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The Olympic Games and raising sport participation: a systematic review of evidence and an interrogation of policy for a demonstration effect

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Research questions: Can a demonstration effect, whereby people are inspired by elite sport, sports people and events to actively participate themselves, be harnessed from an Olympic Games to influence sport participation? Did London 2012 sport participation legacy policy draw on evidence about a demonstration effect, and was a legacy delivered?
Research methods: A worldwide systematic review of English language evidence returned 1778 sources iteratively reduced by the author panel, on advice from an international review panel to 21 included sources that were quality appraised and synthesised narratively. The evidence was used to examine the influence of a demonstration effect on sport participation engagement and to interrogate sport participation legacy policy for London 2012.
Results and findings: There is no evidence for an inherent demonstration effect, but a potential demonstration effect, properly leveraged, may deliver increases in sport participation frequency and re-engage lapsed participants. Despite setting out to use London 2012 to raise sport participation, successive UK Governments' policy failures to harness the potential influence of a demonstration effect on demand resulted in failure to deliver increased participation.
Implications: If the primary justification for hosting an Olympic Games is the potential impact on sport participation, the Games are a bad investment. However, the Games can have specific impacts on sport participation frequency and re-engagement, and if these are desirable for host societies, are properly leveraged by hosts, and are one among a number of reasons for hosting the Games, then the Games may be a justifiable investment in sport participation terms.

Keywords: Olympic and Paralympic Games; inspiring participation; sport participation investment; sport policy; evidence-based policy

Introduction

In 2008 at the commencement of London's Olympiad (four years preceding the London 2012 Olympic and Paralympic Games), Lord Sebastian Coe, former double Olympic gold

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medallist and the Chair of the London Organising Committee for the Olympic Games (LOCOG), stated that:

> in the run-up to the 2012 Olympics there will be no better opportunity in my lifetime to drive sport legacy. In terms of boosting participation in sport in this country the red carpet has been rolled out with a gilt edge attached. (Coe, 2008a, p. 3)

Coe's belief was also held by Tessa Jowell (2008), at the time the UK Government minister responsible for the Olympic Games (Department for Culture, Media and Sport [DCMS], 2008), Boris Johnson, the Mayor of London (*The Guardian*, 2008a) and innumerable other politicians and public servants seeking to demonstrate that the investment that UK taxpayers were making in the 2012 Olympic and Paralympic Games could be justified across a number of policy sectors. However, some critiques (e.g., Coalter, 2007; Murphy & Bauman, 2007) suggested that this 'belief' might more accurately be described as a 'political position' derived from a political need to demonstrate positive outcomes from the Games. This critical view was reinforced by the widely quoted assertion that no previous Games had raised participation in sport (Conn, 2008; House of Commons Select Committee, 2007).

The assertion that no previous Games had raised participation was not quite true on two fronts. First, it was true only that there had been no evidence collected or collated that any previous Games had raised participation (the absence of evidence does not necessarily imply that participation has not been raised), although there was to a certain extent an 'illusion' of a research base. Two Health Impact Assessments, in London (London Health Commission and London Development Agency, 2004) and the North East of England (North East Public Health Observatory, 2006), of the health-related potential of the 2012 Games were presented in such a way as to suggest that there was some relevant evidence. However, each of these reports was largely based on the opinions of health experts at round tables and workshops rather than any empirical evidence base. Consequently their conclusions were prefaced by statements such as 'hosting the Games is thought to…' (London Health Commission and London Development Agency, 2004, p. 103) or the Games '*could* result in increased interest in sports' (p. 8) and 'could have a health benefit for the North East' (North East Public Health Observatory, 2006, p. ii). Similarly, Coalter's (2004) contribution to the joint Institute for Public Policy Research and Demos publication, 'After the Gold Rush' was a discussion of intents, potential models and possibilities as, again, there was no evidence base. In fairness, Coalter (2004) recognised this and concluded that potential positive outcomes for sport participation are likely to be the result of 'complex and not well understood interactions' (p. 108). This reinforced Murphy and Bauman's (2007) conclusions that the 'health potential of major sporting and physical activity events is often cited, but evidence for public health benefit is lacking' (p. 193).

Second, no previous Games had employed strategies towards raising sport participation. While the trend in conducting assessments or evaluations of sport events in general, and the Olympic and Paralympic Games in particular, was and continues to be to move beyond a straightforward focus on impacts to consider opportunities that can be 'leveraged' (Chalip, 2004; Chalip & Leyns, 2002), sport participation had not been specifically leveraged by any previous Games. A leveraging approach has a strategic and tactical focus: the objective is to identify the strategies and tactics that can be implemented prior to and during an event in order to generate particular outcomes. Consequently, leveraging implies a much more pro-active approach to capitalising on

opportunities (thus focussing on processes) rather than impacts research which simply measures outcomes. While there had been some attempts to retrospectively measure the impacts of Olympic Games and some other sport events on sport participation levels (e.g., Sport England, 2004; Veal, 2003), there had been no attempts to leverage such participation as much of the leveraging focus had been on generating economic outcomes (Weed, 2006, 2009). It appears to have partly been the lack of attempts to leverage sport participation that contributed to the lack of evidence mentioned in the previous paragraph, as it makes no sense to try to measure an outcome that no effort is being made to generate.

However, despite there having been no collection, collation and analysis of available evidence, the UK government and LOCOG still constructed a primary narrative for the legacy of the London 2012 Games that focused on delivering sport participation outcomes (Coe, 2005; DCMS, 2008). As such, London 2012 became the first Olympic and Paralympic Games to explicitly and pro-actively set out to use the Games to deliver increases in sport participation levels (Weed, 2012), but did so based on a belief rooted in intuition and anecdote that critics argued was driven, at least in part, by the need to develop a political position that allowed positive outcomes to be claimed from the Games (Coalter, 2007; Conn, 2008; Weed, 2012). Furthermore, the process by which it was believed that such participation could be generated, a 'demonstration effect' whereby people are inspired by elite sport, sports people[1] or sport events to actively participate themselves,[2] was still a contested phenomenon. It is therefore the aim of this paper to unpack the demonstration effect, examining the processes by which it may work and the outcomes it may generate. First, the literature review discusses the impact of belief in a demonstration effect upon sport participation policy around the world, before examining the processes by which people engage in participation in sport and physical activity to provide a context to understand what parts of such processes a demonstration effect might influence. Second, following a discussion of systematic review methods, the results section presents specific evidence relating to the nature and influence of a demonstration effect from a worldwide systematic review of English language evidence from previous Olympic Games, sport events and franchises.[3] Third, the discussion section explores the extent to which the four year London 2012 Olympiad, as the first to explicitly and proactively attempt to raise sport participation levels, provides a clear and concise test of what previous evidence suggests about the influence of a demonstration effect. Finally, conclusions are offered about the best evidence relating to the influence of a demonstration effect to inform future sport participation policies associated with the Olympic and Paralympic Games.

Literature review

Policy belief in a demonstration effect

Political and policy-making thinking in relation to the potential sport legacies of the Olympic Games and other major events appears to be largely derived from an intuitive belief, anecdotally supported by sport administrators, that watching or experiencing elite sport performances or events inspires people to actively participate in sport themselves (Hindson, Gidlow, & Peebles, 1994; Hogan & Norton, 2000). Illustrative of the view of many of those in leadership positions in both sport and in politics was the comment of former UK Minister for Sport and Chair of the British Olympic Association during London 2012's Olympiad, Colin Moynihan, that 'London 2012 will motivate a whole generation of young people as they seek to emulate their Team GB heroes both on and off the sporting field' (LOCOG, 2007, para. 15).

There is evidence that a belief in the demonstration effect has underpinned sport development (and sport funding) policy in a number of countries for decades. Hogan and Norton (2000), examining sport policy and funding in the context of the Sydney 2000 Olympic and Paralympic Games, noted that the direction of central government funding strategies and the belief in the effect of successive Australian Sport Ministers, the Confederation of Australian Sport and the co-ordinator of sport science at the Australian Institute of Sport, provided evidence that the dominant view in Australian sport was that: 'These champions and potential champions provide an important inspiration for others to "have a go". As well, greater participation will lead to a healthier Australian Community' (Australian Senator and Minister for Sport, Graham Richardson, cited in McKay, 1991, p. 81).

This political belief in a demonstration effect is not limited to Australia. In New Zealand, the Chief Executive of the Hillary Commission for Sport claimed that 'the performance of New Zealand's athletes have clear flow through to national esteem and increased sports participation' (cited in Hindson et al., 1994, p. 17). In the USA, the report of the Surgeon General also made specific reference to the Olympic Games, stating:

> Although participants in the modern Olympic Games no longer compete with the Gods, today's athletes inspire others to be physically active and to realise their potential – an inspiration as important for modern peoples as it was for the ancient Greeks. (US Surgeon General, 1996, p. 12)

Gratton and Taylor (2000), Green and Houlihan (2005) and Houlihan and White (2002) have all discussed the 'demonstration effect'. Houlihan and White (2002, p. 67) noted that it has been the 'conventional rationalisation' of an emphasis on elite sport development over a number of years in the UK, but suggested that justifying elite funding on these grounds is 'dubious'. Notwithstanding this view, Lord Coe's belief in the potential of the London 2012 Olympic and Paralympic Games to raise sport participation was undoubtedly underpinned by the demonstration effect:

> I've always felt the primary purpose of a medal is that it signifies a big British moment – and big British moments in sport have to have a conversion rate. For the Chris Hoys [Olympic cycling Gold medallist at the Beijing Games] of this world, and our rowers and swimmers, the real challenge for our governing bodies and for sport more broadly is, how many people can you get into the sport off the back of that great moment? (Coe, 2008b, para. 18)

Gratton and Taylor's (2000, p. 113) view was in line with Coe's, as they suggested that:

> there is a 'demonstration effect' which will almost certainly beneficially affect the number of people participating in sport, their frequency of participation and/or possibly the number of years they participate.

