

Understanding the nexus of sustainable development and sport: the systems thinking perspective

Iva Glibo & Joerg Koenigstorfer

To cite this article: Iva Glibo & Joerg Koenigstorfer (2023) Understanding the nexus of sustainable development and sport: the systems thinking perspective, Sustainability: Science, Practice and Policy, 19:1, 2240664, DOI: [10.1080/15487733.2023.2240664](https://doi.org/10.1080/15487733.2023.2240664)

To link to this article: <https://doi.org/10.1080/15487733.2023.2240664>



© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



[View supplementary material](#)



Published online: 08 Aug 2023.



[Submit your article to this journal](#)



[View related articles](#)



[View Crossmark data](#)

Understanding the nexus of sustainable development and sport: the systems thinking perspective

Iva Glibo  and Joerg Koenigstorfer 

Department of Sport and Health Sciences, Technical University of Munich, Munich, Germany

ABSTRACT

This study aims to explore how international sport experts make sense of sport's interaction with sustainable development. We adopted the interpretivist lens, combining the viewpoints of identified experts with the systems thinking approach. We conducted 29 semi-structured interviews with higher management decision-makers in international sport organizations and used an inductive approach for theory building to analyze the data and the systems map to show the various interrelations of the categories that were identified. The systems map offers a visualization of perceived causal connections that stem directly from the interviews with the experts. The map contains 58 variables, including nine themes and 49 categories, which are connected via 112 causal links, indicating the interconnected structure. The themes "environment," "social inclusion," "economic growth," and "health and wellbeing" represent outcomes of sport, while "visibility," "safety," "communication means," "educational tools," and "governance and integrity" are mechanisms of how sport can interact with sustainable development. The systems map presents a tool for understanding the complexity of relationships between key variables at play that can help policymakers, practitioners, and researchers when formulating, testing, and implementing various policy options directed toward increasing sustainability of sport stakeholders.

ARTICLE HISTORY

Received 21 November 2022

Accepted 20 July 2023

KEYWORDS



Physical activity; expert interviews; systems map; physical education; sport organizations


Introduction

The role of sport as a potential enabler for sustainable development is acknowledged in the United Nations Agenda 2030 (UN 2015). The UN (2015) regards sport as a contributor to development and peace, tolerance and respect, empowering women and young people alongside sport's benefits to health, education, and social inclusion.¹ Sustainable development "meets the needs of current generations without compromising the ability of future generations to meet their own needs" (WCED 1987, 23). The Sustainable Development Goals (SDG) reach their full potential with "mutually reinforcing actions" and "minimizing the trade-offs" (Nilsson, Griggs, and Visbeck 2016, 320). Furthermore, due to the complexity of sustainable development policy setting and implementation planning and the segregation of policy space between actors responsible for different sustainability aspects, "only integrated thinking across all fields can deliver the appropriate practical

elements for a meaningful sustainable outcome" (Skene 2021, 10005).

In previous work, authors have explored sport organizations' policy coherence with the SDGs (e.g., Dai and Menhas 2020; Lindsey and Darby 2019; Moustakas and Işık 2020), reflected on the utility of sport for achieving the SDGs (Morgan, Bush, and McGee 2021), evaluated the sustainability of mega sport events (Müller et al. 2021), and conceptually positioned sport within sustainable development (Bjørnarå et al. 2017; Salvo et al. 2021). Also, the regulative elements of the SDGs have been studied in international sport organizations. For example, Moon, Bayle, and François (2021) outlined five approaches to sustainability that international sport federations have implemented. Santini and Henderson (2021) and Vrontou, Dimitropoulos, and Gaitanakis (2019) focused on environmental sustainability policies and actions and concluded that international sport federations have had relatively low engagement with environmental practices. Morgan, Bush, and

CONTACT Joerg Koenigstorfer  joerg.koenigstorfer@tum.de  Department of Sport and Health Sciences, Technical University of Munich, Georg-Brauchle-Ring 60/62, 80992 Munich, Germany

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/15487733.2023.2240664>.

© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

McGee (2021) provided the state of affairs in 62 Commonwealth Games Associations. The findings indicate that the associations perceived themselves as relevant players when contributing to the SDGs through gender equality, health, and education. Still, their efforts seemed disintegrated and incidental, indicating the need for a more planned and systemic approach.

In the area of Sport for Development and Peace (SDP), Svensson and Woods (2017) found that most organizations were committed to promoting education and life skills. In review articles, several authors identified important limitations of previous SDP studies (e.g., Schulenkorf, Sherry, and Rowe 2016; Whitley, Massey, Camiré, Blom et al. 2019; Whitley, Massey, Camiré, Boutet et al. 2019). Two important limitations were the myopic understanding of SDP programs and the lack of consideration of micro- and macro-level actors. To address SDP programs more broadly and to account for the issue of transfer of individual-level change to societal impact, Massey et al. (2015) used systems thinking embedded into the structural, attitudinal, and transactional model of peacebuilding (Ricigliano 2012). They highlighted that building relationships among more relevant people facilitates change and using the systems-thinking approach avoids isolationist, top-down, and neo-colonial approaches. The authors invited SDP scholars and practitioners to use systems thinking to combat individualistic and linear approaches to SDP toward meaningful broad-level change. Blom et al. (2021) used the same grounding to explore the process of how coaches of SDP programs go through structural, attitudinal, and transactional change through SDP training and curriculum implementation. The findings indicated that the coaches initially changed their attitude toward the concepts relevant for SDP curriculum. As the coaches started to develop relationships with participants and participants engaged with the SDP concepts, transactional change occurred, followed by an indication of structural change in schools and community. Whitley, Massey, and Wilkison (2018, 116) developed the “systems theory of youth development through sport for traumatized and disadvantaged youth.” They demonstrated that the most important system-wide aspects of development include youth embodiment of competitive and physical aspects of activities and a new relationship with their social environment. Moreover, a development-focused environment, which supports the growth of a person rather than an athlete, and a process of positive community development were key considerations in youth development through sport.

In contrast to the previous studies that have often focused on environmental sustainability or

peacebuilding processes, we aim to reveal the collective viewpoints of relevant actors through systems thinking to study the broad role of sport for sustainable development. Using an interpretive stance, we seek to explore how experts in the field understand sport’s interaction with sustainable development by mapping the stated interrelations of the identified categories across SDP as well as traditional grassroots and elite sport. This understanding is relevant for research when generating hypotheses for in-depth inquiries and for practice when identifying potential cause-effect relationships for formulating and implementing strategies for sustainable development.

