and qualitative open-ended questions. The three research questions addressed by the instrument are:

1. How do motivations and reflections on motivations, after the event, of volunteers differ between pre- and post-Games?
2. What is the reality of a postevent volunteering legacy?
3. What are the variables of influence for postevent volunteering behaviors?

The first research question is investigated via a pre- and postevent survey that was analyzed using principal components analysis and a comparison of means for the pre- and postevent motivation items. The second question is addressed by exploring respondents' postevent volunteering behaviors. The final research question is addressed through analysis of the postevent survey using a binary logistic regression to identify those variables that may most influence future volunteering behaviors and thus inform event managers about recruiting and managing for legacy.

Participants

The population of the study was all registered volunteers for the SWMG. The sample frame was the database of 5,900 trained volunteers that the NSW Department of Sport and Recreation administered for the Sydney World Masters Games Organising Committee (SWMGOC). Of those registered an email invitation was sent on behalf of the authors by SWMGOC to 2,798 volunteers, being all the email addresses held by the SWMG organizing committee.

Instrument

The study used an online questionnaire hosted on www.surveymethods.com. The questionnaire explored previous volunteering experience, volunteer motivations, volunteering activity during the Games, whether volunteers sought to develop their skills as a result of their SWMG experiences, overall satisfaction with their SWMG experience, and volunteering engagement after the SWMG. Volunteer motivations were investigated via an adaptation

of the SEVMS as previously discussed (see also Dickson et al., 2013). The work of Giannoulakis et al. (2008) influenced the questionnaire design in this research, resulting in a 41-item motivation scale (see Table 4). This included four additional scale items to the ones identified in the literature review so as to incorporate the SWMG context. A 7-point scale from 1 = *strongly disagree* to 7 = *strongly agree* was used. In the preevent survey a 7-point scale from 1 = *definitely not* to 7 = *definitely will* was used to investigate the volunteers' intention/likelihood to volunteer in the future. The postevent survey replicated the motivation items and demographics of the preevent survey and sought to further understand their postevent volunteering behaviors through an 11-item intention to volunteer in common sectors scale that investigated the influence of the SWMG upon volunteering intentions.

Procedures

The research team worked closely with the SWMGOC and submitted an application for consideration to undertake research of the SMWG volunteers in May 2009. The research was approved as one of six projects for the SMWG in June 2009. The original plan was to distribute the online questionnaire to registered volunteers approximately 1 month prior to the SMWG. However, as time approached for the SWMG, further research protocols were introduced and the auspicing body was changed to the research team of the NSW Department of Sport and Recreation (DSR). A "Memorandum of Understanding" was formulated and signed between the DSR and the University of Technology, Sydney. Thus the online questionnaire was only distributed 2 days prior to the beginning of the SWMG. This considerably shortened the time for responses but was outside the control of the research team. While the original research plan was to conduct a postevent survey 12 months after the event, the timing of the distribution of the postevent survey was totally controlled by the reporting requirements of the DSR, resulting in the postevent survey being distributed just 3 months after the end of the SWMG in January 2010. The host university's Human Research Ethics Committee approved the research. The results presented here are for both surveys.

Preevent distribution was organized through SWMGOC, who sent a link to the preevent survey to 2,798 volunteers 2 days prior to the opening ceremony. There were 22 emails that bounced back, resulting in 2,776 potential responses. With the revised survey launch date, there was no further opportunity to send a reminder as once the event began any further data collection would be invalidated. There were 786 responses (604 complete and 182 partials), which is a response rate of 28% for all 786 responses, or 22% for 604 fully completed responses. The postevent survey was emailed to 2,798 volunteers by SWMGOC 3 months after the event of which 104 bounced, leaving 2,694 potential responses. The DSR did not allow a reminder email to be sent, which affected the potential response rate. The survey closed after 15 days with 662 responses (570 complete and 92 partials). This is a response rate of 25% for all 662 responses, or 21% for completed responses. These response rates are at the upper level of what may be expected from web-based surveys (Sauermann & Roach, 2013) and are of a suitable size for the analysis conducted.

Analysis

Data from the questionnaire were transferred into SPSS for analysis. Due to privacy requirements it was not possible to determine if the pre- and post-Games data sets were the same respondents; thus, to determine the appropriateness of comparing the pre- and post-Games data sets a Pearson's chi-squared analysis was conducted on age, gender, and employment status. The results indicated that there was no significant difference in the distribution of the two data sets. The analysis also included a principal components analysis (PCA) to "reduce the dimensionality of a data set consisting of a large number of interrelated variables, while retaining as much as possible of the variation present in the data set" (Joliffe, 2002, p. 1). Components with eigenvalues greater than 1 and with item loadings greater than 0.50 were retained as were items with communalities greater than 0.4. Components with three or more items without crossing loadings were retained for further discussion. Components were interpreted based on the highest loading of the items that were included. Estimates of Cronbach's

alpha were calculated to explore the internal consistency of the items.

The following analysis reflects suggestions that for factor analysis, the recommended number of responses per variables is at least 10 (Hair Jr., Black, Babin, & Anderson, 2010) with some suggesting up to 20 responses per item (Stevens, 2002). Further, while item loadings over 0.3 are acceptable (Hair Jr. et al., 2010; Tabachnick & Fidell, 2007), the preferred loading for the results to be practically significant is ±0.50 (Hair Jr. et al., 2010) with over 0.55 being considered good (Tabachnick & Fidell, 2007). Additionally, it is preferable to have at least five variables per factor (Hair Jr. et al., 2010); factors with at least three variables are acceptable, and any less and the factors may be considered unstable or weak (Costello & Osborne, 2005).

Results

Demographics

Just over half the respondents to the pre-Games survey were female (55.6%), with nearly 66% of all respondents being 51 years or older and just 8% under the age of 25 years (Table 2). Reflective of the older age of respondents, 36% were retired, with nearly 50% in some form of paid employment (casual, 7.3%; part-time 11.7%; full-time, 28.9%) (Table 2). A chi-square test for independence indicated there was a significant association between gender and both age [$\chi^2(11, n = 614), p < 0.01$] and employment situation [$\chi^2 (6, n = 615), p < 0.05$] (Table 2).