However, none of these perspectives are underpinned by empirical evidence but, as noted earlier, by intuition and in some cases anecdote and, in Coe's case, appears to be driven by a political desire to demonstrate positive outcomes. Gratton and Taylor (2000) hint at this lack of evidence as they went on to qualify their view, and noted that the processes by which a demonstration effect may work are not clear, particularly the respective influence of performances (success) versus the mere existence of events, and whether the

effect is linked to specific individuals or teams that are meaningful to those in whom participation is thought to be triggered.

Processes of engagement with sport and physical activity

This section provides a brief review of the processes by which people are understood to engage with participation in sport and physical activity to provide a context to understand what parts of such processes a demonstration effect might influence. Foster, Hillsdon, Cavill, Allender, and Cowburn's (2005) report, 'Understanding Participation in Sport', for Sport England identified four main theories of behaviour change from their systematic review of quantitative (15 studies) and qualitative (24 studies) research examining attitudes to sport and physical activity and reasons for participation conducted in the UK since 1990. These theories were: the theory of reasoned action (Fishbein & Azjen, 1975), the theory of planned behaviour (Ajzen, 1985), social cognitive theory (Bandura, 1986) and the transtheoretical model (TTM) (Prochaska, DiClemente, & Norcross, 1992). The first two of these, the theory of reasoned action and the theory of planned behaviour, focus on behavioural intentions, social factors and (in the latter case) perceived behavioural control, whilst social cognitive theory focuses on the interacting reciprocal relationships between behavioural, personal and environmental factors. There are some similarities and many differences between these three models, but one aspect they have in common is that they each refer to 'participation' in sport and exercise rather than 'engagement', and participation is seen as an either/or variable – that is, people are either participating or they are not. In this respect, therefore, participation is regarded as an outcome.

The fourth of the models identified by Foster et al. (2005) was the TTM, which focuses on engagement rather than participation, and regards such engagement as a process (specifically a series of stages) rather than an outcome. As Foster et al. (2005) noted, this model had received widespread support among practitioners at the time of their report, and its currency in the sport sector in the UK has been further enhanced since by the publication of Foster et al.'s (2005) review. In addition to the TTM, two other similar models examining engagement with sport as a process exist. However, Foster et al.'s (2005) review, which focussed on UK studies, did not pick these up as they have largely emerged in a North American context and, in one case, have only more recently been applied to sport participation. These models, the Exercise Adoption Model (EAM) (Brooks, Lindenfeld, & Chovanec, 1996) and the Psychological Continuum Model (PCM; Beaton & Funk, 2008; Funk & James, 2001) also outline a staged process of engagement with sport and exercise, and are illustrated alongside the TTM in Figure 1.

None of these three models were originally developed in an active sport and exercise participation context. The TTM was initially developed in relation to the treatment of smoking addiction (Prochaska, 1979) and later widely applied to sport and exercise (Marshall & Biddle, 2001); the EAM has its theoretical basis in the diffusion of innovations literature in marketing (Robertson, 1971; Rogers & Shoemaker, 1971); and the PCM was developed in relation to sport spectators (Funk & James, 2001), but has been more recently applied to sport and physical activity participation (Beaton & Funk, 2008). In terms of providing a background against which to examine the influence of the demonstration effect on sport participation the fine details of these models are not particularly important; however, there are two features worthy of note. First, they each describe initial stages or processes that relate to changes in attitude, intention and

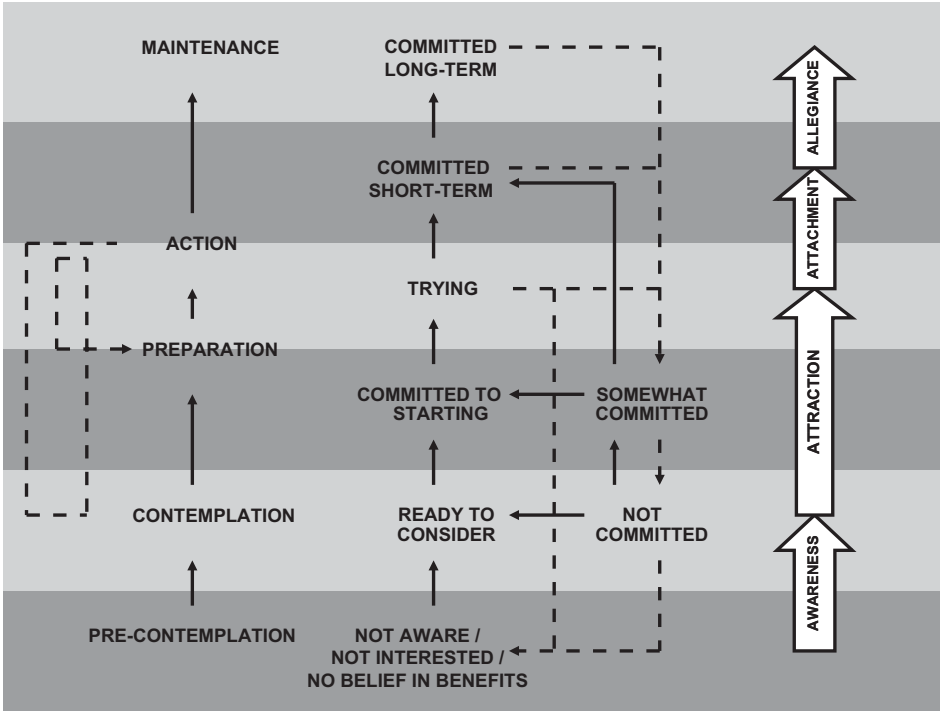

Figure 1. Models of engagement with sport, physical activity and exercise.

awareness rather than actual behaviour change; and, second, when illustrated alongside each other (Figure 1), clear similarities can be observed between them.

However, perhaps reflecting its more prominent position in Foster et al.'s (2005) review and its longer history in relation to sport and exercise, it is the TTM that has been most widely adopted and researched in the sport and exercise literature. This is evidenced by both Marshall and Biddle's (2001) meta-analytical review, which identified 71 studies that empirically examined at least one core construct of the TTM applied to exercise and physical activity, and Spencer, Adams, Malone, Roy, and Yost's (2006) systematic review, which examined 150 studies that applied the TTM to exercise. This body of evidence shows that different strategies are required to affect the process of engagement at each stage of the model, and that a number of these strategies draw on similar constructs to the 'participation as outcome' models discussed above.

Foster et al. (2005, p. 22) suggested in their review that although the TTM argues that matching strategies and interventions to stages will facilitate further engagement (and mismatching will hamper it), 'the research evidence supporting a stage-based approach over a non-stage based one is equivocal'. However, Spencer et al.'s (2006) review, which examined almost four times as many studies as Foster et al. (2005), identified: 'a growing body of evidence suggesting that stage-matched interventions lead to forward stage progression and/or increased exercise behaviour' (Spencer et al., 2006, p. 436).

This suggests that evidence for this central tenet of the model is much more than equivocal. As such, interventions, initiatives and programmes seeking to progress people through the model are particularly successful if targeted to model stages, and this applies equally at the early (attitude, awareness and intention) stages of the model as it does at the latter behavioural stages (Spencer et al., 2006).

A further point of note in relation to movement between the early stages of the TTM comes from Marshall and Biddle's (2001, p. 239) meta-analysis. They found that the move between the pre-contemplation and contemplation stages was accompanied by a significant and robust increase in the perceived benefits of engagement, and also by a significant but smaller reduction in the perceived disadvantages of such engagement. In fact, the effect size for the perception of the benefits of engagement was twice that for the perception of disadvantages, thus suggesting that interventions at this stage might be most effective if the benefits of engagement are emphasised, rather than the consequences (i.e., potential health problems) of continuing not to engage.

More generally, Marshall and Biddle (2001, p. 229) also noted that: 'Original formulations of the model proposed that individuals moved through the stages in a linear fashion, but it is now recognised that stage progression is more likely to follow a cyclical pattern'. Furthermore, although in relation to the original application of the TTM to the treatment of addictive behaviours, Prochaska et al. (1992) demonstrated that the model is spiral in nature, rather than cyclical, and that those whose behaviour change is not sustained do not disengage completely. Prochaska and DiClemente's (1984) study of smoking cessation, for example, showed that of those who did not sustain cessation on the first attempt, only 15% regressed back to the pre-contemplation stage. This led Prochaska et al. (1992, p. 1105) to conclude: 'The spiral model suggests that most relapsers do not revolve endlessly in circles and that they do not regress all the way back to where they began'. Thus, there is a 'ratchet effect' within the TTM, and that once people have progressed from pre-contemplation to contemplation, a return to the pre-contemplation stage is unlikely. This is illustrated by the dotted line in the TTM in Figure 1.

Key questions for an examination of the influence of the demonstration effect on sport participation arising from this very brief overview of processes of engagement with sport and physical activity are: (1) the extent to which the demonstration effect influences engagement at each stage of the process; and, (2) whether it may potentially hamper engagement if it is 'mismatched' to a particular stage. Unpacking these potential influences of the demonstration effect is the key aim of the analysis of evidence from previous Olympic Games, sport events and franchises returned in the systematic review that follows.

Method

The analysis of evidence relating to the nature of the demonstration effect on sport participation is derived from a wider systematic review of the evidence base from previous Olympic Games, sport events and franchises for the potential to develop sport participation, physical activity and health legacies from the Olympic and Paralympic Games. This wider review explored five areas: sport participation outcomes, processes leading to sport participation outcomes, processes leading to other behavioural outcomes (e.g., physical activity, volunteering, spectating), the way in which processes and outcomes have been evaluated and the influence of the media. A related paper discusses the evidence for one

aspect of the third of these areas, physical activity and health legacies (Weed et al., 2012), but for the examination of the demonstration effect on sport participation that is the subject of this paper, it is clearly the first two areas that are relevant, and the questions that guided the review in these two areas are given below in full:

(1) What evidence exists that previous Olympic Games, sport events or sport franchises have impacted upon sport participation?
(2) By what processes has sport participation been leveraged from previous Olympic Games, sport events or sport franchises?