Literature review

Sustainability and the systems-thinking perspective

Sustainability is both an intermediate and long-term integrative and adaptive process of meeting social, economic, and environmental imperatives from local to global (Kemp, Parto, and Gibson 2005). The challenge is to simultaneously address them to benefit from their positive interactions (Morton, Pencheon, and Squires 2017). Core requirements must include context-specific considerations (Nilsson, Griggs, and Visbeck 2016) and embrace diversity in different ways of governing to respect sustainability principles. Sustainability implementation should be met with precaution due to the complexity of the world and the interdependence of sustainability-pursuing actions. Likewise, the implementation must consider inevitable tradeoffs and strive to minimize them (Nilsson, Griggs, and Visbeck 2016). To deal with this level of complexity, policymakers require tools that ease managing the governance processes (Reynolds et al. 2018; Weinstein, Turner, and Ibáñez 2013).

Systems thinking emerged from systems theory and although it initially reflected the functionalist paradigm, interpretive approaches found their place (Barton et al. 2004). Some authors have distinguished between hard and soft systems thinking, with the former focusing on goal achievement, and the latter focusing on learning (e.g., Bosch et al. 2007). Interpretivism-oriented systems thinking emphasizes holism, inclusiveness, and meaning resulting from the social construction of actors rather than objects with objective existence (Ehrenfeld 2008). With this perspective, sustainable development is socially constructed and based upon subjective organizational realities. In other words, its meaning is “context-dependent and must first be discovered through local and collaborative stakeholder discussions” (Porter 2008, 402).

Functions of systems thinking

The systems-thinking perspective proposes a shift from myopic, analytical approaches to a holistic approach (Gharajedaghi 2011). It addresses complexity through interdependent variables and uses reductionism (deconstructing) as well as constructivism (rebuilding the problem into a whole), sees the problem as not reduced to its elements, and aims to understand problems of all sizes, complexity, and disciplines (Hester and Adams 2017). The systems-thinking perspective assumes that observable events and patterns stem from hidden systemic structures and mental models. Furthermore, systems thinking offers a language of terms that helps to understand complexity (Monat and Gannon 2015), including interconnections, feedback, and self-organization (Williams 2017). Interconnections relate to interconnections of actors at various scales in social, economic, and ecological systems (Williams 2017). Feedback presents “a return on the information about the status of the process” (Monat and Gannon 2015, 20), whereas self-organization refers to the “tendency of a system to develop structures or patterns without the intervention of a designer or central plan” (21). Lastly, systems thinking provides a set of tools for graphical presentation that balances between presenting elements essential for understanding the system and the simplicity needed to understand it (Sterman 2000).

Systems-based approaches are particularly helpful when there is high interconnectedness between actors and sustainability concerns, and when there is a need for adaptive capacity within organizations (Williams et al. 2017), as seen in sports. Here, systems thinking allows for the display of positive and negative outcomes, which helps avoid a myopic view of sustainable development. In the present study, we use systems thinking to understand sport’s perceived interaction with sustainable development by mapping the interrelations of expert-identified categories.

Methodology

Design and data-collection procedure

Expert interviews have been regarded as one of the main qualitative data-gathering techniques for system modeling (Kim and Andersen 2012). To assemble the data for the present study, we used semi-structured systematizing expert interviews (Bogner and Menz 2009). The interviews allowed us to explore experts’ mental models, that is, their interpretive knowledge, consisting of subjective perceptions of reality, viewpoints, or perspectives (Kim and Andersen 2012). Interpretivist knowledge is

often implicit; it can be elicited through abstraction and systematization (Bogner and Menz 2009).

We considered the views of experts in international sport. We defined experts in relation to our research context and their “social representativity” (Bogner and Menz 2009, 50), meaning that they were engaged in societally relevant work in international sport organizations. We purposefully targeted individuals who occupied higher management paid or voluntary decision-making positions, had experience in developing and implementing agendas and policies regarding sustainable development, and were still active at the time when the interviews were conducted. With these inclusion criteria, we aimed to ensure that the experts had the process knowledge obtained through their direct involvement, practical experience, and, most importantly, interpretive knowledge (Bogner and Menz 2009). The organizations’ international character was reflected in their global, continental, or multinational level of operation.

The semi-structured interviews were undertaken between May and December 2020 via online video-communication platforms and were part of a larger research project (Glibo, Misener, and Koenigstorfer 2022). Before the interview, all experts received the interview schedule through email. They provided consent to record the session after they were granted confidentiality. We transcribed the recordings and upon request sent them to the respective experts for validation. Interviews were conducted in English and ranged in length between 20 and 90 minutes. The interview schedule contained three sections: background information on the expert, details on the role of the organization in the context of sustainable development and the SDGs, and positive and detrimental sustainable development-related occurrences in sport.

Experts

Twenty-nine experts engaged with 27 organizations participated in the study (Table 1). We used the typology of International Non-Governmental Sport Organizations (INGSOs) adapted from Geeraert, Alm, and Groll (2014) to categorize the organizations. Twenty-four experts were engaged with INGSOs, particularly sport-governing bodies, sport event-governing bodies, special task bodies, and representative bodies. Four experts were involved with intergovernmental organizations and one expert represented a National Non-Governmental Organization (NGO) included in the study due to its international mandate. Twenty-two organizations operated on a global level, and most participants were males with paid positions. Experts

Table 1. Information on experts.

Pseudonym	Gender	Engagement	Origin	Type of organization	Country of organization's headquarter	Scope
Saga	F	Paid	Europe	INGSO Representative Body	Sweden	Continental/regional
Katherine	F	Paid	Europe	INGSO Representative Body	Switzerland	Global
Marko	M	Voluntary	Europe	INGSO Representative Body	Sweden	Continental/regional
Isaiah	F	Paid	Europe	INGSO Special Task Body	Monaco	Global
Andrea	F	Voluntary	Europe	INGSO Special Task Body	Germany	Global
Kai	M	Paid	Europe	INGSO Special Task Body	Denmark	Global
Jean Pierre	M	Paid	Europe	INGSO Special Task Body	Germany	Global
Vasiliki	F	Paid	Europe	INGSO Special Task Body	Greece	Global
Andrea	F	Paid	Europe	INGSO Special Task Body	Denmark	Global
Bob	M	Paid	Europe	INGSO Special Task Body	Germany	Global
Ana	F	Voluntary	Americas	INGSO Special Task Body	New Zealand	Global
Amalia	F	Voluntary	Europe	INGSO Special Task Body	Switzerland	Global
Elisa	F	Paid	Europe	INGSO Event Governing Body	Switzerland	Global
Ashton	M	Paid	Americas	INGSO Event Governing Body	US	Global
Robert	M	Paid	Europe	INGSO Event Governing Body	Germany	Global
Luca	M	Paid	Europe	INGSO Sport Governing Body	Switzerland	Continental/regional
Vanessa	F	Paid	Oceania	INGSO Sport Governing Body	Ireland	Global
Pierre	M	Paid	Europe	INGSO Sport Governing Body	Hungary	Global
Garvit	M	Paid	Asia	INGSO Sport Governing Body	Switzerland	Global
Jack	M	Paid	Europe	INGSO Sport Governing Body	UK	Global
Jürgen	M	Voluntary	Europe	INGSO Sport Governing Body	Monte Carlo	Global
Leo	M	Paid	Americas	INGSO Sport Governing Body	Switzerland	Global
Obi	M	Paid	Africa	Intergovernmental organization	Nigeria	Continental/regional
Hugo	M	Paid	Europe	Intergovernmental organization	Belgium	Continental/regional
David	M	Paid	Africa	Intergovernmental organization	Cameroon	Continental/regional
Jess	F	Paid	Europe	Intergovernmental organization	UK	Global
Ursula	F	Voluntary	Europe	National NGO with international mandate	Germany	National level with international mandate
Mario	M	Paid	Europe	INGSO Special Task Body	Belgium	Global