Previous Mega-Multisport Event Volunteering

Most respondents had previously volunteered in a variety of contexts (84%), with many having volunteered at previous large sporting events in Australia (52%, $n = 411$). For these 411 the most popular was the Sydney 2000 Olympics (51%), Sydney 2000 Paralympics (29%), and the Melbourne 2006 Commonwealth Games (10%). Ninety people indicated that they had volunteered for both of the Sydney 2000 events. Less than 1% had volunteered at either of the 2008 Beijing Olympics or Paralympics. Over 40% were previously involved in

Table 2
Preevent Survey Demographics

	Female (%)	Male (%)	Total (%)	Pearson Correlation (df, n)
Age group				0.006 (11, 614)
18–20	5.0	4.0	4.6	
21–25	4.7	1.1	3.1	
26–30	2.3	4.0	3.1	
31–35	3.8	2.9	3.4	
36–40	3.8	2.2	3.1	
41–45	6.4	4.8	5.7	
46–50	12.9	7.7	10.6	
51–55	12.9	10.3	11.7	
56–60	12.3	12.1	12.2	
61–65	20.2	25.0	22.3	
66–70	10.2	13.2	11.6	
>70	5.6	12.5	8.6	
Employment				0.023 (6, 615)
Full-time	27.6	30.7	28.9	
Part-time	14.1	8.8	11.7	
Casually	8.2	6.2	7.3	
Retired	30.8	41.6	35.6	
Full-time student	5.3	4.0	4.7	
Looking for employment	4.7	3.6	4.2	
Other	9.4	5.1	7.5	
Previous volunteering				0.795 (1, 617)
Yes	85.4	84.7	85.1	
No	14.6	15.3	14.9	

volunteering roles and also in some form of paid employment.

In both the pre- and postevent surveys the respondents were asked to indicate their level of agreement with a range of statements about their motivations or reasons for volunteering for the SWMG. An independent sample *t* test was conducted to investigate what if any differences existed between the means of the motivation items in the pre- and postevent surveys (Table 3). All means were higher in the postevent survey (mean difference = 0.66, range 0.04–2.17), with only two variables—*I wanted to do something worthwhile* and *I have an interest in sport*—not having significant differences in the pre- and postevent means. Whereas studies by Bang, Won et al. (2009), Coyne and Coyne Sr. (2001), and MacLean and Hamm (2007) found that an interest in sport affected volunteer motivations, Hallmann and Harms (2012) later found that interest in sport showed little influence on motivation to volunteer. It seems that having an interest in sport is not necessarily a predictor of volunteer motivation in relation to mega-sport events.

The increase in mean of 1.18 to a mean of 5.1 in *It was a chance of a life time* may indicate that as the volunteers reflected upon their experience they realized the uniqueness of the event experience, while an increase in mean of 2.17 to a mean of 5.1 for *Volunteering is a tradition in my family* may indicate volunteering has become a stronger element of respondents' lives.

Motivations: Principal Component Analysis

Preevent Survey. The suitability of the preevent data for the PCA was confirmed via a Kaiser–Meyer–Olkin value of 0.903 exceeding the recommended level of 0.6 (Kaiser, 1970, cited in Pallant, 2011) and Bartlett's Test of Sphericity reaching statistical significance ($p < 0.001$), which support the factorability of the correlation matrix (Bartlett, 1954, cited in Pallant, 2011). The analysis of the pre-Games data ($n = 517$) yielded an eight-component solution that accounted for 62.3% of the variance

(Table 4). The pattern matrix gives the unique contribution of an item.

Components 3, 4, and 7 were excluded as these may be considered unstable or weak due to having less than three items loading on these components (Costello & Osborne, 2005). The remaining five components, each with three or more items with loadings greater than 0.50, accounted for 40.9% of the variance. Internal consistency for each of the scales was examined using Cronbach's alpha (CA): levels above 0.7 are considered satisfactory, with levels about 0.8 being more preferable (Pallant, 2011). Components 1, 2, 6, and 8 were good (i.e., above 0.8), while 3, 4, 5, and 7 were questionable (0.6–0.7). No improvement in reliability was achieved by reducing the items. Some intercomponent correlations are higher than 0.3 for the five factors that are retained; thus, Oblimin rotation is the most appropriate (Pallant, 2011).

The following discussion focuses on the five retained components: 1, 2 5, 6, and 8. The first two both had strong internal reliability with CAs > 0.8; the first, entitled *It's all about the Games!,* accounted for 28.98% of the variance and emphasizes the motivation to be linked with and be part of the event. The second, *Transactional*, accounted for 9.47% of the variance and highlights a trade-off between giving of one's time in exchange for job contacts, contacts with experts in their field, new skills that may be beneficial for future employment, and the attraction of Games' rewards. Component 5, *Variety*, with a CA of only 0.67, accounting for 4.01% of the variation, indicates having more free time with which they can expand and broaden their regular activities, while component 6, *Giving back* (CA = 0.86, variance = 3.42%), provides a sense of altruism in the volunteers' motivations. The final component, *Feeling better* (CA = 0.83, variance = 2.90%), reflects the intrinsic rewards that volunteers receive through events or other volunteering situations.

While the PCA explains the variance in responses, the means listed in Table 4 enable further interpretation of the results. Only one of the retained components had a mean over 4: *Giving back*. All others had means less than 4, indicating that while the component explained the variance, the components were not the main motivators for the volunteers.