A 'local' systematic review panel of five senior staff and two junior researchers was established, supplemented by an international advisory panel of four experts drawn from Europe, North America and Australasia.[4] Following experimental searches to refine the search strategy (Petticrew & Roberts, 2006), the formal protocol for the electronic search was developed, which was limited to sources in the English language (see Table 1) and date parameters from 1990 to the start of the London 2012 Olympiad in 2008, inclusive.

Once duplicates across the databases were removed, the electronic search returned 1778 sources, and this was reduced to 296 sources following sifting by the members of the local panel and the removal of obviously irrelevant material on the basis of article titles. The 296 sources remaining were initially reviewed by the local and international panels on the basis of titles and abstracts to assess whether it appeared that any significant papers or bodies of literature were missing. Both panels considered that the 296 sources represented a good coverage of the research literature. However a number of suggestions for further sources of evidence were made, particularly sources of grey literature (literature which has not been formally published), bibliographies, peer-reviewed journals that were not indexed in the databases and specific suggestions for individual papers.

In addition to the above suggestions, the local panel had also identified at its early meetings potential sources of 'grey literature', including associations, research institutions and centres and un-indexed libraries, bibliographies and archives (e.g., the International Olympic Committee Archives and Library in Lausanne, which one member of the local

Table 1. Electronic search protocol.

Databases searched	Keyword combination
SPORTS DISCUS (Sport, Exercise, Leisure and Tourism) CINAHL (Health Care) PsychINFO (Psychology) MEDLINE (Academic and Public Sector Medical Research) Web of Knowledge (General Science and Social Science Database)	(olympi* OR paralympi* OR game* OR sport* event* OR sport* franchise *OR sport* team*) AND (benefit* OR impact* OR participat* OR opportunit* OR lever* OR promotion*) AND (communit*OR volunt* OR touris* OR social inclu* OR social exclu* OR disadvantage* OR disengage* OR health*) There were some slight modifications for the specific databases (e.g., the word "sport"was removed from the search terms for SPORTS DISCUS – so "sport* event*" became "event*")

panel visited). Searches of and contacts with these sources of grey literature were ongoing throughout the period of the search, with full text sources being retrieved where possible.

Following consultations with the panels on the comprehensiveness of the 296 sources identified through the electronic searches, the abstracts of these sources were independently assessed by three local panel members to identify which were the most significant for full-text retrieval on the basis of relevance to one or more of the questions for the wider review. The consolidation of the views of the three panel members resulted in a list of 112 sources identified for full-text retrieval, of which eight were irretrievable. The remaining 104 sources were retrieved and the reference list of each of these sources was 'mined' for further significant sources. This reference mining, together with the grey literature search outlined above, added a further 19 sources for full text retrieval, which resulted in a set of 123 full-text sources. These sources were reviewed for relevance by two local panel members and a further 69 were excluded. The final number of sources included in the wider review was therefore 54, of which 33 were not related to the two review questions germane to the demonstration effect, leaving a cohort of 21 studies to be examined in this paper. This process is summarised in Figure 2.

The final 21 included studies were each independently appraised for quality and the weight they should be given in the synthesis by two local panel members (all five senior researchers on the panel contributed to this process). Disagreements were reviewed and resolved by all five local panel members. The questions under consideration are under-researched and the evidence was known to be sparse as discussed in the earlier part of the paper. It was therefore decided to take a rudimentary approach to the quality appraisal, appraising only the following fields rather than the comprehensive approach to appraising quality of the conduct of studies normally recommended (e.g., Coren & Fisher, 2006). The fields assessed were: relevance to question, location, whether the report was based on structured, transparent and replicable enquiry, whether the design was appropriate to the question, the nature of the evidence included, and some ethical questions. The pro forma used for this process for all included studies is provided in Appendix A. Table 2 lists the 21 studies, together with a summary quality appraisal and information on the type of publication.

The 21 studies comprise eight refereed journal articles, seven reports funded or authored by central or regional government or agencies, five independently authored (i.e., not funded by or linked to any interested parties) books, papers or reports and one non-refereed journal article. As is often the case with systematic reviews in physical activity and health (e.g., Greaves et al., 2011), some of the included sources are themselves reviews, and the inclusion of such reviews is an efficient way to access a wider range of evidence (Mulrow, 1994) as long as care is taken, particularly if formal meta-analysis is conducted, to ensure that evidence is not 'double-counted' through multiple inclusions. As formal meta-analysis was not possible in this case, care was simply taken to ensure that the provenance of evidence was clear, and that original sources cited in reviews were obtained in cases where the exact nature of the evidence was not clear from the review document. This also helped to ensure that those sources that had been authored or funded by interested parties, such as government departments or agencies, had not introduced elements of interpretative narrative bias to their discussions, as either the original evidence sources were obtained if the evidence as presented was not clear (this was part of the reference mining process noted above), or the provenance and clarity of the evidence was sufficiently transparent that interpretative narrative bias was not possible.

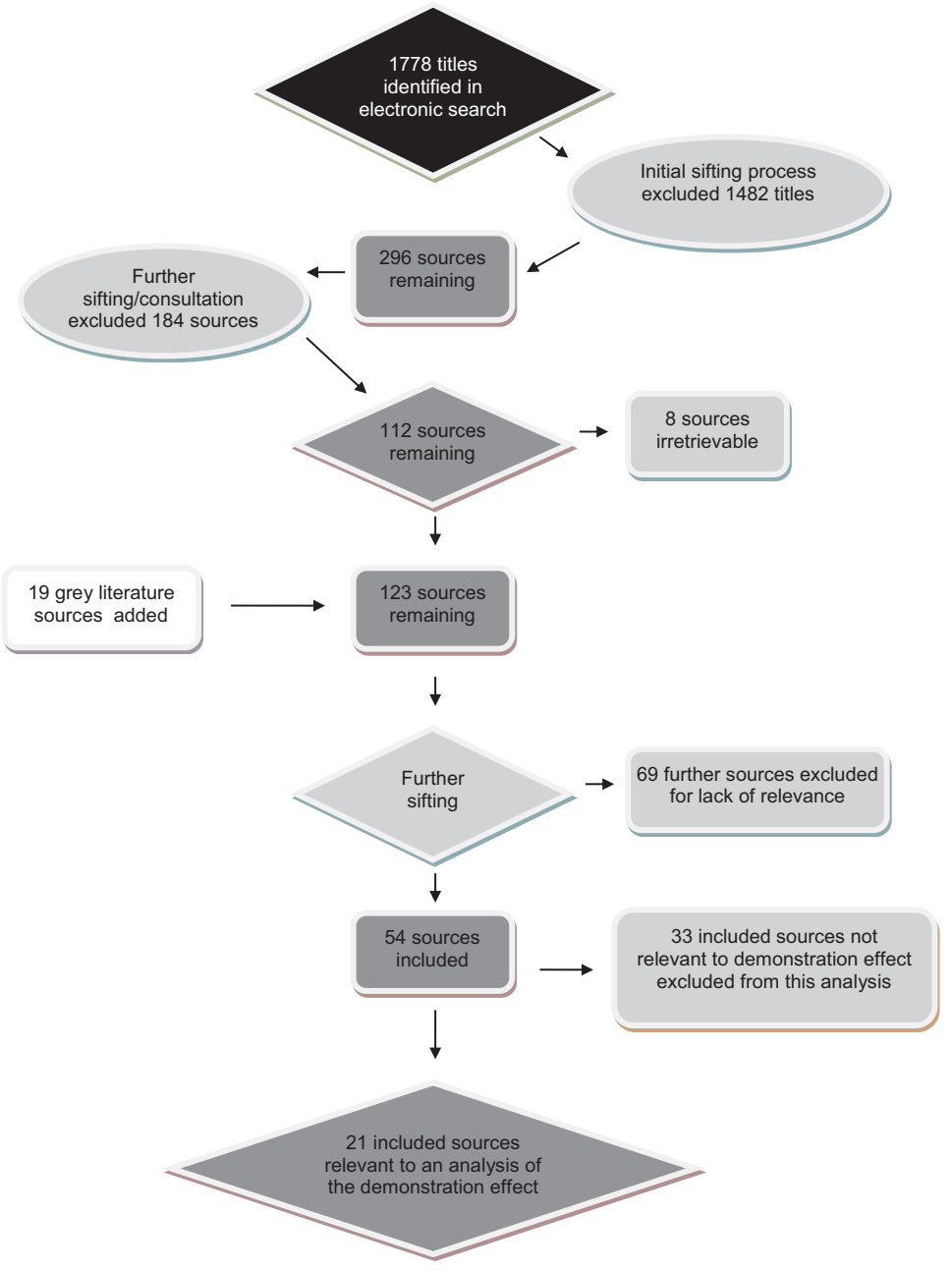

Figure 2. Summary of inclusion process.

Results

The 21 studies considered in this paper are largely qualitative or discursive (at least in terms of the vast majority of their content), and as such the analysis is qualitative, namely a semi-inductive thematic analysis (Braun & Clarke, 2006). Given the overarching aim of

Table 2. Summary of quality appraisal.