F: female; M: male; INGSO: International Non-Governmental Sport Organization; NGO: Non-Governmental Organization.

were engaged with their respective organizations for approximately 9.5 years at the time of the interview with average sport-management experience of approximately 19.7 years.

Data analysis

We used Creswell's (2007) data-analysis spiral and followed an inductive approach for theory building to analyze the data. We determined the analysis unit based on the individual mental maps and proceeded with a process proposed by Eker and Zimmermann (2016) for analyzing purposive text data for systems model-building, although, comparatively, our approach was more interpretive. The MAXQDA Software facilitated the data analysis. A systems map is a standard systems-thinking representation of causal relationships expressed in mental maps. It consists of variables connected by arrows, indicating the causal – positive or negative – relationships between them (Sterman 2000). We produced the systems map using the Vensim PLE Software.

The coding was done as follows. First, we used open coding to identify the subcodes. We identified 221 subcodes, which we later axially coded and aggregated into 49 higher-level categories. Then, from these 49 categories, we further created nine themes to finalize the coding tree representing the outcomes and mechanisms of sustainable development in and through sport. Every theme emerged

from its categories and contained relationships. To develop the systems map, we identified the causal links between the categories that emerged directly from the mental maps of experts (Eker and Zimmermann 2016); the process is documented in the list of relationships in the [Supplementary Material](#) associated with this article. We used a fluid and organic coding approach, that is, we revisited coding until we felt that the coding tree gave a coherent and complete representation of the data (Braun and Clarke 2021). This enabled us to produce the systems map.

Considerations for choosing this coding approach included the characteristics of the experts who participated in the study. Each expert was interviewed individually, and their input was complementary rather than conflicting, so we treated the data on a group level in the initial coding step (Turner, Kim, and Andersen 2013). The interviews were semi-structured, which gave the experts and a researcher a degree of freedom to step outside the interview guide to address issues they felt were relevant.

The data were collected by the first author and analyzed by a research team of two persons. The interpretive lens allowed us to become part of the process as we facilitated interviews and made sense of the data. Consequently, our final map is based on the data, but also on our interpretations (Hatch and Yanow 2003). The principal researcher is a

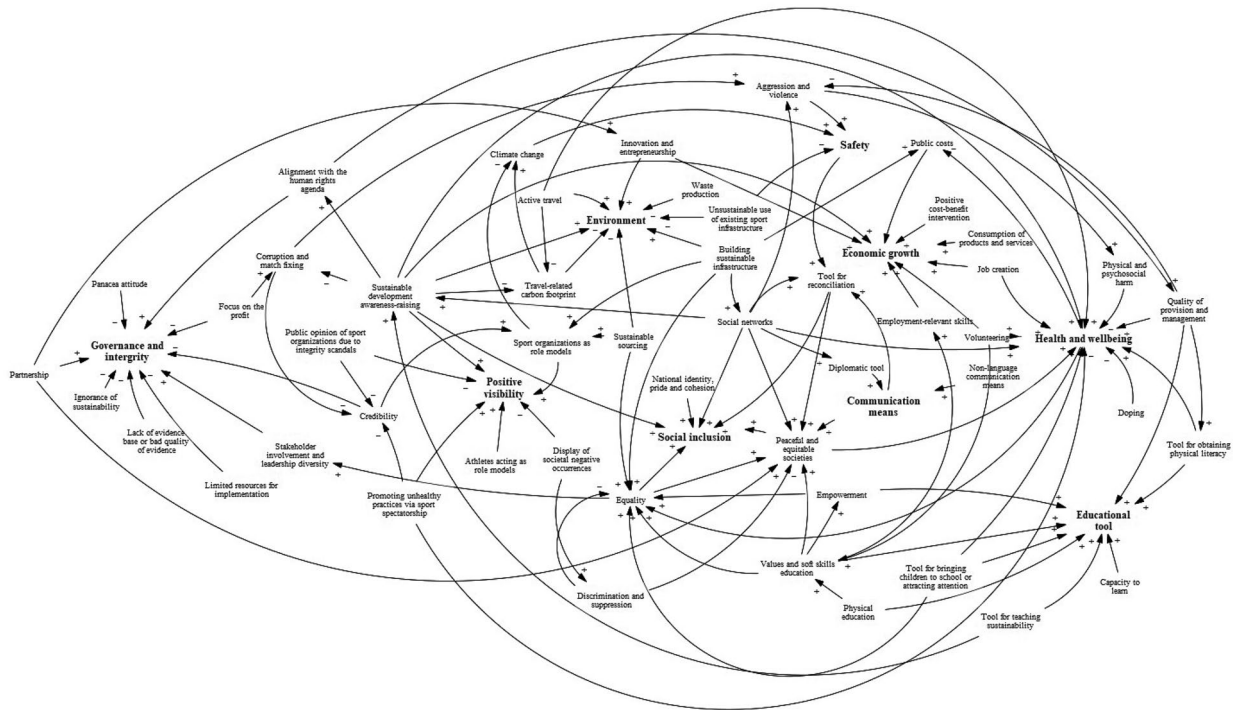


Figure 1. Systems map on the relation between sport and sustainable development.

fourth-year doctoral candidate with six years of practical experience in the international sport and sport for development sectors. The second author, an experienced sport-management scholar well versed in sustainability topics, was a critical friend throughout the phases of study design, data gathering, and data analysis. Through multiple meetings, especially with respect to data analysis, we discussed the coding and themes to arrive at a final systems map (Nowell et al. 2017).