Table 3
Results of *t* Test on Motivation Item Means for Pre- and Postsurvey

	Preevent			Postevent			95% CI for Mean Diff.	*t*	*df*	Sig	Diff. in Means Post-Pre
	M	SD	*n*	M	SD	*n*					
I wanted to do something worthwhile	5.83	1.47	671	5.87	1.42	662	−0.20, 0.11	−0.54	1331.00	0.587	0.04
I have an interest in sport	5.64	1.73	665	5.70	1.63	662	−0.24, 0.12	−0.62	1325.00	0.535	0.06
I wanted to help make the SWMG a success	5.36	1.71	671	5.68	1.46	662	−0.49, −0.15	−3.67	1303.19	0.000	0.32
I am proud of Sydney and NSW	5.32	1.91	665	5.57	1.65	662	−0.44, −0.05	−2.51	1297.80	0.012	0.25
I wanted to use my skills	5.24	1.81	662	5.52	1.60	662	−0.46, −0.09	−2.96	1302.01	0.003	0.28
I believe in the principles and values of the SWMG	5.16	1.82	669	5.58	1.50	662	−0.60, −0.24	−4.63	1287.51	0.000	0.42
I wanted to put something back into the community	5.09	1.85	664	5.32	1.54	662	−0.41, −0.04	−5.31	1233.50	0.000	0.23
I wanted to give something back to Sydney and NSW	5.01	1.97	670	5.32	1.62	662	−0.51, −0.12	−3.16	1287.10	0.002	0.31
I have past experience providing similar services	4.68	2.32	64	5.12	1.98	662	−0.67, −0.21	−3.69	1292.42	0.000	0.44
I wanted to be associated with the SWMG	4.45	2.15	663	5.04	1.63	662	−0.80, −0.39	−5.68	1234.63	0.000	0.59
I wanted to gain skills that I can use in future volunteering situations	4.23	2.21	665	4.65	1.89	662	−0.64, −0.20	−3.72	1295.64	0.000	0.42
I wanted to broaden my horizons	4.17	2.09	663	4.70	1.70	662	−0.73, −0.32	−5.05	1269.48	0.000	0.53
My skills were needed	4.05	2.16	659	4.87	1.73	662	−1.04, −0.61	−7.60	1225.36	0.000	0.82
It was the chance of a lifetime	3.92	2.21	668	5.10	1.67	662	−1.39, −0.96	−10.95	1239.73	0.000	1.18
Volunteering at the SWMG would make me feel better about myself	3.91	2.11	659	4.53	1.65	662	−0.83, −0.42	−6.01	1250.65	0.000	0.62
I have more free time than I used to have	3.68	2.34	671	4.34	2.00	662	−0.90, −0.43	−5.61	1304.77	0.000	0.66
I have a passion for the Games	3.60	2.18	657	3.92	1.68	662	−0.54, −0.12	−3.06	1232.07	0.002	0.32
I wanted to vary my regular activities	3.58	2.13	663	4.46	1.79	662	−1.09, −0.66	−8.11	1285.70	0.000	0.88
I would be able to attend a SWMG event	3.19	2.18	652	4.18	1.85	662	−1.21, −0.77	−8.90	1272.54	0.000	0.99
I wanted to gain knowledge of different languages and cultures	3.17	2.11	662	3.97	1.78	662	−1.02, −0.60	−7.51	1284.34	0.000	0.80
It was an opportunity to meet elite athletes	3.11	2.11	665	4.06	1.82	662	−1.17, −0.74	−8.83	1298.44	0.000	0.95
Volunteering is a tradition in my family	2.93	2.15	653	5.10	1.67	662	−1.47, −1.04	−11.47	1265.95	0.000	2.17
I wanted to establish contacts with experts from the same field	2.44	2.04	662	3.17	2.00	662	−0.94, −0.51	−6.55	1322.00	0.000	0.73
Most people in my community volunteer	2.39	1.62	659	3.74	1.42	662	−1.52, −1.19	−16.16	1294.67	0.000	1.35
I wanted to gain skills that I can use in future paid employment	2.12	1.96	659	2.74	1.93	662	−1.56, −1.11	−11.75	1319.00	0.000	0.62
I wanted to make job contacts	1.99	1.76	659	2.72	1.88	662	−0.93, −0.54	−7.34	1314.05	0.000	0.73
I wanted gain official Games rewards (e.g. official volunteer uniforms)	1.87	1.60	662	2.71	1.82	662	−1.03, −0.66	−8.96	1300.29	0.000	0.84
I did not have anything else to do with my time	1.74	1.46	657	2.63	1.79	662	−1.07, −0.72	−9.95	1268.57	0.000	0.89

Table 4

Preevent Survey Component Structure of Motivation Items

Component (Cronbach's Alpha, % of Variance)	Mean[a] (n = 517)	SD	Pattern Matrix Load
Component 1: It's all about the Games! (0.83, 27.98%)	**3.96**		
I have a passion for the Games	3.58	2.15	0.732
I have an interest in sport	5.69	1.69	0.669
I would be able to attend a SWMG event	3.14	2.16	0.622
It was an opportunity to meet elite athletes	3.03	2.08	0.584
I wanted to be associated with the SWMG	4.37	2.13	0.517
It was the chance of a lifetime	*3.83*	*2.16*	*0.424*
I wanted to gain knowledge of different languages and cultures	*3.11*	*2.10*	*0.394*
Component 2: Transactional (0.82, 9.47%)	**2.22**		
I wanted to make job contacts	2.04	1.81	0.860
I wanted to gain skills that I can use in future paid employment	2.42	2.09	0.825
I wanted to establish contacts with experts from the same field	2.50	2.08	0.772
I wanted gain official Games rewards (e.g. official volunteer uniforms)	1.90	1.60	0.561
I wanted to gain skills that I can use in future volunteering situations	*4.22*	*2.21*	*0.297*
Component 3: Tradition (0.61, 6.71%)	**2.63**		
Volunteering is a tradition in my family	2.89	2.14	0.752
Most people in my community volunteer	2.37	1.59	0.661
I have past experience providing similar services	*4.64*	*2.33*	*0.491*
Component 4: Skills (0.65, 4.77%)	**4.65**		
My skills were needed	4.03	2.15	−0.742
I wanted to use my skills	5.26	1.77	−0.692
Component 5: Variety (0.67, 4.01%)	**3.21**		
I have more free time than I used to have	3.54	2.34	0.804
I wanted to vary my regular activities	3.55	2.10	0.698
I did not have anything else to do with my time	1.67	1.36	0.586
I wanted to broaden my horizons	*4.08*	*2.08*	*0.472*
Component 6: Giving back (0.86, 3.42%)	**5.21**		
I wanted to give something back to Sydney and NSW	4.89	1.97	0.926
I am proud of Sydney and NSW	5.20	1.92	0.917
I wanted to do something worthwhile	5.80	1.45	0.667
I wanted to put something back into the community	5.09	1.81	0.603
I believe in the principles and values of the SWMG	5.07	1.83	0.552
I wanted to help make the SWMG a success	*5.33*	*1.70*	
Component 7: I was asked (0.53, 2.99%)	**1.55**		
I was asked by a friend who is a SWMG volunteer	1.73	1.72	0.824
I was asked by a family member who is a SWMG volunteer	1.36	1.24	0.595
A friend or family member is a competitor	*2.52*	*2.26*	*0.499*
If I did not volunteer, there would be no one to carry out this volunteer work	*2.67*	*2.02*	*0.446*
Component 8: Feeling better (0.83, 2.90%)	**3.96**		
Volunteering would make me feel better about myself	3.76	2.13	−0.871
Volunteering at the SWMG would make me feel better about myself	3.85	2.09	−0.809
I wanted to feel part of the community	4.28	2.07	−0.583
I wanted to interact with others	*4.89*	*1.92*	*0.444*
I wanted to make new friends	*4.02*	*2.04*	*0.425*
Being a volunteer at the SWMG is considered prestigious	*3.03*	*1.99*	*0.384*

Extraction method: Principal component analysis. Rotation method: Oblimin with Kaiser normalization. Rotation converged in 18 iterations.
[a]Component means calculated for items loading over 0.5; italics indicate loadings <±0.5, Likert scale 1 to 7.