Study	UK-based?	Topic relevant?	Topic	Aims relevant?	Findings relevant?	Structured enquiry?	Transparent and replicable?	Design appropriate to question	Nature of evidence?	Informed consent obtained?	Population involved in design and steering	Ethical problems?	Type of Publication
Brown & Massey (2001)	Yes	Yes	Commonwealth Games	Yes	Yes	Unclear	No	Yes	Non-systematic review of secondary evidence	N/a	N/a	N/a	Funded report
Cashman (2006)	No, Australia	Yes	Olympic Games	Yes	Yes	Unclear	No	Yes	Non-systematic review of secondary evidence	N/a	N/a	N/a	Independently authored book
Coalter (2007)	Yes	Yes	Sport events	Yes	N/a	No	N/a	N/a	Discussion / opinion piece	N/a	N/a	N/a	Refereed journal article
EdComs (2007)	Yes	Yes	Sport events	Yes	Yes	Yes	No	Unclear	Non-systematic review of secondary evidence	N/a	N/a	N/a	Funded report
Faber Maunsell (2004)	Yes	Yes	Commonwealth Games	Yes	Yes	Yes	Yes	Yes	Primary quantitative data	Unclear	No	No	Funded report
Hamlyn & Hudson (2005)	Yes	Yes	Olympic Games	Yes	N/a	No	N/a	N/a	Discussion / opinion piece	N/a	N/a	N/a	Refereed journal article
Haynes (2001)	No, Australia	Yes	Olympic Games	Yes	Yes	Unclear	No	Unclear	Non-systematic review of secondary evidence	N/a	N/a	N/a	Independently authored paper
Hindson et al. (1994)	No, New Zealand	Yes	Sport events	Yes	Yes	Yes	Yes	Yes	Secondary analysis of quantitative data	Unclear	No	No	Refereed journal article
Hogan & Norton (2000)	No, Australia	Yes	Olympic Games	Yes	Yes	Yes	Yes	Yes	Secondary analysis of quantitative data	N/a	N/a	N/a	Refereed journal article
LERI (2007)	No, worldwide	Yes	Sport events	Yes	Yes	Unclear	No	No	Non-systematic review of secondary evidence	N/a	N/a	N/a	Funded report
Murphy & Bauman (2007)	No, worldwide	Yes	Sport events	Yes	Yes	Yes	Yes	Yes	Systematic review	N/a	N/a	N/a	Refereed journal article

Table 2 (*Continued*)

Study	UK-based?	Topic relevant?	Topic	Aims relevant?	Findings relevant?	Structured enquiry?	Transparent and replicable?	Design appropriate to question	Nature of evidence?	Informed consent obtained?	Population involved in design and steering	Ethical problems?	Type of Publication
Newby (2003)	Yes	Yes	Sport events	Yes	Yes	Yes	Unclear	Unclear	Non-systematic review of secondary evidence	N/a	N/a	N/a	Independently authored report
RAND Europe (2007)	No, worldwide	Yes	Sport events	Yes	Yes	Unclear	Unclear	Unclear	Non-systematic review of secondary evidence	N/a	N/a	N/a	Independently authored report
Schmid (1996)	No, USA	Yes	Olympic Games	Yes	Yes	No	N/a	N/a	Discussion / opinion piece	N/a	N/a	N/a	Non-refereed journal article
Smith & Fox (2007)	Yes	Yes	Commonwealth Games	Yes	Yes	No	N/a	N/a	Non-systematic review of secondary evidence	N/a	N/a	N/a	Refereed journal article
Sport and Recreation Victoria (2006)	No, Australia	Yes	Sport events	Yes	Yes	Unclear	No	Yes	Primary quantitative and qualitative data	No	No	No	State government report
Truno (1995)	No, Spain	Yes	Olympic Games	Yes	Yes	No	N/a	N/a	Secondary analysis of quantitative data	N/a	N/a	N/a	Independently authored report
Utah Dept. Health (n.d.)	No, USA	Yes	Olympic Winter Games	Yes	N/a	No	N/a	N/a	Discussion / opinion piece	N/a	N/a	N/a	State government report
VANOC (2007)	No, North America	Yes	Sport events	Yes	Yes	Unclear	Unclear	Unclear	Non-systematic review of secondary evidence	Unclear	Unclear	No	Funded report
Veal (2003)	No, Australia	Yes	Sport Participation	Yes	Yes	Yes	Yes	Yes	Secondary analysis of quantitative data	N/a	N/a	N/a	Refereed journal article
Wang and Theodoraki (2007)	No, China	Yes	Sport events	Unclear	Unclear	Yes	Unclear	Yes	Non-systematic review of secondary evidence	Unclear	Unclear	No	Refereed journal article

this paper to unpack the demonstration effect on sport participation, the papers were analysed inductively within two pre-determined *higher order* themes derived from the two research questions, namely: (1) the outcomes influenced by a demonstration effect; and, (2) the processes influenced by a demonstration effect. For each of these two pre-determined higher order themes in turn, the studies were initially read collectively to identify emergent sub-themes across studies. Three sub themes derived from the 21 studies were identified under the outcomes theme: increasing participation, participation frequency and activity switching; and two sub-themes under the processes theme: local versus general relevance and event hosting versus performance success. These sub-themes were subsequently used as the framework to analyse the evidence within each higher order theme. In using the sub-themes to conduct the analysis, attention has been paid to the weight that might be given to particular bodies of evidence and perspectives on both quality and relevance grounds. The product of this analysis is a critical *narrative synthesis* (Pope & Mays, 2006) which, whilst 'telling the story' of the research returned in thematic and substantive terms, also highlights potential weaknesses in the returned research throughout the narrative. The first part of this narrative synthesis focuses on outcomes, specifically on whether there are outcomes from previous Olympic Games, sport events and franchises attributable to the influence of a demonstration effect and what those outcomes are. The second part of the synthesis focuses on processes and, drawing on the insights from the TTM presented earlier, examines how a demonstration effect might influence processes of engagement with sport participation.

Outcomes: increasing participation

London East Research Institute (LERI, 2007, p. 47) summarised the potential to increase participation as follows:

> Sports participation increases are often assumed very readily by host cities. Both Barcelona and Sydney provide [quantitative] evidence for some positive short term impacts. However there is doubt about the sustainability of Olympic effects and Sydney evidence is ambiguous.

LERI (2007) also cited Cashman (2006) in support of the view that there has been a paucity of studies on post-Games participation in sport and, in particular, to question whether an Olympic 'bounce' is short or long-term. Such studies, where they do exist, mostly retrospectively utilise quantitative secondary data (largely population level surveys) that measure sport participation, but do not ask more qualitative questions about the factors that have influenced such participation. In Barcelona, host city of the 1992 Games, LERI (2007) cited Truno's (1995) analysis which compares two 'similar' quantitative studies published by the municipality in 1985 and 1995. These studies showed that attitudes towards sport had grown more positive, and that the proportion of the population participating in sport at least once a week had grown from 36% in 1983 to 47% in 1989 to 51% in 1995. This suggests some evidence for an effect, but the strength of the evidence is ameliorated by the 'similarity' rather than the direct comparability of the studies, and the fact that there are many other influences on sporting life in Barcelona, not least the FC Barcelona football team, which may have impacted upon sport participation and attitudes in this period. However, if this evidence is taken at face-value, it suggests that the influence of a demonstration effect may be as much in the pre-Games 'pregnancy' period (Weed, 2008), where participation rose from 36% to 47%

from 1983 to 1989, as in the post-Games legacy period, where the rise from 1989 to 1995 was only from 47% to 51%.

Evidence of a different nature (spending on sport goods) relating to the Atlanta Games is also presented by LERI (2007) from the National Sporting Goods Association (2005). This survey, of the USA population as a whole, shows that although the overall figure for spending on athletic equipment and sport clothing remains relatively static, there are clear increases in spending on athletic equipment between 1990 and 1995. Again, although these data suggest a similar 'pregnancy' demonstration effect to the Barcelona data, they are weakened by two factors: first, that increased spending on sport goods does not necessarily translate to increased participation and, second, that the figures may be as much attributable to movements in the US economy and increasing levels of affluence and general consumer leisure expenditure, as to the 1996 Atlanta Games.

There is mixed evidence from the Sydney Games in 2000. LERI (2007) noted that Haynes (2001) suggested anecdotal reports from the media of large post-Games increases in interest and participation in Olympic sports, but that Cashman (2006) showed that, in relation to recreational swimming at least, attendances in Sydney were static or slightly falling in the two to three years following the Games. For participation across Australia as a whole, Veal's (2003) quantitative study showed post-Games increases in participation in seven Olympic sports, declines in nine others, and a general increase in recreational and non-Olympic activities. Murphy and Bauman (2007), in their systematic review of public health initiatives, suggested that there was no evidence from Sydney that the euphoria of the Games turned into increased activity afterwards, despite a great deal of 'rhetoric'.

Research in the UK following the Manchester Commonwealth Games of 2002 is examined by EdComs (2007). One report (Faber Maunsell, 2004) collated quantitative data that showed increased participation of 7% in adults in the UK and 19% among 6 to 15-year-olds in the North West. However, EdComs (2007) questioned the extent to which this is an inherent demonstration effect, or is attributable to media coverage, Games attendance, facility development, schools initiatives or other factors (which may or may not be part of a strategic leveraging programme). Faber Maunsell (2004) recognised this, noting that: 'Some stakeholders … argued that the Games themselves only resulted in a small and short-term increase in participation in sport and that more proactive methods to encourage participation are required to have greater and longer term impact'.

Therefore, while evidence for an *inherent* (or unleveraged) demonstration effect is equivocal, there is some weak quantitative evidence that suggests potential for growth in the pre-Games 'pregnancy' period and for a short-term 'spike' in participation around the times of major Games (VANOC, 2007). However, both Coalter (2007) and Foster et al. (2005) suggested that theories about increasing participation are not fully understood nor sufficiently proven to make such a claim – there can be no simplistic assumption of a demonstration effect (EdComs, 2007). As such, even this weak evidence suggests that hosting the Games will not, in and of itself, lead to participation increases through a demonstration effect. There is wide agreement (Coalter, 2007; EdComs, 2007; Hindson et al., 1994; LERI, University of East London, 2007) that the demonstration effect is a potential effect that must be leveraged, particularly in the pre-Games pregnancy period.