Findings

The systems map (Figure 1) contains nine themes and 49 categories connected via 112 causal links. Sample statements for all categories and links can be found in the [Supplementary Material](#). The themes “environment,” “social inclusion,” “economic growth,” and “health and wellbeing” represent the outcomes of sport. The themes “governance and integrity,” “educational tool,” “visibility,” “safety,” and “communication means” can be considered as mechanisms for sport’s interaction with sustainable development.

Environment

Some experts described sport’s facets of waste production and travel-related carbon footprint, contributing to environmental damage and climate change.² For instance, Ursula highlighted, “I think sport feels the pressure especially regarding environment and climate change because sport has a lot of traveling,

flying everywhere.” By contrast, some experts emphasized positive aspects (e.g., active travel). For instance, Sebastien noted that “there are lots of initiatives, anti-littering, constructing sport infrastructure that is positive. So, for me, this is the future, and with all this active mobility like [backcountry] skiing and cycling and walking we see...all of those CO₂ [carbon-dioxide]-free modes of transport that can contribute to a climate-friendly approach.”

Several of our respondents believed that building sustainable sport infrastructure could decrease the negative environmental impact of sport or reduce safety concerns. Some experts emphasized that constructing sustainable infrastructure could positively interact with the role-model perception of sport organizations, while it might at the same time increase public costs. There was also in the minds of some respondents the idea that they could facilitate the building of social networks and reduce inequality by providing a place to practice sport to almost everyone interested in finding such a place. For example, Saga said, “sustainable cities and communities are also related to how infrastructure has been built, whether it is functional and designed as part of the overall cities and of course sport can bring people together...Meeting at sport events, bring them to the clubs and streets, so that’s a way of strengthening communities.” Moreover, some experts believed that sustainable sourcing could be positively linked to the environment, contribute to sport organizations’ role-model function, and reduce inequalities along the supply chains.

Social inclusion

Several respondents claimed that sport can support social inclusion because of its capacity to reduce inequalities by attracting children to school, its potential for empowerment, its ability to educate via the promotion of values and soft skills, and its role in advancing health and wellbeing. Vanessa highlighted, “of course, sport clubs can work on that by bringing people together, reduce segregation and through the educational value of sport, it can bring people out of marginalization and projects for the homeless...So, there are the indirect sports for development aspects.”

On a broad societal level, the findings reflect the belief that sport can strengthen national identity, pride, and cohesion. Some of the experts argued that establishing social networks could serve as a reconciliation and diplomatic tool that contributes to peaceful and equitable societies, and that networking can positively relate to the awareness-raising aspect of sustainable development, which can increase social inclusion. On the negative side, discrimination and suppression were perceived as potential causes of the increase in societal inequality. For instance, David referred to the history in which sport was used to suppress and dominate the colonized areas in Africa and noted that “we should not be naïve, sport is not only about creating peace and friendship; it also creates conflicts and fights and long-term divisions.”

Economic growth

Some experts believed that sport causes public spending by building sport infrastructure. At the same time, they noted that sport can be a potentially positive cost–benefit intervention because it can increase public health and wellbeing. Several respondents regarded sport as a relevant employment and volunteering sector, potentially improving work-related skills. They appreciated it as a driver of the consumption products and services and provides a setting for innovation and entrepreneurship. The latter can also take a role in preventing environmental damage, as Jack expressed it:

With things like motorsport, even some marine sports like us, and even in the certain sense cycling; I think some of the innovation that we see...The amount of money invested at a top end of our sport can be disseminated for the much wider economy and much wider industry. So, it is like a Formula One type of analogy...If they can make their engines 1% more efficient and in five years this gets applied to all new cars being built, this has got a much bigger impact.

Health and wellbeing

Some experts highlighted that practicing sport can improve health and wellbeing through physical and mental health benefits. However, several respondents mentioned the possibility of adverse outcomes caused by aggression, violence, and doping. Such outcomes can be avoided or reduced by improving governance and the integrity of stakeholders in sport. Saga reflected on the negative aspects and observed “sports injuries are a health problem, or harassment and gender-based sexual violence. Still a lot of things that exist in sport; we have to solve them in sport together with the right partners like governments, police.”

Governance and integrity

Some of the experts emphasized the need for alignment with the human-rights agenda. Implementing agenda-driven good governance practices can positively affect stakeholder involvement and leadership in sport organizations, eventually promoting diversity. The focus on profit, however, several respondents highlighted, could lead to corruption and match-fixing and jeopardize the credibility of sport and its potential uses in awareness-raising about sustainability. Vanessa commented on factors that could hinder sustainable development: “I think the integrity aspect, the corruption in some sports that have put it into kind of black market.” Beliefs and dispositions such as a panacea attitude, which implies that sport can be a solution to all sustainability problems, or ignorance of sustainability were seen to negatively influence the governance and integrity of sport. Further expressed negatives included the lack of an evidence base for sport policy or indications of low quality or insufficient resources for implementing sustainability-enhancing actions.

Educational tool

Respondents saw sport as a potential educational tool for the purpose of sustainable development. Some experts highlighted that practicing sport can teach values and soft skills and may thus, in the long run, contribute to peaceful and equitable societies. They regarded it as a channel and context for empowerment and education about sustainability that could serve as a form of physical literacy and lead to better health and wellbeing. For instance, some respondents drew attention to its ability to attract attention and bring children to school and increase their capacity to learn. They further saw

physical education as an essential part of the educational system in general and a relevant setting for using sport for educational purposes. In this vein, Ana highlighted: “in PE [physical education], you reinforce other elements such as tolerance, fair play, justice, and how to understand, for example, the weather changes...Why the hygiene is important, why we need to hydrate, why we need to eat properly, why we need the whole team to feel okay.”

Visibility

Some experts highlighted that due to the interest that sport creates, sport could provide visibility and raise awareness about sustainable development. This, in turn, they claimed, could contribute to social inclusion, lower travel-related carbon footprint, and improve protection of the environment in general, as well as facilitate alignment with the human-rights agenda. Several respondents emphasized that awareness could be raised via athletes or sport organizations that act as role models through sustainable practices. They found the latter to be particularly true when sustainable sourcing is implemented and when sustainable sport infrastructure is built. Linked to awareness raising on disability, Robert posited:

If you are active, you can change attitude towards disability...We have done some stunning research on people who were at the Paralympic Games in London 2012. One of three people changed their attitude towards disability...We realized that we could really contribute to...social inclusion. What we realized is that aligning with the SDGs we can amplify our message to more people.

Negative aspects include the lack of credibility that undermines public opinion of sport organizations and influences their role to promote sustainable development, according to some experts. Furthermore, they expressed that the promotion of unhealthy practices linked to sport spectatorship and the display of negative societal occurrences, including discriminatory behaviors, are negative influences on sport's role in creating visibility for sustainable development.