Postevent Survey. As with the pre-Games survey most respondents to the post-Games survey were female (55%), and 51 years or older (67%), with just 5% under the age of 25 years (Table 5). Reflective of the older age of respondents 43% were retired, with nearly 50% in some form of paid employment (casual, 6.8%; part-time, 11.9%; full-time, 29.7%) (Table 5). As with the preevent survey a chi-square test for independence indicated there was a significant association between gender and age

Table 5
Postevent Survey Demographics

	Female (%)	Male (%)	Total (%)	Pearson Correlation (df, n)
Age group				0.016 (11, 568)
18–20	3.1	1.9	2.6	
21–25	2.2	1.9	2.0	
26–30	2.2	3.4	2.7	
31–35	1.6	1.9	1.7	
36–40	3.7	2.6	3.2	
41–45	6.5	2.6	4.8	
46–50	11.5	6.4	9.2	
51–55	11.5	9.1	10.4	
56–60	13.1	9.8	11.6	
61–65	24.3	27.9	25.9	
66–70	13.4	18.9	15.9	
>70	6.9	13.6	9.9	
Employment				0.000 (7, 586)
Full-time	30.2	29.1	29.7	
Part-time	14.6	8.7	11.9	
Casually	9.0	4.2	6.8	
Retired	35.5	52.1	43.0	
Full-time student	2.8	2.3	2.6	
Looking for employment	2.2	3.0	2.6	
Other	3.1	0.8	2.0	
Previous volunteering				0.058 (1, 586)
Yes	93.1	88.7	91.1	
No	6.9	11.3	8.9	

[χ^2 (11, $n = 586$), $p < 0.05$], and gender and employment situation [χ^2 (7, $n = 586$), $p < 0.001$] (Table 5).

The same PCA criteria were applied to the postevent data to investigate the suitability of the data for the PCA. This was confirmed via a Kaiser–Meyer–Olkin value of 0.935 and Bartlett's Test of Sphericity reaching statistical significance ($p < 0.001$), which support the factorability of the correlation matrix. One item had a lower communality (asked by friend/family = 0.386), but this was retained to be consistent with the previous analysis.

The analysis of the post-Games data ($n = 662$) yielded a six-component solution that accounted for 64.0% of the variance (Table 7). All factors had more than two items loading at over 0.5. Some intercomponent correlations are higher than 0.3 for the six components; thus, Oblimin rotation is the most appropriate (Pallant, 2011). Factors 1, 2, and 6 had CAs > 0.8, factor 3 had a satisfactory level of 0.79, while factors 4 and 5 had questionable internal reliabilities.

While the PCA of the pre-Games data indicated that most variation in the data was the event itself, the post-Games recollection of the motivation has shifted to a more altruistic interpretation entitled *Giving back*, which accounted for 33% of the variance (CA = 0.91) and a mean of 5.38. *It's all about the Games!* moved from being the main component to only accounting for 3% of the variation, though with a slightly higher mean (CA = 0.85, mean = 4.05). *Transactional* remained the second component, increasing the variance to 14% (CA = 0.80, mean = 3.57). The reliability of *Skills* increased (to CA = 0.79) as did the variance explained (6.09%) and with a much higher mean (5.30), while *Tradition* (CA = 0.56, variance = 4.83%, mean = 3.57) and *Variety* (CA = −0.68, variance = 3.40%, mean = 4.50) both remained weak accounting for small amounts of the variance.

As indicated in Table 6, there is a high level of consistency of what variables loaded onto particular components, with 22 of the variables loading onto the same pre- and postevent components. Future research with the same instrument will enable further insight into whether this is unique to the SWMG, or whether it is consistent across mega-sport events, multisport or single sport events, and even event locations.

Table 6

Postevent Survey Component Structure of Motivation Items

Component (Cronbach alpha, Eigenvalue % of Variance)	Mean[a] (n = 662)	SD	Pattern Matrix Load	Loaded Onto Same Preevent Component
Component 1: Giving back (0.91, 32.55%)	**5.38**			
I wanted to give something back to Sydney and NSW	5.32	1.62	0.890	Yes
I am proud of Sydney and NSW	5.57	1.65	0.803	Yes
I wanted to do something worthwhile	5.87	1.42	0.730	Yes
I wanted to feel part of the community	4.92	1.58	0.599	
It was a chance of a lifetime	5.10	1.67	0.585	
I wanted to put something back into the community	5.32	1.54	0.566	Yes
I believe in the principles and values of the SWMG	5.58	1.50	0.560	Yes
I wanted to interact with others	5.36	1.54	0.502	
Volunteering at the SWMG would make me feel better about myself	*4.53*	*1.65*	*0.430*	
Component 2: Transactional (0.80, 13.86%)	**3.57**			
I wanted to gain skills that I can use in future paid employment	3.74	2.03	0.819	Yes
I wanted to make job contacts	2.72	1.88	0.743	Yes
I wanted to establish contacts with experts from the same field	3.17	2.00	0.737	Yes
I wanted to gain skills that I can use in future volunteering situations	4.65	1.89	0.519	Yes
I wanted gain official Games rewards (e.g., official volunteer uniforms)	*2.71*	*1.82*	*0.452*	Yes
I wanted to gain knowledge of different languages and cultures	*3.97*	*1.78*	*0.373*	
Component 3: Skills (0.79, 6.09%)	**5.30**			
I have past experience providing similar services	5.12	1.98	0.822	
I wanted to use my skills	5.52	1.60	0.786	Yes
My skills were needed	4.87	1.73	0.777	Yes
I have an interest in sport	5.70	1.63	0.505	
If I did not volunteer, there would be no one to carry out this volunteer work	*5.31*	*1.63*	*0.476*	
I wanted to help make the SWMG a success	*5.68*	*1.46*	*0.404*	
Component 4: Tradition (0.56, 4.83%)	**3.57**			
Most people in my community volunteer	3.74	1.42	0.765	Yes
Volunteering is a tradition in my family	4.19	1.80	0.678	Yes
I was asked by friend/family who is a SWMG volunteer	2.79	2.02	0.513	
Component 5: Variety (0.68, 3.40%)	**4.50**			
I wanted to vary my regular activities	4.46	1.79	0.806	Yes
I wanted to broaden my horizons	4.70	1.70	0.675	Yes
I have more free time than I used to have	4.34	2.00	0.662	Yes
I did not have anything else to do with my time	*2.63*	*1.79*	*0.475*	Yes
Component 6: It's all about the Games! (0.85, 3.27%)	**4.05**			
I have a passion for the Games	3.92	1.68	0.791	Yes
I would be able to attend a SWMG event	4.18	1.85	0.785	Yes
It was an opportunity to meet elite athletes	4.06	1.82	0.705	Yes
Being a volunteer at the SWMG is considered prestigious	4.02	1.62	0.545	
I wanted to be associated with the SWMG	*5.04*	*1.63*	*0.485*	Yes
I wanted to make new friends	*4.76*	*1.59*	*0.366*	

Extraction method: Principal component analysis. Rotation method: Oblimin with Kaiser normalization. Rotation converged in 16 iterations.
[a]Component means calculated for items loading over 0.5; italics indicate loadings <±0.5, Likert scale 1 to 7.