The problem, of course, with the types of quantitative data reported above is that they largely draw on population surveys that are intended to measure general levels of participation. In most cases, the analysis of these data has been conducted retrospectively, rather than incorporating the measurement of the influence of a demonstration effect into the methodology. This has two results: first, these quantitative surveys cannot attribute

participation increases to the influence of a demonstration effect from the Olympic Games and, second, they are not sensitive enough to pick up the nuances of participation changes. This latter issue means that increases in attendance, for example, cannot differentiate between increases in numbers of participants and increases in participation frequency, whilst increases in, for example, sport goods spending, cannot differentiate between new participants in sport, or those who are switching from one sporting activity to another. It is to these issues that the next two sections now turn.

Outcomes: participation frequency

There is concern throughout the sources returned that the participation increases that may be shown by the weak quantitative evidence that does exist may indicate increases in participation frequency rather than increases in numbers of participants (EdComs, 2007; LERI, University of East London, 2007, Murphy & Bauman, 2007) and, in fact, this is one of the weaknesses in the evidence. Sport and Recreation Victoria (2006) reported, for example, that 59% of the participants in 'Warming up for the Games', a programme designed to increase participation in the run up to the 2006 Melbourne Commonwealth Games, were sport club members, thus strongly suggesting that the programme was encouraging those already participating to participate more. Similarly, EdComs (2007) noted that quantitative data showed increases in participation frequency (i.e., a positive response to the question: 'do you play *more* sport?') among schoolchildren and young people in Manchester following the 2002 Commonwealth Games.

That a demonstration effect might encourage increases in participation frequency is entirely consistent with more general long-standing research in both social psychology and social policy. For example, Hagger, Chatzisarantis, and Biddle (2002), in a meta-analysis of 72 previous studies in sport and exercise psychology, showed that the influence of past behaviour on current and planned behaviour is twice that of any other variable studied. Therefore, people who have previously participated in sport are more likely to participate further, which is consistent with the 'rachet effect' assumed within the TTM noted earlier (Prochaska et al., 1992). Brown and Massey (2001) and Newby (2003) also cited wider evidence from the social policy arena that those who gain most from new facility provision (such as that left as a legacy from major sport events, as described by, inter alia: Brown & Massey, 2001; EdComs, 2007; Schmid, 1996; Utah Department of Health, n.d.) are the groups identified by Ravenscroft (1993) as 'leisure gainers' (predominantly professional white middle class males) who are already engaged with recreation (Collins, Henry, Houlihan, & Buller, 1999; Coalter, 1993). Again, this shows an increase in participation among those who are already participating. Within the context of the TTM (Prochaska & DiClemente, 1984), this suggests that the demonstration effect is influencing the behaviours of those already engaged at the middle and higher behavioural stages of the TTM.

There is also evidence of a certain level of obfuscation by policy makers in this respect. Both Hamlyn and Hudson (2005) and LERI (2007) cited market research commissioned by Sport England (2004), carried out one month after the end of the Athens 2004 Olympic Games which suggested that: 'More than a quarter of the population in England (26%) have been inspired by British medal-winning performances at the Olympic Games in Athens' (p. 66). While this appears to suggest a demonstration effect in inspiring people to take up sport and physical activity, the figure of 26% refers to those 'who are now involved in more sport' (11%) and those 'interested in doing *more*

sport' (15%), 'as a result of Team GB's success.' As with the quantitative data from Manchester quoted above (EdComs, 2007), these Athens data indicate that there was an increase in frequency of participation, rather than an increase in number of participants. This appears to be a common misrepresentation in evaluations of this kind, and one that Sport England did little to correct as this information was distributed in a press release with the headline 'Athens success inspires one in four to take up sport' (Sport England, 2004).

Outcomes: activity switching

While increases in participation frequency via the influence of a demonstration effect are not perhaps as positive an outcome as increases in the number of participants, they do still represent a positive outcome in that people are becoming more active or engaged with sport by moving through the later behavioural stages of engagement in the TTM. However, there is a further potential outcome of the influence of the demonstration effect that has no overall positive outcome: the phenomenon of 'activity switching'.

Brown and Massey (2001), EdComs (2007), Hindson et al., (1994), LERI (2007) and VANOC (2007) all suggested that reported increases in participation in particular activities are likely, at least in part, to be among those who are already active in other activities and are 'switching' their participation. As such, while the influence of the demonstration effect remains at the later behavioural stages of the TTM, it does not move people through stages of engagement, rather it causes a switch in activity at the same stage of engagement.

Reported increases in participation in curling following the success of the Scottish women's team in the 2002 Olympic Winter Games are suggested by EdComs (2007, p. 43) to result from activity switching:

> those who say they have been influenced by success may have been physically active in other sports. This does seem to have been the case in the curling example and, if true on a wider scale, means that success simply encourages interchange between sports rather than increased participation in sport overall.

Furthermore, this effect remains consistent with the perspectives on the role of past behaviour (Hagger et al., 2002) and the typical 'leisure gainers' (Ravenscroft, 1993) noted above. It may also explain Veal's (2003) quantitative findings following the Sydney Games of increases in participation in seven Olympic sports, but declines in nine others. This activity switching effect is perhaps particularly likely if the influence of the demonstration effect is linked to the presence of new or unusual sports in a forthcoming event programme which may lead to the sport being more widely available to be played. Schmid (1996, p. 22) commented on this effect in relation to the Atlanta 1996 Olympic Games, citing the Assistant Director of the Columbus Parks and Recreation Department as stating:

> Because women's fast-pitch [softball] is part of the Olympics for the first time, our schools have started playing fast-pitch in Georgia, which they didn't do until last year….With high schools playing, now you have a feeder system. I think one of the biggest accomplishments is that it's going to develop the sport to a new level.

Similarly, Brown and Massey (2001, p. 11) noted that this process may take place with the Commonwealth Games, which may provide some sports with 'a unique opportunity to gain an audience for their sport, which may otherwise receive little exposure', although such an effect is unlikely in relation to more established sports or activities. However, the evidence for this effect is largely anecdotal and it would seem very likely to lead to activity switching than to the stimulation of newly active participants. It is also related to institutional decisions about which sports to provide or prioritise in particular contexts, such as schools.

Outcomes: summary

The above discussions suggest, therefore, that there is quantitative empirical evidence, albeit weak, for a demonstration effect on sport participation outcomes. However, the demonstration effect is more likely to be a potential effect that needs to be leveraged by other supporting activities, rather than an inherent effect. Furthermore, the general weight of both quantitative and qualitative evidence, supported by wider perspectives from long-standing research in social psychology and social policy, appears to be that the demonstration effect is more likely to result in increases in participation frequency or in activity switching, rather than in attracting new participants. As such, its influence appears to be more widespread in the middle and higher behavioural stages of the TTM, rather than at the earlier attitudinal stages. The processes underpinning this are explored in the following sections.

Processes: local versus general relevance

Most of the discussions of outcomes focus on the impact of the local hosting of an event on local participation. Of course, 'local' is a relative term, and so may be applied to the effect of, for example, the Sydney 2000 Games on participation in Sydney (as examined by Cashman, 2006), or on participation throughout Australia (as examined by Veal, 2003). An important question, though, is does some local relevance have to be present for a demonstration effect to take place? Can an event held on the other side of the world raise sport participation, or can success by non-local athletes inspire or increase engagement with sport?

In one of the few studies that examines the effect of distant events, Hindson et al. (1994) examined the impact of the 1992 Olympic Games in Barcelona on sport participation in New Zealand. Of 35 sport clubs surveyed, 43% (15 clubs) reported a positive effect on club membership. Although less than half, this is still a substantial figure, particularly as very few of the clubs had overtly used the Olympic Games in their marketing. However, Hindson et al. (1994) also suggested that non-Olympic elite events may more effectively increase participation because of the potential for more extensive TV coverage of New Zealand athletes, thus suggesting a relationship with local relevance.

The previous sections have suggested that the demonstration effect is a potential effect that needs to be leveraged, and there is evidence that locally relevant leveraging can have an important influence. Empirical evidence in EdComs (2007) from Canada, Manchester, Melbourne and New Zealand showed that leveraging programmes that are relevant to local communities can have an impact. VANOC (2007) noted that in relation to children, schools and youth groups, meeting athletes and visiting facilities were

beneficial. Similarly, Hindson et al. (1994) noted that in cases where clubs have participating elite athletes as members, there were reports of more tangible effects of an elite event on the clubs. However, this may indicate an increased frequency effect, rather than an increase in numbers of participants, and may suggest that such initiatives should be 'stage matched' (Spencer et al., 2006) to those who have already reached the middle and higher behavioural stages of the TTM.

There is much debate in the included sources about the impact of local success in the Olympic Games or other elite sporting events on local participation in sport (EdComs, 2007; Hindson et al., 1994; LERI, University of East London, 2007; VANOC, 2007). EdComs (2007) found some indicators of this trend but found it difficult to separate from other influences on development of activity – including watching the activity on TV, the influence of friends, wider initiatives to encourage participation, desire to take more exercise and others. Undoubtedly there are complex interactions of factors that influence engagement, which may act differently at the different stages of engagement highlighted within the TTM (see Figure 1). Furthermore, investment may also be a major contributory factor. Hindson et al. (1994) suggested that seeking a demonstration effect through elite participants may result in the role models being too remote to influence behaviour directly, lending further support to the suggestion that the influence of elite sports people as role models may apply more explicitly when there is a direct local connection. This gap has also been identified in China (Wang & Theodoraki, 2007), with local athletes being seen as providing a spur to make national events locally relevant.

Smith and Fox (2007) conducted a qualitative evaluation of all aspects of the Legacy Programme of the Manchester 2002 Commonwealth Games funded by the Single Regeneration Budget, and their central point was that the Legacy Programme was event-themed rather than specifically and explicitly led by the Games, noting that 'The Commonwealth Games was used as a uniting theme, rather than a speculative stimulus' (Smith & Fox, 2007, p. 1139). This approach sought to develop local relevance rather than depending on the speculative stimulus of effects that are assumed to be inherent: 'Using an event to unite a series of neighbourhood-level initiatives helps to avoid an approach reliant on "trickle-down" effects' (Smith & Fox, 2007, p. 1140).