Safety

Some experts regarded safety as relevant for sport's role in sustainable development. For example, it has been argued that climate change increases the prevalence of very hot days, which can make physical activity potentially harmful to one's personal health. Also, sport infrastructure can create health

hazards. Aggression and violence sometimes seen in sport, findings highlighted, can be an issue for personal safety, too. Isaiah, for example, stated the following:

At the beginning in the camp, they couldn't have football games, it was impossible. Because through football the refugees got aggressive...Because the psychological being of refugees was so sensitive that this was harming the situation rather than bringing them together or making them feel better.

Communication means

Because it can be practiced without speaking the language of the opponent or teammate, the experts considered sport as a means of communication. Andrea stated that “we are trying to bring in people of different agendas and cultural backgrounds and I think that sport can really be a door opener.” Sport as a communicative tool can work at both individual (personal) and (inter)national levels.

Discussion

The goal of this study has been to increase our understanding of perceived relationships, mechanisms, and outcomes as a basis for transformation in the context of sport and sustainable development. Via expert interviews, we explored several mechanisms that emerged from the data analysis and their interconnections. In what follows, we briefly discuss these findings against the state of the art of the literature.

Theoretical and managerial implications

Partnerships were included in the SDGs as the seventeenth goal. Authors who grounded their work in SDP (e.g., Warner et al. 2020) and explored the policies of international sport organizations (Santini and Henderson 2021) identified partnerships as a driver for sustainable development. More precisely, Moon, Bayle, and François (2021) found that partnerships with NGOs and consultancies can raise the capacity of international sport federations to engage in sustainable development. Our findings place partnerships as an element of achieving peaceful and equitable societies through sport. As a foundation for sustainable development, peace needs international cooperation to set standard norms based on dialogue as well as excluding hierarchy and authority between partners (Glasbergen 2007; Sachs et al. 2019). According to our findings, sport, with its universally shared rules, could facilitate resolution of countries' disputes

through diplomatic efforts and act as a non-language means of communication between individuals. The examples of international sport diplomacy have been seen through “ping-pong diplomacy,” but also on the individual level in specifically designed sport programs that enable reconciliation. Moreover, partnerships in sport can support technological innovation. These are underpinned by joint resource commitment and responsibility that can be commercial and employ market mechanisms to promote more sustainable practices (Glasbergen 2007).

Stakeholder involvement and leadership diversity emerged as relevant factors in the present study. The need for more stakeholder involvement problematizes the evidence on international sport organizations’ limited engagement with the public (Santini and Henderson 2021). In sustainable development efforts, stakeholder engagement is essential because sustainability cannot be designed and imposed top-down (Kuenkel et al. 2021; Sachs et al. 2019). Further, stakeholder engagement is required to create trust and cohesion and to reinforce network connections to foster the collective action that facilitates a sense of ownership (Kuenkel et al. 2021). Hence, there is a need to create governance that supports dialogue and consultation to address different interests, including planetary health (Kuenkel 2019). Stakeholder engagement must also include diversity considerations as a source of learning and a “resource base for adaptation and reorganization” (Kemp, Parto, and Gibson 2005, 15). The lack of leadership diversity in sport organizations has been reported (Geeraert, Alm, and Groll 2014) and leadership is relevant for the success of SDP interventions where the features of leadership (e.g., supportive leadership) and youth leadership are drivers of success (Whitley, Massey, Camiré, Boutet et al. 2019). Kuenkel et al. (2021, 58) see diversity in “thought, viewpoints, background and experience” as a necessary consideration for creating collective intelligence for governance that is not only representative but able to balance private and shared interests.

The extant literature on sustainable development transformations regards innovation as a crucial sustainability driver (e.g., Kuenkel 2019). The findings of this study place innovation between economic gains and environmental relevance in the context of technology and treat entrepreneurship as a form of its deployment. Schulenkorf, Sherry, and Rowe (2016) identified the latter as an underdeveloped area of inquiry. The debates on innovation for sustainability extend beyond technological remit (Kemp, Parto, and Gibson 2005; Linnér and Wibeck 2021) and the importance of its cross-sectorial transferability (Sachs et al. 2019). Innovation should also be

addressed at the system level to consider “new linkages, new knowledge, different rules and roles and often new organizations” (Kemp, Parto, and Gibson 2005, 22) as well as economic alternatives that steer away from the traditional growth models (Kuenkel 2019). According to the experts interviewed for this study, innovation and entrepreneurship are related to partnerships and meaningful collaborations that can improve innovative and entrepreneurial efforts and outcomes in sport. In the same vein, Schulenkorf, Sherry, and Rowe (2016) suggested collaborations between economists and other social scientists to explore innovative aspects toward strengthening livelihoods of disadvantaged people through sport.

The absence of a strong evidence base and/or low quality of evidence was identified as a negative influence on governance for sustainable development. Indeed, sustainable development as a continuous learning process requires research-informed decision-making facilitated by shared objectives, criteria, tradeoff rules, and indicators to measure progress toward sustainable development (Kemp, Parto, and Gibson 2005). The quality of the research and the reporting is a concern. This is in line with SDP-focused research that demonstrates that the low rigor and the lack of reported details in published work often make a quality appraisal difficult (Whitley, Massey, Camiré, Blom et al. 2019; Whitley, Massey, Camiré, Boutet et al. 2019). Besides the concern for quality of evidence, Kemp, Parto, and Gibson (2005, 22) warn that “sustainability also needs means of spurring and guiding appropriate action.” Thus, sport-system actors must allocate resources for the implementation of sustainable development practices, which, according to our findings, present an expert-perceived limitation. Santini and Henderson (2021) also found the lack of finances to be a barrier when it comes to environmental sustainability in international sport organizations.

Our findings show that some experts believed that sport can change norms and behaviors through social activism (see also Sachs et al. 2019). By using its societal position, athletes and sport organizations were identified as role models to raise awareness and “explain the ethics of sustainable development, promote grass-roots activism and community participation, shareholder activism and fair-trade consumer movements” (Sachs et al. 2019, 812). This is in line with already-existing initiatives (e.g., UNFCCC 2018, Principle 5). However, evidence on the role-modeling potential of athletes refers mostly to physical activity and sport participation (Mutter and Pawlowski 2014) with some exemptions such as exploration of the potential of athletes and media to support inclusion and sustainable development (Carty et al. 2021) and human rights (Schwab 2018).

Still, research on the influence of sporting role models on the full scope of sustainability (e.g., sustainable consumption) is lacking. Also, there has been a paucity of research into the influence of sport's perceived credibility on its function as a role model. Our findings suggest that this might only be possible if the sport system is perceived as sustainable by those whose norms it aims to change, whereas creating and enabling contexts, in which negative societal occurrences are displayed to broader audiences, may negatively influence sport's power in creating positive social change.