Intention to Volunteer in the Future

Preevent Survey. Using an 11-point Likert scale (0 = *Not at all*, 10 = *Definitely*), respondents were asked how likely it would be that they would volunteer for a World Masters Games again. The mean for the 617 who responded was 7.66 with a standard deviation of 2.68. Given that many bids for mega-

events are positioned on the expectation that there would a social legacy of increased volunteering, the respondents were asked, based on their SWMG experience, how much they would expect to volunteer in the future. Just over half (53.5%) indicated that they would volunteer on the same level, 28% planned to increase their volunteering, and 4.5% planned to stop

or decrease their volunteering. This would result in a net increase of 23.2% in people planning to increase their volunteering based on this preevent survey. Of the 172 who intended to increase their volunteering, 58% were female, 32% were retired, 27% were employed full-time, and 65% were over the age of 50 years. The older nature of the volunteer profile may impact on the availability of people to volunteer after the event and, hence, an ongoing volunteer legacy from SWMG. SWMG may have been a legacy of the Sydney 2000 Olympic and Paralympic Games.

Table 7 presents results from a backwards stepwise logistic regression that was performed to assess the impact of a number of components on the likelihood that respondents would increase their level of volunteering after the SWMG. The proposed model contained four independent variables (previous volunteering experience, age, gender, employment situation). The final model excluded age and employment situation, retaining only previous volunteering and age [χ^2 (2, $n = 603$) $= 27.27$, $p < 0.001$]. Only previous volunteering was significant. The odds ratio (OR) indicates that those with previous volunteering are less likely to plan to volunteer more in the future. At the SWMG, only 7% have no previous volunteering experience. The OR in a regression analysis compares the relative odds of an outcome occurring (in this case an increase in volunteering) given a single unit increase in the independent variables (e.g., age, gender, previous volunteering).

To explore the perceived impact of the SWMG on respondents' intention to volunteer in the future, a 7-point Likert scale was used where 1 = −3 *negative impact* and 7 = +3 *positive impact* (mean = 5.60, standard deviation = 1.492). Most respondents (71%) indicated that the SWMG would have a positive effect on their intention to volunteer in the future with nearly 40% stating that the SWMG would have a highly positive effect (+3) on their intention to volunteer (Table 8).

The expected impact of the SWMG on intention to volunteer was grouped into three groups: negative impact, no impact, and positive impact. Of the 172 who indicated that they planned to increase their volunteering, 91% believed that SWMG would have a positive impact (Table 9).

Insights From the Postevent Survey. As required by the SWMGOC, the postevent survey was conducted 3 months after the Games. Of the 586 who indicated their gender and age, 55% were female, with 56–65 year olds being the largest age group (37.5%), followed by those over 65 years (25.8%). The smallest groups were those aged 26–35 years (4.4%) and 18–25 years (4.6%). The employment situation of the postevent respondents included 43% who were retired or pensioners and a further 48% were in some form of employment: (full-time, 29.7%; part-time, 11.9%; casually, 6.8%).

Respondents were asked about their postevent volunteering. Nearly two thirds of respondents (63.5%) indicated they were volunteering less than they were prior to the SWMG, 29% were volunteering the same, and a small proportion (7.5%) indicated they

Table 7

Binary Logistic Regression Analysis: Likelihood of Respondents Increasing Their Volunteering Postevent

Variables in the Equation	B	SE	Wald	*df*	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Step 1[a]								
q16_gender	−0.142	0.191	0.553	1	0.457	0.868	0.597	1.261
q18_employ	−0.013	0.051	0.070	1	0.792	0.987	0.893	1.090
q20_age	−0.055	0.031	3.142	1	0.076	0.946	0.890	1.006
q1_prevol	−1.134	0.237	22.837	1	0.000	0.322	0.202	0.512
Constant	0.674	0.436	2.389	1	0.122	1.963		
Step 3[a]								
q20_age	−0.059	0.031	3.701	1	0.054	0.943	0.887	1.001
q1_prevol	−1.124	0.236	22.668	1	0.000	0.325	0.205	0.516
Constant	0.451	0.316	2.032	1	0.154	1.569		

[a]Variable(s) entered on step 1: q16_gender, q18_employ, q20_age, q1_prevol.

Table 8

Expected Impact of SWMG on Intention to Volunteer in the Future (Preevent Survey)

	%
−3 Negative impact	2.4
−2	1.1
−1	2.1
0: no impact	22.3
+1	12.4
+2	20.2
+3 Positive impact	39.5

were volunteering more since the SWMG (Table 10). The largest change was seen in those who had previously volunteered, with 65.7% indicating they were volunteering less. A chi-square test for independence indicated there was a significant association between previous volunteering and postevent volunteering changes [χ^2 (2, $n = 613$), $p < 0.001$].

This actual postevent volunteering is a contrast to the preevent intentions in which 28% planned to volunteer more and only 5% were planning to decrease their volunteering or stop volunteering (Table 8). These respondents were then asked if their experience of volunteering for the SWMG impacted on their current volunteering situation. The majority of respondents said their experience had no effect on whether they were volunteering the same, less, or more. However, the impact of their volunteering experience at the SWMGs on their current level of volunteering was found to be significant ($p < 0.001$). Within those who said they were volunteering more and those who were volunteering less their decision was influenced by their SWMG experience by 46% and 7%, respectively.

From the 11 contexts in which postevent respondents were planning to volunteer in the future those most likely to benefit were: major sporting events

(70.6%), sporting clubs and associations (48.3%), and festivals or events (45.0%). This may suggest that mega-event volunteers are more interested in volunteering in sporting or event contexts than they are in volunteering in areas such as museums/galleries (14.8%), religious contexts (18.3%), or environmental activities (21.0%).