There therefore appears to be support for the need for local relevance for a demonstration effect to take place. However, 'local' relevance need not only be geographically local, it can also be seen as being local to people's experience. In this respect, an important point, made by both EdComs (2007) and Hindson et al. (1994), is that the use of elite role models and elite success to try to develop a demonstration effect may deter others who may fear that sport as represented by elite athletes is beyond them. Hindson et al. (1994) recognised potentially dual processes at play here. On the one hand, elite sports people can be inspirational as role models, but on the other, they may deter participation among non-participants because of the perceived competence gap and remoteness from their experience. This, of course, is entirely consistent with the perspectives provided by the TTM, which states the importance of matching initiatives and strategies to the stage of engagement of the target group (Spencer et al., 2006). RAND Europe (2007, p. 9) supported this, noting that 'campaigns with a focus on physical exercise inspired by Olympic Games require careful targeting', and the potential 'aversion' effects suggested here are a clear example of the mismatching of strategies to TTM stages and the consequent hampering of further engagement (Foster et al., 2005). This seems to reinforce the conclusions of earlier discussions that the demonstration effect is more likely to be influential and appropriate at more advanced stages of

engagement outlined in the TTM, and therefore is more likely to result in increased participation frequency or activity switching.

Processes: hosting events versus performance success

While the above discussions seem to establish the importance of some form of local or experiential relevance, there remains a debate about the extent to which demonstration effects might flow from events or from success. For example, can local success in distant events stimulate participation through demonstration effects?

The quantitative evidence from Sport England (2004) quoted earlier about the way in which GB team success at the Athens 2004 Games inspired people in England to get 'involved in *more* sport' suggests that the demonstration effect may deliver at least short-term participation frequency increases from a distant event among those already involved in sport. However, this does imply that the influence of a demonstration effect may be specific to the later behavioural stages of the TTM at which positive attitudes to sport already exist (Marshall & Biddle, 2001). This is also supported to a certain extent by the influence, albeit limited, of the Barcelona Games in 1992 on participation in New Zealand (Hindson et al., 1994). In addition, EdComs (2007) highlighted quantitative evidence from the Sporting Motivations Survey (TNS, 2004), in which 6% of respondents claimed that UK sporting success had resulted in them doing *more* sport (again, an increased frequency effect). Both EdComs (2007) and Hamlyn and Hudson (2005) cited Olympic success in curling as leading, in Scotland, to 'the sales of related equipment escalat[ing] substantially' (Hamlyn & Hudson, 2005, p. 882) and in 'ice rink managers report[ing] increases of 6% in visitors for curling and club membership nationally rose by 3%' (MORI, 2004, cited in EdComs, 2007, p. 43). However, only 4% of the new curlers cited GB team success as the main reason for their participation (EdComs, 2007, p. 43) and, as noted earlier, EdComs (2007) suggested activity switching in this case. Finally, Brown and Massey (2001) noted that the Rugby Football Union (RFU) attributed England's success in being runners up in the 1991 Rugby World Cup (the report was written before England won the 2003 World Cup in Australia) to have been the catalyst for the creation of junior sections in approximately 50% of RFU registered rugby clubs.

As might be expected, if there is evidence of elite success at a distance leading to a demonstration effect, then there is also likely to be evidence of an effect when success is more local. EdComs (2007) noted that there is evidence that cricket participation in England has increased since England's Ashes victory in 2005. The England and Wales Cricket Board (ECB, 2007) reports a 51% increase in club membership between 2005 and 2007 and a 40% increase in membership of affiliated clubs in the period between the 2003 and 2007 cricket world cups. Although, once more, whether this is an increased frequency effect, activity switching or new participants cannot be extracted from the ECB figures. Certainly population data in the UK did not show an increase in participation in cricket during this period (Sport England, 2007), which suggests the effect may have been an increased frequency effect whereby informal participants formalised their participation through joining affiliated cricket clubs, thus moving from the mid to the later behavioural stages of the TTM. Furthermore, EdComs (2007, p. 43) noted that:

> In the case of the Ashes there were no specific data about the reasons for the increasing participation but the ECB claims a twenty-fold increase in investment in community cricket

> between 1997 and 2007 – for this investment to be worthwhile an increase in participation ought to be apparent irrespective of the performance of the national team. It could be argued that these are indirect influences, since people may be more amenable to recommendations or community initiatives if they have recently seen success at a national level.

In the run up to the Sydney 2000 Olympic Games, Hogan and Norton (2000) examined quantitative evidence for a demonstration effect linked to elite success at both home and abroad in Australia in the 20 years between 1976 and 1996. This study is particularly significant because it compares investment in elite sport in Australia, which has targeted investment towards elite sport over a more sustained period of time than any other social democracy in the world, with elite performance at the Olympic Games and the level of the Australian sedentary population. Over a 20-year period expenditure on elite sport rose from virtually zero in 1976 to AUS$150 million in 1995. This was matched by a steady increase in Australia's position in the Olympic medal table from 32nd in 1976 to 7th in 1996 (5th if population size is accounted for). However, over a similar time-period, the amount of Australians reporting they were completely sedentary rose from an average of 29.1% of the population in 1984 to 40.6% in 1999. Hogan and Norton (2000, p. 216) concluded that these data suggest that:

> The expectation that successful sporting heroes as role models inspire others to participate in sport and physical activity may have run its race. Perhaps it was never a legitimate starter. … Directing approximately one billion dollars to the elite apex of the sports pyramid in expectation that mass participation will result is irresponsible … we should not accept as a matter of fact that our elite sports success translates into motivation to become active among the rest of the population.

However, this finding is not as contradictory to the evidence presented so far as it might first seem. Because Hogan and Norton (2000) were comparing elite success with sedentaryness (i.e., non-participation in sport, exercise or physical activity), their findings suggest that a demonstration effect does not entice new participants into sport. That is, it does not engage those at the pre-contemplation stage of the TTM, where the need is to develop positive attitudes towards the idea of sport participation as a precursor to behaviour change (Marshall & Biddle, 2001). As Hogan and Norton's (2000) comparison is with figures for non-participation, such figures cannot be confused by a potential increased frequency or activity switching effect, which acts on people at the later behavioural stages of the TTM. Therefore, Hogan and Norton's (2000) findings suggest that over a considerable period of time there is no demonstration effect in increasing the number of new participants in sport or physical activity. This thus adds further weight to the earlier suggestions that the demonstration effect largely results in increased participation frequency or activity switching.

Further support for the lack of influence of a demonstration effect in generating new participants is provided from the point variously made throughout the studies (Coalter, 2007; EdComs, 2007; Hindson et al., 1994; Murphy & Bauman, 2007) that elite sport may not be the best way to encourage mass participation (see also discussions in the previous section). Coalter (2007) noted that patterns of engagement are complex and the relationship of these processes to role models is ill-defined. It may partly depend on a range of factors including how role models are seen, how accessible or 'normal' their profile is, and also on individual or community self-efficacy. Qualitative empirical evidence in Hindson et al. (1994) also suggested that for elite sporting role models to be

effective, target groups must already be psychologically engaged with sport and the idea of sport participation. That is, they must have advanced beyond the initial attitudinal stages of the TTM (Marshall & Biddle, 2001). For non-participants (i.e., those at the pre-contemplation stage of the TTM) such psychological engagement has not yet occurred. It appears that this engagement takes place with the move from the pre-contemplation to the contemplation stage as Marshall and Biddle's (2001) meta-analysis of TTM stages and processes showed that this move is accompanied by a significant and robust increase in the perceived benefits of engagement.

One final point, however, is that there may be one group of non-participants for whom a demonstration effect may be effective: former participants in sport whose participation has lapsed. Such former participants will have already moved from pre-contemplation to contemplation and, even though their participation has lapsed, the spiral nature of the TTM and the assumed ratchet effect (Marshall & Biddle, 2001; Prochaska & DiClemente, 1984; Prochaska et al., 1992) means that it is unlikely that they will have disengaged from sport and the idea of sport participation. In fact, Spencer et al. (2006) found that there was 'some evidence' to support the conclusion that those whose participation had lapsed at some point behaved differently to those whose participation had never lapsed. Specifically, that lapsed participants were likely to have a very low level sporadic participation pattern, with such a pattern including a number of abortive attempts at getting re-started. This implies continued partial engagement at the contemplation level, although actual participation is very low and irregular. This previous participation and continued partial engagement suggests that, although lapsed participants may often be listed in statistics as non-participants, it might be inferred that there is some potential to re-engage lapsed participants through similar demonstration effect processes to those by which participation frequency is increased among current participants.

Processes: summary

The above discussions of both qualitative and quantitative evidence relating to the processes by which the demonstration effect might influence sport participation, set against the context of the previous discussions under the outcomes theme, seem to clearly suggest that the demonstration effect will have a greater influence when there is some form of local relevance, but that such local relevance might be provided by either or both of local event hosting or local elite success, particularly if strategies are in place to leverage the effect. However, the discussions of processes have added further weight to the view that the demonstration effect increases participation frequency or stimulates activity switching rather than enticing new participants with no previous psychological engagement with sport, physical activity or exercise to take up sport, although the effect may have some potential to re-engage lapsed participants. As such, the influence of a demonstration effect appears to be limited to the later behavioural stages of the TTM, with there being no evidence of positive influence at the earlier attitudinal stages. In fact, there is some evidence that mis-matching the demonstration effect to the earlier attitudinal stages of the model may have an adverse effect on attitudes towards engagement with sport.