Education through physical education and other forms of sport provision (e.g., SDP; Kidd 2008) is regarded as a setting for learning about sustainability, empowerment, and acquiring values and soft skills (e.g., Cohen 2005). Education aspects of sport provision have already been addressed extensively through both SDP research (e.g., Lyras and Peachey 2011; Schulenkorf, Sherry, and Rowe 2016) and practical work by SDP grassroots organizations (e.g., Svensson and Woods 2017). Morgan, Bush, and McGee (2021) report that Commonwealth Games Associations perceived their efforts toward sustainable development to be closely linked to physical education and sport in school and how it can facilitate learning about SDGs, adoption of physical education in school curricula, and high-quality vocational or higher education of sport professionals. The hope expressed by our experts aligns with previous findings that physical education and SDP programs could support awareness-raising and learning of sustainable behaviors, as well as acquiring life and soft skills to facilitate social inclusion and employability (Baena-Morales et al. 2021; Schulenkorf, Sherry, and Rowe 2016).

Governance and integrity emerged as one of the main ways that the sport system can facilitate sustainable development. A similar finding was reported by Santini and Henderson (2021) in their exploration of environmental policies of international sport federations. Good governance principles such as transparency, representation, and accountability are regarded as a challenge (Geeraert, Alm, and Groll 2014). In the sustainable development literature (e.g., Kemp, Parto, and Gibson 2005), transparency in particular has been emphasized as a crucial element of decision-making for sustainability due to the need for public engagement. As sustainability is an adaptive, context-specific, and multi-dimensional dynamic process, and "surprise is inevitable" (Kemp, Parto, and Gibson 2005, 16), the decisions must be openly communicated. If sport organizations want to increase their sustainability efforts and use their platform to increase public buy-in for sustainability, the increase in transparency of decision-making is

crucial for gaining the trust of fans, supporters, and the wider public. In that regard, the focus on profit leading to corruption and match-fixing surfaces as problematic. It clashes with traditional, noncommercial values of sport (e.g., Olympic values) and leads to the perceived lack of credibility and hence influences public opinion about sport organizations. The credibility is affected by integrity scandals and practices that are not in line with perceived sport goals (e.g., health). Indeed, there are also sport spectatorship cultures that promote unhealthy lifestyles (Piggin et al. 2019).

Most themes that were identified in the present study already feature in published research. For example, several outcomes of sport have already been identified such as the environment, social inclusion, economic growth, and health and wellbeing (e.g., Bailey et al. 2013; Bernard et al. 2021; Coalter 2007; Spaaij 2009). However, the novelty of the current work is reflected in the integration of themes across SDP and traditional grassroots and elite sport – referring to both the practicing of sport and the management of sport. This holistic perspective is essential considering the expanded scope of the SDGs. It can facilitate policy coherence by finding synergies and incoherencies that can enhance or hinder the contribution of sport to sustainable development (Lindsey and Darby 2019). For instance, our findings highlight partnerships as a driver of innovation and entrepreneurship. This does not only concern technological innovations, but also new governance solutions that foster peaceful and equitable societies through sport. Stakeholder trust emerged as both important and problematic: important because stakeholder trust seems to be necessary for the public buy-in of sustainable innovations and problematic because of the lack of good governance in sport organizations. Namely, the lack of transparency can negatively influence public perception and trust in sport organizations and, concurrently, their potential to serve as role models for sustainability. Moreover, low-level evidence in research (i.e., high risk of biases) was perceived as a hindrance to the assessment of sport's impact on sustainable development.

Conclusions

A systems map is inevitably a simplification of a more complex world. The completeness of the systems map was determined by the participating experts and researchers who coded the data. We recruited experts from various organizations and with different gender and geographic backgrounds to account for diversity, but the sample is evidently Europe-centric. Future

research should include experts with balanced geographic or ethnic backgrounds when following the interpretive systems-thinking approach. Also, future research should be more specific in terms of stakeholder differences in mechanisms and outcomes as well as the identification of stakeholder practices (e.g., whether managing sport or practicing sport is under consideration).

Despite these limitations, the findings can be helpful as a starting point toward encouraging other researchers to follow the integrative approach. Caution, however, must be vocalized in terms of the generalization of the map without examining the context-specific circumstances and temporal and spatial considerations (Nilsson, Griggs, and Visbeck 2016). The present study is limited in the sense that we only considered the perspectives of decision-makers in governing international sport organizations. Future studies should also consider other sport actors' opinions such as coaches, club managers, and sport-league representatives. Still, the systems map can help researchers and practitioners understand the sport system regarding its contribution to sustainable development as well as inspire researchers and practitioners about what variables to consider when formulating and testing relationships.

Notes

1. In agreement with the European Sports Charter, we define sport as "all forms of physical activity which, through casual or organized participation, aim at expressing or improving physical fitness and mental well-being, forming relationships or obtaining results in competitions at all levels" (Council of Europe 2021, Article 2).
2. The names mentioned in the text are pseudonyms used to protect the identity of the respondents.

Acknowledgements

The authors would like to thank the experts who participated in this study for their commitment to research and sustainability. Thanks also go to Kyle Bunds, the anonymous reviewers, and the participants of the European Sport Management Conference 2022 PhD Student Seminar for their feedback that helped to improve the quality of our work.

Disclosure statement

The authors have no competing interests to declare that are relevant to the content of this article.

Funding

This work was supported by the European Union's Horizon 2020 Research and Innovation Program under the Marie Skłodowska-Curie Actions (823815).

ORCID

Iva Glibo  <http://orcid.org/0000-0002-6871-8655>
Joerg Koenigstorfer  <http://orcid.org/0000-0001-6159-2861>