Discussion and Conclusion

The findings from the pre- and postevent surveys highlight a number of points for discussion that can inform the understanding of differences between a volunteer's preevent and postevent intention to volunteer. The following sections discuss the changing perceptions of volunteers' intentions versus behavior and influences on postevent volunteering.

Changing Perceptions of Volunteer Motivation

The results of this study demonstrate a shift in the volunteers' perception of their motivation for volunteering, with a move towards a more altruistic perspective after the event, a trend seen in community development research (Hibbert et al., 2003). There may be many reasons why this occurs, such as the impact of the event experience, satisfaction of contributing to a successful event, the influence of the media, and/or the broader community's perception of the volunteers' contribution. The PCA also changed pre- and postevent with greater variance being explained by *Giving back* in the postevent analysis compared to the event-centric view of *It's all about the Games* prior to the event. While the means for most variables increased in the postevent survey, many variables consistently loaded onto the same components in both pre- and postevent surveys. Before the event, only one retained

Table 9

Intention to Volunteer in the Future and the Impact of the SWMGs (Recoded)

	Negative Impact	No Impact	Positive Impact	Total
I don't know	10 (11.5%)	23 (26.4%)	54 (62.1%)	87 (14.1%)
I do not plan to volunteer in the future	5 (62.5%)	2 (25.0%)	1 (12.5%)	8 (1.3%)
I plan to decrease my level of volunteering	3 (15.0%)	7 (35.0%)	10 (50.0%)	20 (3.2%)
I will continue at the same level as before SWMG	15 (4.5%)	91 (27.5%)	225 (68.0%)	331 (53.6%)
I plan to increase my volunteering	2 (0.6%)	13 (7.6%)	157 (91.0%)	172 (27.8%)
Count	35 (5.7%)	136 (22.0%)	447 (72.3%)	618

Table 10
Changes in Volunteering Behavior

Change in Volunteering	Previously Volunteered ($n = 559$)	No Previous Volunteering ($n = 54$)	Total ($n = 613$)
More	7.2%	11.1%	7.5%
Less	65.7%	40.7%	63.5%
Same	27.2%	48.1%	29.0%

component, *Giving back*, had a mean above 4 (5.21). After the event, with the higher means across all variables, four components had means greater than 4—*Giving back* (5.38), *Skills* (5.30)*, Variety* (4.50)*, and *It's all about the Games* (4.05)—suggesting that their volunteering experience influenced their postevent perceptions.

Previous research summarized in Table 1 demonstrates the diversity of data collection timing: before the event (Dickson et al., 2013; Giannoulakis et al., 2008; Khoo & Engelhorn, 2011); during orientation sessions (Khoo & Engelhorn, 2007, 2011); during the event (Giannoulakis et al., 2008); and in the afterglow of the event (Twynam et al., 2002). The results presented here raise the question of the validity of combining data collected at different times within the same study such as data collection during orientation sessions and during the event and whether the timing of data collection influences responses (Giannoulakis et al., 2008; Khoo & Engelhorn, 2011). Additionally, elements such as the publicity, scale and duration of the recruitment, selection, and orientation for mega-events like the Olympics and Paralympics may impact a volunteers' perception of their motivations. Thus, further research is required to continue to explore volunteers' perceptions of their motivations and how the event experience affects future motivations. For example, how would postevent motivations be influenced following an event that was deemed to be unsuccessful?

Intention Versus Behavior

This is the first research that has investigated preevent intentions and postevent volunteering behaviors, albeit only 3 months after the event. Most respondents in the preevent survey (71%) expected their SWMG experience would have a positive impact on their future volunteering, with

more than 28% believing that they would increase their volunteering in the future. This aligns with Doherty's (2009) observation that there may be a sense of a volunteering legacy just 1 month after the event, but as discussed in the above section, this may be more about the after-glow of the event than actual changes in behavior that would indicate a real volunteer legacy. However, there is little evidence to suggest that 3 months after event there was any volunteering legacy for community activities, other than those for a sport or event context.

To gain a more accurate measure of the postevent volunteering legacy, future research should be conducted later than 3 months to allow time for volunteers to plan and implement any volunteering changes. Particularly, as some may decide to take down time following an intensive period of volunteering. In concert with the demographic and motivation data, it may be possible in the future to determine if there is a particular volunteer typology that is more likely to contribute to a mega-event volunteer legacy that volunteer groups could seek to attract.

Influences on Postevent Volunteering

From the preevent data regression analysis, the model suggests that those who have no previous volunteering experience were more likely to increase their volunteering in the future, though new volunteers only represented 7% of the sample. Given this finding, bidding and host cities may want to direct resources and develop strategies to specifically build pools of "new" volunteers for the mega-event rather than attracting volunteers from their current community involvements. If existing volunteers are recruited there is a risk that the extra effort of volunteering at a mega-event may impact the volunteers' availability for their normal volunteer roles. However, the implications of recruiting inexperienced volunteers may be that additional time and money would be required to train neophyte volunteers for an event than recruiting people who already have volunteering experience.

Limitations

This research reinforced the precarious nature of doing longitudinal studies in the area of mega-event research. The research team had entered into long-term negotiations with the SWMGOC and

had an assurance from the Chief Executive Officer as to their commitment to longitudinal volunteer research on SWMG volunteers over a 3-, 12-, and 24-month follow-up. However, the ultimate governance of SWMGOC was changed to reside with the DSR. This change resulted in the research being restricted to a single follow-up 3 months after the conclusion of the SWMG.

Longitudinal research with mega-event organizing committees is also problematic due to the sunset clauses of those organizing committees with host cities. In an Australian context, the issue of longitudinal research where the researchers are working in collaboration with another entity and doing research on their volunteers has become more problematic under reinforced considerations of the *Privacy Act, 2000* [Comm]. All correspondence must go through the entity and if the entity has a sunset clause then the question of database access is critical.

Further, this research reinforced the importance of being able to match individual respondent data in pre- and postquestionnaire data. Without being able to match data, analysis is restricted to changes in total sample means of response rather than matched pair samples that would allow a determination of changes for each individual rather than volunteers as a group. However, there are significant constraints under privacy legislation and with other novel techniques for including unique respondent identifiers.

A Framework for Future Research: The Mega-Sport Event Typology

This research points to potential differences in expressed motivations of volunteers in mega-sport events. This may be a result of timing, as discovered here, whether it is a multisport or single sport event, as discussed earlier, and/or whether there may be differences in event "type." To provide a more detailed framework for future research in mega-sport events, the authors propose categorizing multisport and single sport events as either Tier 1 and Tier 2 mega-sport events as discussed by Dickson et al. (2013) (Table 11).