Outcomes and processes: unpacking the demonstration effect

The demonstration effect as discussed by politicians, policy-makers and some academics has been a fairly vague concept. However, the discussions in this paper suggest that it is

possible to unpack the demonstration effect along three dimensions, one of which relates to outcomes and two of which relate to processes. This is illustrated in Figure 3, which shows that potential outcomes sought or resulting from a demonstration effect may be an increase in new participants, an increase in participation frequency among existing participants and/or switching of participation between activities. These outcomes may be generated by processes that may be linked, on one dimension, to particular events or performance successes or, on another dimension, to occurrences of local or of more general relevance.

However, the general weight of evidence analysed in this paper seems to suggest that the most likely outcomes of the demonstration effect are increased participation frequency (which may be a desirable policy goal) and activity switching (which is unlikely to be the target of policy). There is also an inferred suggestion that a further potential demonstration effect outcome may be the re-engagement of lapsed participants (which may also be a desirable policy goal). The processes that generate these outcomes may be performance success or event based, as long as they are rooted in a local context which is strategically leveraged. Finally, although sport participation generated through a demonstration effect has generally previously been conceptualised as a *legacy* of events and/or performance success, there is some evidence to suggest that, in relation to events at least, the demonstration effect may be as, if not more, powerful if properly leveraged in what has recently been conceptualised (Weed, 2008) as the pre-Games *pregnancy* period.

Discussion

Clearly the sport participation aspirations for the London 2012 Olympic and Paralympic Games at the start of London's Olympiad in 2008 were derived from a political position that included a belief in the efficacy of the demonstration effect. Similarly, various policy-makers in the UK, USA, Australia and New Zealand had previously rationalised their sport policy by reference to such an effect. However, while the evidence from previous Olympic Games, sport events and franchises presented in this paper suggests that some sport participation outcomes might be achieved through effectively leveraging the potential of a demonstration effect, there is also evidence that relying on an *inherent* demonstration effect to bring *new participants* into sport is unlikely to be successful. In theoretical terms, the demonstration effect can influence the later behavioural stages of engagement illustrated by the TTM (see Figure 1), but not the earlier attitudinal stages.

The public and the media in the UK clearly believed that sport participation aspirations for London 2012 were to get 'more Britons involved in sport' (London Evening Standard, 25 July 2008) or, more specifically, to encourage 'extra people into sport and physical activity by 2012' (*The Guardian*, 7 June 2008b). Furthermore, statements from Lord Coe, the Chair of LOCOG, that 'the real challenge … is *how many people* can you get into sport' (Coe, 2008b, para. 18), and Andy Burnham, at the time the Secretary of State for Culture Media and Sport, that 'Sport England [has a] commitment of getting 1 million *more people* playing sport by 2012' (Hansard, 2009, column 60W) supported this belief. However, the government's legacy action plan (DCMS, 2008, p. 19) contained a 'promise' to use the Games to 'help people in England to be *more active* by 2012', which Sport England later reinforced and clarified, stating 'Sport England are committed to delivering one million people doing *more sport* by 2012–2013' (Sport England, 2009a, p. 3). Furthermore, both the government and Sport England set a performance measure for this 'promise' that one million more people in England would

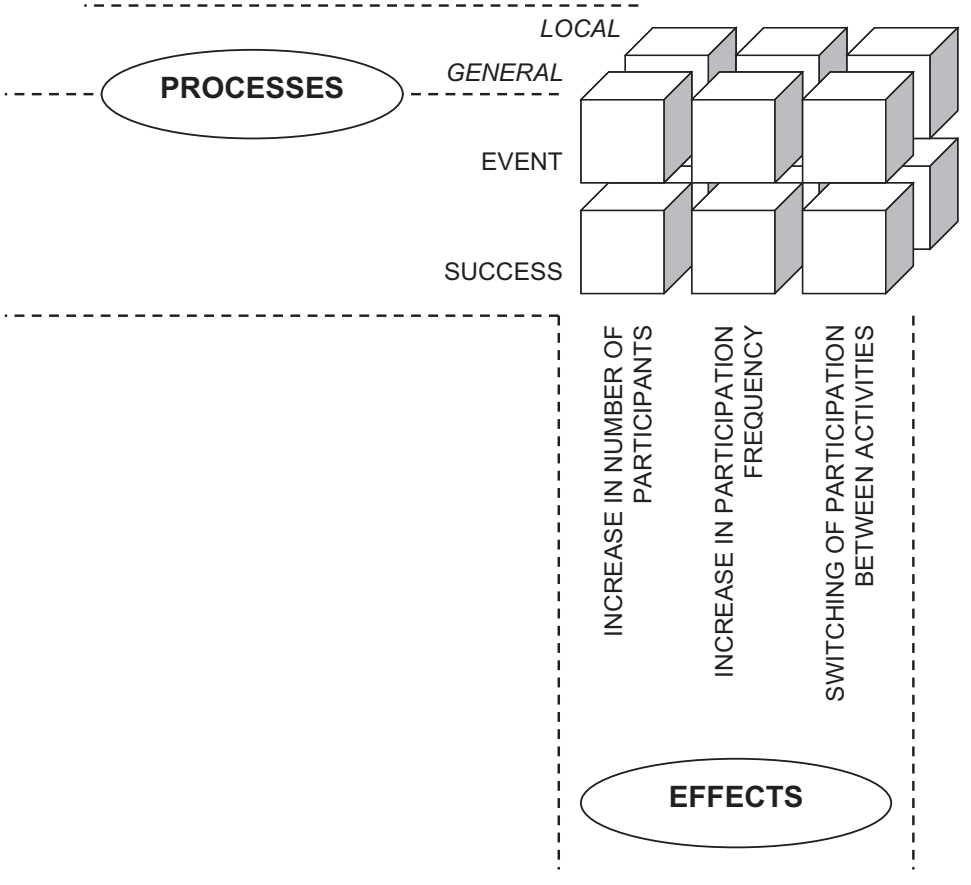

Figure 3. Dimensions of the demonstration effect.

be participating in sport at least three times a week (DCMS, 2008; Sport England, 2009a). This would be measured by the Active People survey,[5] and would specifically be an increase from the 6.815 million adults who were participating in sport three times a week in 2007–2008 to a target of 7.815 million adults participating at this frequency by 2012–2013 (Sport England, 2009a). In short, this represented 200,000 adults per year increasing the frequency with which they participate in sport to three times a week or more in each of the four years before the Games and in the year after the Games. Clearly and unequivocally, this target does not measure new people participating in sport, but how often people participate, and the clearest route to achieving the target would be to encourage those who were already participating once or twice a week to participate a little more often. Thus, while the rhetoric of London 2012's sport participation aspirations was to get new participants to take up sport (which the evidence from previous Olympic Games, sport events and franchises suggests IS NOT achievable), the detail showed that what was being sought was an increase in participation frequency (which the evidence suggests IS achievable). Either this was a deliberate political sleight of hand, or a muddled and confused representation of policy. Whichever was the case, the specific target set for sport participation at the start of London's Olympiad did align with the

evidence from previous Olympic Games, sport events and franchises about what might be achievable. The specific target set for sport participation also aligned with the evidence that a demonstration effect is likely to be more powerful in the pre-Games pregnancy period, as the increases targeted were for the four years before the Games and for one year following the Games.

However, although participation policy was aligned with the evidence in seeking an increase in participation frequency largely in the pre-Games pregnancy period, one vitally important aspect of the evidence from previous Olympic Games, sport events and franchises had been overlooked: there is no evidence to support an inherent demonstration effect. The evidence shows that the demonstration effect is a potential effect that must be leveraged. Unfortunately, while a very clear target for increases in sport participation frequency had been set, little had been put in place in the way of policies to leverage the influence of the demonstration effect in which politicians so clearly believed, and in which policy was so clearly invested. The UK government's Department for Culture Media and Sport (DCMS, 2008, p. 24) tasked Sport England to 'create the infrastructure necessary to support increased participation' and through the Grow strand of its Grow, Sustain, Excel strategy (Sport England, 2008), to commission partners to 'deliver a range of high quality sporting opportunities to increase participation in sport'. Yet, almost unbelievably, Sport England's strategy for 2008–2011, the all-important four years of London 2012's pre-Games pregnancy period, made no mention of the Olympic and Paralympic Games other than that hosting the Games in 2012 made it 'an appropriate time to take a clear look at the sport development system and its fitness for purpose' (Sport England, 2008, p. 5). There was no suggestion that the 2012 Games might be harnessed to inspire participation, or any plans about how this might be done. In fact, if the references noted above were removed, there was nothing in the strategy that suggested the Olympic and Paralympic Games were taking place in London in 2012. The strategy was entirely about how sport development programmes were to be managed, how funding was to be devolved and what targets were to be achieved. This strategy was for investment in supply, with little comment on how demand might be stimulated, and no vision for how the London 2012 Games might be harnessed to stimulate demand.

Having set very clear targets to increase participation through the Olympic and Paralympic Games, but with no clear strategy about how to harness the Games to do so, the inevitable outcome was that progress towards the sport participation target was limited. Unfortunately for the government and Sport England, Active People, the survey identified as the measure of the sport participation target, reported progress every six months, and while there was an encouraging increase of 115,000 people doing sport three times a week in 2008–2009 (Sport England, 2009b), the following year (2009–2010) the increase was only 8000 (Sport England, 2010a), thus reinforcing the evidence from previous Olympic Games, sport events and franchises that there is no inherent demonstration effect without effective leveraging strategies. However, in May 2010, following a UK General Election, a new Coalition government came to power promising that '[t]he Olympics is our number one priority and what we need to do is to grasp the opportunity' (Wray, 2010), and that the Coalition would 'urgently form plans to deliver a genuine and lasting legacy' (Cabinet Office, 2010, p.15). As a result, in December 2010 'Places People Play', the London 2012 Mass Participation Legacy Plan (Sport England, 2010b) was published, comprising specific investments totalling £135 million.