References

- Baena-Morales, S., D. Jerez-Mayorga, P. Delgado-Floody, and J. Martínez-Martínez. 2021. "Sustainable Development Goals and Physical Education: A Proposal for Practice-Based Models." *International Journal of Environmental Research and Public Health* 18 (4): 1. doi:10.3390/ijerph18042129.
- Bailey, R., C. Hillman, S. Arent, and A. Petitpas. 2013. "Physical Activity: An Underestimated Investment in Human Capital?" *Journal of Physical Activity & Health* 10 (3): 289–13. doi:10.1123/jpah.10.3.289.
- Barton, J., M. Emery, R. Flood, J. Selsky, and E. Wolstenholme. 2004. "A Maturing of Systems Thinking? Evidence from Three Perspectives." *Systemic Practice and Action Research* 17 (1): 3–36. doi:10.1023/B:SPAA.0000013419.99623.f0.
- Bernard, P., G. Chevance, C. Kingsbury, A. Baillot, A. Romain, V. Molinier, T. Gadais, and K. Dancause. 2021. "Climate Change, Physical Activity and Sport: A Systematic Review." *Sports Medicine* 51 (5): 1041–1059. doi:10.1007/s40279-021-01439-4.
- Björnarå, H., M. Torstveit, T. Stea, and E. Bere. 2017. "Is There Such a Thing as Sustainable Physical Activity?" *Scandinavian Journal of Medicine & Science in Sports* 27 (3): 366–372. doi:10.1111/sms.12669.
- Blom, L., R. Hilliard, L. Gerstein, L. Judge, O. Vasiloff, J. Ballesteros, and J. Johnson. 2021. "Tajik Coaches' Experiences in a Sport for Development Program Using Systems Theory: A Longitudinal Investigation." *Managing Sport and Leisure* 2021: 1–21. doi:10.1080/23750472.2021.2020676.
- Bogner, A., and W. Menz. 2009. "The Theory-Generating Expert Interview: Epistemological Interest, Forms of Knowledge, Interaction." In *Interviewing Experts*, edited by A. Bogner, B. Littig, and W. Menz, 43–80. London: Palgrave Macmillan.
- Bosch, O., C. King, J. Herbohn, I. Russell, and C. Smith. 2007. "Getting the Big Picture in Natural Resource Management—Systems Thinking as 'Method' for Scientists, Policy Makers and Other Stakeholders." *Systems Research and Behavioral Science* 24 (2): 217–232. doi:10.1002/sres.818.
- Braun, V., and V. Clarke. 2021. "One Size Fits All? What Counts as Quality Practice in (Reflexive) Thematic Analysis?" *Qualitative Research in Psychology* 18 (3): 328–352. doi:10.1080/14780887.2020.1769238.
- Carty, C., D. Mont, D. Restrepo, and J. Salazar. 2021. "WeThe15, Leveraging Sport to Advance Disability Rights and Sustainable Development." *Sustainability* 13 (21): 11738. doi:10.3390/su132111738.
- Coalter, F. 2007. *A Wider Social Role for Sport: Who's Keeping the Score?* London: Routledge.
- Cohen, M. 2005. "Sustainable Consumption American Style: Nutrition Education, Active Living and Financial Literacy." *International Journal of Sustainable Development & World Ecology* 12 (4): 407–418. doi:10.1080/13504500509469650.
- Council of Europe. 2021. *Recommendation CM/Rec(2021)5 of the Committee of Ministers to Member States on the Revised European Sports Charter*. Strasbourg: Council of Europe.

- <https://rm.coe.int/recommendation-cm-rec-2021-5-on-the-revision-of-the-european-sport-cha/1680a43914>.
- Creswell, J. 2007. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. Thousand Oaks, CA: Sage.
- Dai, J., and R. Menhas. 2020. "Sustainable Development Goals, Sports and Physical Activity: The Localisation of Health-Related Sustainable Development Goals through Sports in China: A Narrative Review." *Risk Management and Healthcare Policy* 13: 1419–1430. doi:10.2147/RMHP.S257844.
- Ehrenfeld, J. 2008. "Sustainability Needs to Be Attained, Not Managed." *Sustainability: Science, Practice and Policy* 4 (2): 1–3. doi:10.1080/15487733.2008.11908016.
- Eker, S., and N. Zimmermann. 2016. "Using Textual Data in System Dynamics Model Conceptualization." *Systems* 4 (3): 28. doi:10.3390/systems4030028.
- Geeraert, A., J. Alm, and M. Groll. 2014. "Good Governance in International Sport Organisations: An Analysis of the 35 Olympic Sport Governing Bodies." *International Journal of Sport Policy and Politics* 6 (3): 281–306. doi:10.1080/19406940.2013.825874.
- Gharajedaghi, J. 2011. *Systems Thinking: Managing Chaos and Complexity: A Platform for Designing Business Architecture*. Amsterdam: Elsevier.
- Glasbergen, P. 2007. "Setting the Scene: The Partnership Paradigm in the Making." In *Partnerships, Governance and Sustainable Development*, edited by P. Glasbergen, F. Biermann, and A. Mol, 1–25. Cheltenham: Edward Elgar.
- Glibo, I., L. Misener, and J. Koenigstorfer. 2022. "Strategic Sustainable Development in International Sport Organisations: A Delphi Study." *Sustainability* 14 (16): 9874. doi:10.3390/su14169874.
- Hatch, M., and D. Yanow. 2003. "Organization Theory as an Interpretive Science." In *The Oxford Handbook of Organization Theory*, edited by H. Tsoukas, and C. Knudsen, 63–87. Oxford: Oxford University Press.
- Hester, P., and M. Adams. 2017. *Systemic Decision Making: Fundamentals for Addressing Problems and Messes*. Cham: Springer.
- Kemp, R., S. Parto, and R. Gibson. 2005. "Governance for Sustainable Development: Moving from Theory to Practice." *International Journal of Sustainable Development* 8 (1–2): 12–30. doi:10.1504/IJSD.2005.007372.
- Kidd, B. 2008. "A New Social Movement: Sport for Development and Peace." *Sport in Society* 11 (4): 370–380. doi:10.1080/17430430802019268.
- Kim, H., and D. Andersen. 2012. "Building Confidence in Causal Maps Generated from Purposive Text Data: Mapping Transcripts of the Federal Reserve." *System Dynamics Review* 28 (4): 311–328. doi:10.1002/sdr.1480.
- Kuenkel, P. 2019. *Stewarding Sustainability Transformations: An Emerging Theory and Practice of SDG Implementation*. Cham: Springer.
- Kuenkel, P., E. Kühn, D. Stucker, and D. Williamson. 2021. *Leading Transformative Change Collectively: A Practitioner Guide to Realizing the SDGs*. London: Routledge.
- Lindsey, I., and P. Darby. 2019. "Sport and the Sustainable Development Goals: Where is the Policy Coherence?" *International Review for the Sociology of Sport* 54 (7): 793–812. doi:10.1177/1012690217752651.
- Linnér, B., and V. Wibeck. 2021. "Drivers of Sustainability Transformations: Leverage Points, Contexts and Conjunctures." *Sustainability Science* 16 (3): 889–900. doi:10.1007/s11625-021-00957-4.
- Lyras, A., and J. Peachey. 2011. "Integrating Sport-for-Development Theory and Praxis." *Sport Management Review* 14 (4): 311–326. doi:10.1016/j.smr.2011.05.006.
- Massey, W., M. Whitley, L. Blom, and L. Gerstein. 2015. "Sport for Development and Peace: A Systems Theory Perspective on Promoting Sustainable Change." *International Journal of Sport Management and Marketing* 16 (1–2): 18–35. doi:10.1504/IJSM.2015.074921.
- Monat, J., and T. Gannon. 2015. "What is Systems Thinking? A Review of Selected Literature Plus Recommendations." *American Journal of Systems Science* 4: 11–26. doi:10.5923/j.ajss.20150401.02.
- Moon, P., E. Bayle, and A. François. 2021. "Assessing International Sport Federations' Sustainability Practices: Toward Integrating Sustainability in their Main Sports Events." *Frontiers in Sports and Active Living* 3: 752085. doi:10.3389/fspor.2021.752085.
- Morgan, H., A. Bush, and D. McGee. 2021. "The Contribution of Sport to the Sustainable Development Goals: Insights from Commonwealth Games Associations." *Journal of Sport for Development* 9: 14. <https://jsfd.org/2021/09/01/the-contribution-of-sport-to-the-sustainable-development-goals-insights-from-commonwealth-games-associations>.
- Morton, S., D. Pencheon, and N. Squires. 2017. "Sustainable Development Goals (SDGs), and their Implementation: A National Global Framework for Health, Development and Equity Needs a Systems Approach at Every Level." *British Medical Bulletin* 124 (1): 81–90. doi:10.1093/bmb/ldx031.
- Moustakas, L., and A. Işık. 2020. "Sport and Sustainable Development in Botswana: Towards Policy Coherence." *Discover Sustainability* 1 (1): 12. doi:10.1007/s43621-020-00005-8.
- Müller, M., S. Wolfe, C. Gaffney, D. Gogishvili, M. Hug, and A. Leick. 2021. "An Evaluation of the Sustainability of the Olympic Games." *Nature Sustainability* 4 (4): 340–348. doi:10.1038/s41893-021-00696-5.
- Mutter, F., and T. Pawlowski. 2014. "Role Models in Sports – Can Success in Professional Sports Increase the Demand for Amateur Sport Participation?" *Sport Management Review* 17 (3): 324–336. doi:10.1016/j.smr.2013.07.003.
- Nilsson, M., D. Griggs, and M. Visbeck. 2016. "Policy: Map the Interactions between Sustainable Development Goals." *Nature News* 534 (7607): 320–322. doi:10.1038/534320a.
- Nowell, L., J. Norris, D. White, and N. Moules. 2017. "Thematic Analysis: Striving to Meet the Trustworthiness Criteria." *International Journal of Qualitative Methods* 16 (1): 160940691773384. doi:10.1177/1609406917733847.
- Piggin, J., D. Souza, S. Furtado, M. Milanez, G. Cunha, B. Louzada, B. Graeff, and H. Tlili. 2019. "Do the Olympic Games Promote Dietary Health for Spectators? An Interdisciplinary Study of Health Promotion through Sport." *European Sport Management Quarterly* 19 (4): 481–501. doi:10.1080/16184742.2018.1562484.
- Porter, T. 2008. "Managerial Applications of Corporate Social Responsibility and Systems Thinking for Achieving Sustainability Outcomes." *Systems Research and Behavioral Science* 25 (3): 397–411. doi:10.1002/sres.902.
- Reynolds, M., C. Blackmore, R. Ison, R. Shah, and E. Wedlock. 2018. "The Role of Systems Thinking in the