Using similar instrumentation and appropriate standards in the PCA, future research could explore what if any differences exist between multisport and single sport events as well as Tier 1 and Tier 2 events. For example, is the event itself a greater draw for the Olympics and Paralympics (e.g., Dickson et al., 2013; Giannoulakis et al. 2008) compared to the purposive motivations seen by Khoo and Engelhorn (2007, 2011) in events such as the Special Olympics?

Conclusion and Implications for Practice

This research adds to the growing focus of research into the motivations of mega-multisport event volunteers by conducting research that i) has a robust ratio of responses to variables, ii) uses loadings >±0.50, and iii) eliminates components with less than three variables that may be weak or unstable. While this study sought to investigate the actual legacy of volunteering at the SWMG 2009, the effectiveness was limited by the timing of data collection due to decisions made by the organizing committee.

The data indicate that volunteers at the SWMG 2009 were typically female, older, and either retired or in paid work, and with many involved in volunteering prior to the event. That many volunteers are in paid employment and already volunteering may

Table 11

A Multitiered Typology of Mega-Sport Events: Tier 1, Tier, 2, Single, and Multisport

Magnitude	Single Sport (e.g., Involving Sports Under a Single International Sporting Organization	Multisport (e.g., Involving Sports Under a Range of International Sport Organizations
Tier 1	FIFA World Cup Rugby World Cup Tour de France	Olympics Commonwealth Games Paralympics
Tier 2	FINA World Swimming Championships Curling World Championships ITU Triathlon World Championships ISAF Sailing World Championships FIFA Women's World Cup	World Masters Games World Police and Fire Games Gay Games University Games Special Olympics

affect any postevent volunteering levels as they may not have additional time to volunteer more. What has been demonstrated is that the timing of motivation measurements (pre- or postevent) can have a significant effect on the reported motivation of volunteers. Additionally, it has been demonstrated that for the SWMG 2009, the preevent measure of their intentions to volunteer after the event is not reflected in their postevent behaviors 3 months after the event. We encourage other researchers to undertake longitudinal studies to replicate this study and provide other contexts for examining this work. Research is needed to determine whether it is possible to develop one sport event volunteer motivation scale that is usable across the range of sport event types.

For the sport or events manager, this study raised a number of significant issues that affect sport event practice. SWMG has a series of complex organizational relationships, networks, and stakeholder groups that need to be clearly understood within the context of event and volunteer management. Within nation and city-states that globally bid for and host sport events, different governance structures are used that affect the ability of researchers to investigate issues involving volunteer management. First and foremost, sport event organizations' charters are focused on delivering the event and not evaluating or researching the event. The sport event organization develops its own culture and operational procedures that interpret and implement the event owner's charter (in this case the International Masters Games Association). Even where event owners have very specific inclusions for evaluation and research (e.g., International Olympic Committee and International Paralympic Committee) these are rarely implemented by the sport event organizing committee. Yet, evaluation and research of volunteer experiences within mega-sport event contexts are incredibly important to understanding the phenomena and the implications that it may or may not have for local, regional, or national sport organizations in the geographic location in which the sport event is being held.

References

Allen, J. B., & Shaw, S. (2009). "Everyone rolls up their sleeves and mucks in": Exploring volunteers' motivation and experiences of the motivational climate of a sporting event. *Sport Management Review*, 12(2), 79–90.

Bang, H., Alexandris, K., & Ross, S. D. (2009). Validation of the revised Volunteer Motivations Scale for International Sporting Events (VMS-ISE) at the Athens 2004 Olympic Games. *Event Management*, 12(3–4), 119–131. doi: 10.3727/152599509789659759

Bang, H., Won, D., & Kim, Y. (2009). Motivations, commitment, and intentions to continue volunteering for sporting events. *Event Management*, 13(2), 69–81.

Beacom, A. (2007). A question of motives: Reciprocity, sport and development assistance. *European Sport Management Quarterly*, 7(1), 81–107. doi: 10.1080/1618474070 1270386

Cnaan, R. A., & Goldberg-Glen, R. S. (1991). Measuring motivation to volunteer in human services. *The Journal of Applied Behavioral Science*, 27(3), 269–284. doi: 10.1177/0021886391273003

Coalter, F., & Taylor, J. (2008). *Large scale sports events: Event impact framework.* Retrieved from https://dspace.stir.ac.uk/bitstream/1893/1942/1/Large%20Scale%20 Sports%20Events%20-%20v2.pdf

Costa, C. A., Chalip, L., Green, B. C., & Simes, C. (2006). Reconsidering the role of training in event volunteers' satisfaction. *Sport Management Review*, 9(2), 165–182.

Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation*, 10(7). Retrieved from http://pareonline.net/getvn.asp?v=10&n=7

Coyne, B. S., & Coyne Sr., E. J. (2001). Getting, keeping and caring for unpaid volunteers for professional golf tournament events. *Human Resource Development International*, 4, 199–216.

Cuskelly, G., Auld, C., Harrington, M., & Coleman, D. (2004). Prediciting the behavioral dependability of sport event volunteers. *Event Management*, 9, 73–89.

de Moragas, M., Moreno, A. B., & Puig, N. (2000). Conclusions and recommendations: International symposium on volunteers, global society and the Olympic movement. In M. de Moragas, A. B. Moreno, & N. Puig (Eds.), *Volunteers, global society and the Olympic Movement: International symposium Lausanne*, 1999 (pp. 355–358). Lausanne: International Olympic Committee.

Dickson, T. J., Benson, A. M., & Blackman, D. A. (2011). Developing a framework for evaluating Olympic and Paralympic legacies. *Journal of Sport and Tourism*, 16(4), 285–302.

Dickson, T. J., Benson, A. M., Blackman, D. A., & Terwiel, F. A. (2013). It's all about the Games! 2010 Vancouver Olympic and Paralympic Winter Games volunteers. *Event Management*, 17(1), 77–92. doi: 10.3727/1525995 13x13623342048220

Doherty, A. J. (2009). The volunteer legacy of a major sport event. *Journal of Policy Research in Tourism, Leisure and Events*, 1(3), 185–207.

Downward, P. M., & Ralston, R. (2006). The sports development potential of sports event volunteering: Insights from the XVII Manchester Commonwealth Games. *European Sport Management Quarterly*, 6(4), 333–351.