While Places People Play appeared to align government policy more closely with the evidence from previous Olympic Games, sport events and franchises by establishing

strategies to harness the Games to increase sport participation, the reality was somewhat different. First, the investments in Places People Play would commence in April 2011 and run to March 2015, thus shifting the focus significantly from the pre-Games pregnancy period where the evidence suggests opportunities to leverage a demonstration effect lie, to the post-Games period. Second, although Places People Play explicitly and extensively referenced the Olympic and Paralympic opportunity, the £135 million investment was almost entirely for supply; two-thirds for the supply of facilities, and the rest for the supply of 'provision capacity', leaders and opportunities. Places People Play contains no strategies to leverage a demonstration effect from the Olympic and Paralympic Games to stimulate demand. As such, it is little different from the previous government's plans to 'create the infrastructure necessary to support increased participation' (DCMS, 2008, p. 24). Both approaches appear to be based on the assumption that London 2012 will inspire participation increases through an inherent demonstration effect, and that the only role for sport participation policy is to ensure that there is sufficient supply to cater for an inevitable increase in demand. As such, while the Minister for Sport, Hugh Robertson, noted at the launch of Places People Play that, '[w]ith more Lottery money being invested in facilities, volunteering and protecting and improving playing fields, there will be opportunities for everyone to get involved', he said nothing about how 'everyone' will be encouraged to be involved, other than '[w]hen people talk about the legacy of the Games, we want them to talk about Places People Play – and then we want them to get out there and join in' (Robertson, 2010). But 'wanting them to join in' does not represent a strategy or a delivery plan to leverage a demonstration effect to stimulate demand.

Six months after the launch of Places People Play, sport participation figures showed a fall of 4000 in those participating in sport three times a week (Sport England, 2011). At around the same time, perhaps unsurprisingly, the Secretary of State for Culture, Media and Sport gave an interview in which he disavowed the previous government's sport participation target which 'will shortly be dropped in favour of a "more meaningful" measure' (Gibson, 2011, p. 22). However, 'a more meaningful measure' was never announced, and thus sport participation aspirations for the Olympic and Paralympic Games had evolved to be to seek an indeterminate increase in participation, largely in the post-Games period, with no strategies in place to leverage a demonstration effect to stimulate demand. Therefore, whilst it remained clear that the Chair of LOCOG, Lord Coe, the Mayor of London, Boris Johnson and all the relevant government Ministers retained their belief that an inherent demonstration effect would inspire people to take up sport, policy to harness the Games to increase sport participation had almost become the least aligned with the evidence from previous Olympic Games, sport events and franchises as it was possible for it to be.

Although an indeterminate increase in sport participation was now being sought, it is possible to provide a post-Games comment on the impact of the London 2012 Games on sport participation. Figures from the Active People survey published in December 2012 (Sport England, 2012) showed that the number of people participating in sport at least once a month (the closest proxy for new participants in sport) had increased by an average of 1% per year in the four years since 2007–2008, whilst those participating in sport at least three times a week (a proxy for increased participation frequency) had increased by an average of 2.2% per year in the four years since 2007–2008. However, the context for this latter participation frequency figure is that achieving the participation target of one million people doing more sport set by the previous government would have required an average year on year increase of 3%, and that the average increases in the two years prior

to the London 2012 Olympiad (2006–2007 and 2007–2008) were 4% per year. No matter how indeterminate the target, by any measure this is not a successful outcome.

Conclusion

This paper has shown, through a worldwide systematic review of English language sources, that evidence from previous Olympic Games, sport events and franchises suggests that effectively leveraging a demonstration effect (in which people are inspired by elite sport, sports people and sport events to participate themselves) in the pre-Games *pregnancy* period may have the potential to *increase participation frequency* in sport, and perhaps to *re-engage lapsed participants*. The evidence also suggests that relying on an *inherent* demonstration effect to bring *new participants* into sport is not likely to be successful. In theoretical terms, this means that a demonstration effect can be harnessed to influence the later behavioural stages of engagement illustrated by the TTM (see Figure 1), but not the earlier attitudinal stages. It should be noted that these findings apply to adults rather than children, and any potential nuances in the effect across different genders, ethnic groups or disabilities have not been investigated. However, it should also be noted that the findings, which are derived from evidence sources across a range of major events and sport franchises, are likely to have more general relevance beyond the Olympic Games to other major multi-sport events such as the Commonwealth Games, and perhaps also to single sport mega-events such as the Soccer World Cup.

Given that London 2012, in both its final presentation to be awarded the Games (Coe, 2005) and in subsequent legacy action plans (DCMS, 2008; Sport England, 2010b), expressly stated that it would be the first host to pro-actively seek to harness the Games to achieve national sport participation outcomes, it should have provided a clear and concise test of the evidence from previous Olympic Games, sport events and franchises. However, two conclusions can be drawn from the discussion section of this paper. First, that evidence from Active People, a survey that provides official UK government statistics, suggests that London 2012 has neither been successful in attracting new participants to sport, nor in increasing sport participation frequency, either at the level aspired to by the previous government, or at the same level achieved in the two years prior to the commencement of London 2012's four year Olympiad. However, second, the discussion section shows that while successive UK Governments differed in the sport participation outcomes (or at least the measures of outcomes) they have sought from London 2012, and in their respective emphases on the pre- or the post-Games period, neither had put in place any strategies to leverage a demonstration effect to stimulate sport participation demand. Therefore, although it is safe to conclude that, as of December 2012, the London 2012 Games had not been successful in delivering sport participation outcomes at a national level, this neither confirms nor confounds the evidence from previous Olympic Games, sport events and franchises presented in this paper that a demonstration effect, properly leveraged in the pre-Games pregnancy period, has the potential to deliver increases in sport participation frequency. Evidence from London 2012 does, however, appear to confirm that there is no inherent demonstration effect on sport participation. In the wake of London 2012, therefore, the evidence from previous Olympic Games, sport events and sport franchises on the potential of a demonstration effect presented in this paper would appear to remain the best evidence to inform future sport participation policies associated with the Olympic and Paralympic Games.

Sport participation impacts are often cited as a justification for investing in hosting the Olympic and Paralympic Games, and, in closing, three conclusions are offered about the advisability of such an investment. First, the paper shows that investing in hosting the Games alone is not enough to impact upon sport participation, and that further investment in Games-related sport participation initiatives is required. This suggests that if a potential impact on sport participation is the primary justification for hosting an Olympic and Paralympic Games, then the Games are a bad investment. Second, the paper shows that an Olympic and Paralympic Games, properly leveraged with supplementary sport participation investment, can have an effect on sport participation in terms of encouraging those who participate a little to participate a little more, and perhaps also in terms of encouraging lapsed participants to participate again. This suggests that if the decision to host an Olympic and Paralympic Games has already been made, or if an impact on sport participation is to be seen as one among a number of justifications for investing in hosting the Games, then it is reasonable for hosts to invest in sport participation initiatives linked to an Olympic and Paralympic Games. Finally, this paper shows that the impact of the Olympic and Paralympic Games on sport participation is more nuanced than the claim made for London 2012 that the Games would 'inspire a generation' to participate (DCMS, 2008). In other words, the Olympic and Paralympic Games is not a magic bullet for sport participation. This suggests that any investment in sport participation initiatives linked to an Olympic and Paralympic Games should seek specific, evidence-based outcomes, and such investment should be on a scale that reflects the desirability of those specific outcomes to the host society.

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Notes

1. For the purposes of this paper 'sports people' is used to mean athletes.
2. This is a deliberately vague operationalisation of the term 'demonstration effect' at this stage, as one of the functions of the paper is to provide a more precise conceptualization of what a demonstration effect might comprise.
3. The term 'franchises' refers to sport team franchises, such as those existing within, for example, North American Major League Baseball or American Football, but also major European teams with potential influence beyond traditional geographic borders, such as, for example, Manchester United Football Club. Within the search protocol, the terms 'franchise' and 'team' were used to cover these teams (see Table 1).
4. The local panel comprises the authors, and was drawn from staff employed at the authors' institution at the time of the review. The international advisory panel comprises experts in sport policy, participation and event legacies from around the world to ensure global coverage of English language sources.
5. Active People is a government funded survey that is commissioned by Sport England. It measures sport participation levels in England at various frequencies (e.g., once a month, once a week, three times a week), and was first conducted in 2005–2006 and then continuously since 2007–2008. It now has an annual sample size of circa 175,000, and provides official government statistics.

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*denotes a source included in the systematic review.

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Appendix A. Quality Assessment Pro Forma

(Limited) Quality assessment of studies included in OHL review

Guidance

This assessment should be completed for each included study and then the assessments should be aggregated in results section and also discussion/conclusions for each section. Overall review summaries and any discussion of the limitations of the review should also include some summary of the aggregated information as well as transparent discussion of the limitations of this tool. Where studies give no or little information, tick 'unclear'. It is not usually good practice to make assumptions. If this is the case for significant numbers of studies then this will be a major limitation of the review.

Study No / Name / Authors

No:..... Title:..... Author(S):.....

Source:.....

Relevance assessment

Is the study UK based? Y/N/Where? .....

Is the field of study relevant to the OHL topic? Y/N/unclear

Name field ie: sports events/arts events/other (specify)

Are the aims of the study relevant to one of questions within the OHL topic? Y/N/unclear

Are the findings of the study relevant to one of questions within the OHL topic? Y/N/unclear

Quality appraisal

Is the study reporting a process of structured enquiry? Y/N/unclear

If yes, is it transparent and replicable? Y/N/unclear

Is the study design appropriate to answering the question? Y/N/unclear

If not structured enquiry tick which applies:

Discussion/opinion piece [ ]

Policy briefing/debate [ ]

Non-systematic secondary review/analysis [ ]

Other [ ] Please specify .....

Ethical issues

Does the study report whether informed consent to participate was obtained from participants? Y/N/unclear

Does the study report whether representatives of the target population were involved in the design and steering of the study? Y/N/unclear

Please describe any other ethical problems with the design or conduct of the study.

.....

.....

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Note: OHL, Olympic Health Legacies.