Dwyer, B., & Yongjae, K. (2011). For love or money: Developing and validating a motivational scale for fantasy football participation. *Journal of Sport Management*, *25*(1), 70–83.

Dwyer, L., & Fredline, L. (2008). Special sport events—Part I. *Journal of Sport Management*, *22*(4), 385–391.

Fairley, S., Kellett, P., & Green, B. C. (2007). Volunteering abroad: Motives for travel to volunteer at the Athens Olympic Games. *Journal of Sport Management*, *21*(1), 41–57.

Fairley, S., Lee, Y., Green, B. C., & Kim, M. L. (2013). Considering cultural influences in volunteer satisfaction and commitment. *Event Management, 17*(4), 337–348. doi: 10.3727/152599513X13728763846492

Farrell, J. M., Johnston, M. E., & Twynam, G. D. (1998). Volunteer motivation, satisfaction, and management at an elite sporting competition. *Journal of Sport Management*, *12*(4), 288–300.

Getz, D. (2007). *Event studies: Theory, research and policy for planned events*. New York: Butterworth-Heinemann.

Getz, D. (2008). Event tourism: Definition, evolution, and research. *Tourism Management*, *29*(3), 403–428.

Giannoulakis, C., Wang, C.-H., & Gray, D. (2008). Measuring volunteer motivation in mega-sporting events. *Event Management, 11*(4), 191–200.

Gratton, C., & Preuss, H. (2008). Maximizing Olympic impacts by building up legacies. *International Journal of the History of Sport, 25*(14), 1922–1938.

Hair Jr., J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Pearson.

Hallmann, K., & Harms, G. (2012). Determinants of volunteer motivation and their impact on future voluntary engagement: A comparison of volunteer's motivation at sport events in equestrian and handball. *International Journal of Event and Festival Management*, *3*(3), 272–291. doi: 10.1108/17582951211262701

Hibbert, S., Piacentini, M., & Dajani, H. A. (2003). Understanding volunteer motivation for participation in a community-based food cooperative. *International Journal of Nonprofit and Voluntary Sector Marketing, 8*(1), 30–42. doi: 10.1002/nvsm.199

Hur, Y., Ko, Y. J., & Valacich, J. (2007). Motivation and concerns for online sport consumption. *Journal of Sport Management*, *21*(4), 521–539.

Joliffe, I. T. (2002). *Principal component analysis* (2nd ed.). New York: Springer.

Karadakis, K., Kaplanidou, K., & Karlis, G. (2010). Event leveraging of mega sport events: A SWOT analysis approach. *International Journal of Event and Festival Management*, *1*(3), 170–185. doi: 10.1108/17852951011077998

Khoo, S., & Engelhorn, R. (2007). Volunteer motivations for the Malaysian Paralympiad. *Tourism and Hospitality Planning & Development*, *4*(3), 159–167.

Khoo, S., & Engelhorn, R. (2011). Volunteer motivations at a national Special Olympics event. *Adapted Physical Activity Quarterly*, *28*(1), 27–39.

Laurin, R. (2008). Effects of a personal goal management program on school and football self-determination motivation and satisfaction of newcomers within a football training centre. *European Sport Management Quarterly*, *8*(1), 83–99.

Love, A., Hardin, R. L., Koo, G.-Y., & Morse, A. (2011). Effects of motives on satisfaction and behavioral intentions of volunteers at a PGA tour event. *International Journal of Sport Management*, *12*(1), 86–101.

MacLean, J., & Hamm, S. (2007). Motivation, commitment, and intentions of volunteers at a large Canadian sporting event. *Leisure/Loisir: Journal of the Canadian Association for Leisure Studies*, *31*(2), 523–556.

Mehaffey, J. (2009, January 14). Scenarios—major sports events in 2009. *Reuters (US edition)*. Retrieved from http://www.reuters.com/article/2009/01/15/sport-idUSLC32932320090115

Nichols, G., & Ralston, R. (2012). Lessons from the volunteering legacy of the 2002 Commonwealth Games. *Urban Studies*, *49*(1), 169–184. doi: 10.1177/0042098010397400

Pallant, J. (2011). *SPSS survival manual* (4th ed.). Crows Nest, NSW: Allen and Unwin.

Reeser, J. C., Berg, R. L., Rhea, D., & Willick, S. E. (2005). Motivation and satisfaction among polyclinic volunteers at the 2002 Winter Olympic and Paralympic Games. *British Journal of Sports Medicine*, *39*(4), e20. doi: 10.1136/bjsm.2004.015438

Sauermann, H., & Roach, M. (2013). Increasing web survey response rates in innovation research: An experimental study of static and dynamic contact design features. *Research Policy*, *42*(1), 273–286. doi: http://dx.doi.org/10.1016/j.respol.2012.05.003

Shaw, S. (2009). "It was all 'smile for Dunedin!' ": Event volunteer experiences at the 2006 New Zealand Masters Games. *Sport Management Review*, *12*(1), 26–33.

Smith, A., & Fox, T. (2007). From 'event-led' to 'event-themed' regeneration: The 2002 Commonwealth Games legacy programme. *Urban Studies, 44*(5–6), 1125–1143. doi: 10.1080/00420980701256039

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Lawrence Erlbaum.

Strigas, A. D., & Newton-Jackson Jr., E. (2003). Motivating volunteers to serve and succeed: design and results of a pilot study that explores demographics and motivational factors in sport vounteerism. *International Sports Journal*, *7*(1), 111–123.

Sydney 2009 World Masters Games Organising Committee. (2009a). *Sydney on track to host biggest World Masters Games ever*. Retrieved from http://advance.org/articles/sydney-on-track-to-host-the-biggest-ever-world-masters-games/

Sydney 2009 World Masters Games Organising Committee. (2009b). *Volunteer training manual*. Sydney: Author.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* 5th ed.). Boston: Pearson.

Twynam, G. D., Farrell, J. M., & Johnston, M. E. (2002). Leisure and volunteer motivation at a special sporting

event. *Leisure/Loisir: Journal of the Canadian Association for Leisure Studies, 27*(3/4), 363–377.

Wang, P. Z. (2004). Assessing motivations for sports volunteerism. *Advances in Consumer Research, 31*, 420–425.

Williams, P. W., Dossa, K. B., & Tompkins, L. (1995). Volunteerism and special event management: A case study of Whistler's Men's World Cup of Skiing. *Festival Management & Event Tourism, 3,* 83–95.

Won Jae, S., & Green, B. C. (2008). Development of the motivation scale for sport online consumption. *Journal of Sport Management, 22*(1), 82–109.