- Practice of Implementing Sustainable Development Goals.” In *Handbook of Sustainability Science and Research*, edited by W. Filho, 677–698. Cham: Springer.
- Ricigliano, R. 2012. *Making Peace Last: A Toolbox for Sustainable Peacebuilding*. Boulder, CO: Paradigm Publishers.
- Sachs, J., G. Schmidt-Traub, M. Mazzucato, D. Messner, N. Nakicenovic, and J. Rockström. 2019. “Six Transformations to Achieve the Sustainable Development Goals.” *Nature Sustainability* 2 (9): 805–814. doi:10.1038/s41893-019-0352-9.
- Salvo, D., L. Garcia, R. Reis, I. Stankov, R. Goel, J. Schipperijn, P. Hallal, D. Ding, and M. Pratt. 2021. “Physical Activity Promotion and the United Nations Sustainable Development Goals: Building Synergies to Maximize Impact.” *Journal of Physical Activity & Health* 18 (10): 1163–1180. doi:10.1123/jpah.2021-0413.
- Santini, D., and H. Henderson. 2021. “The Winners and Losers in the Race to Environmental Sustainability: A Ranking of Summer Olympic International Federation Progress.” *Emerald Open Research* 3: 12. doi:10.35241/emeraldopenres.14195.1.
- Schulenkorf, N., E. Sherry, and K. Rowe. 2016. “Sport for Development: An Integrated Literature Review.” *Journal of Sport Management* 30 (1): 22–39. doi:10.1123/jsm.2014-0263.
- Schwab, B. 2018. “Celebrate Humanity: Reconciling Sport and Human Rights through Athlete Activism.” *Journal of Legal Aspects of Sport* 28 (2): 170–207. doi:10.18060/22570.
- Skene, K. 2021. “No Goal is an Island: The Implications of Systems Theory for the Sustainable Development Goals.” *Environment, Development and Sustainability* 23 (7): 9993–10012. doi:10.1007/s10668-020-01043-y.
- Spaaij, R. 2009. “The Social Impact of Sport: Diversities, Complexities and Contexts.” *Sport in Society* 12 (9): 1109–1117. doi:10.1080/17430430903137746.
- Sterman, J. 2000. *Business Dynamics: Systems Thinking and Modeling for a Complex World*. New York: Irwin McGraw-Hill.
- Svensson, P., and H. Woods. 2017. “A Systematic Overview of Sport for Development and Peace Organisations.” *Journal of Sport for Development* 5: 36–48. <https://jsfd.org/2017/09/20/a-systematic-overview-of-sport-for-development-and-peace-organisations>.
- Turner, B., H. Kim, and D. Andersen. 2013. “Improving Coding Procedures for Purposive Text Data: Researchable Questions for Qualitative System Dynamics Modeling.” *System Dynamics Review* 29 (4): 253–263. doi:10.1002/sdr.1506.
- United Nations. 2015. *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York: United Nations. <https://sdgs.un.org/sites/default/files/publications/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>.
- United Nations Framework Convention on Climate Change (UNFCCC). 2018. *Sports for Climate Action Framework*. New York: United Nations Climate Action. https://unfccc.int/sites/default/files/resource/Sports_for_Climate_Action_Declaration_and_Framework_0.pdf.
- Vrondou, O., P. Dimitropoulos, and L. Gaitanakis. 2019. “International Sports Bodies Application of Ecological Sustainability Mechanisms Affecting Sport Tourism Related Natural Environment.” In *Smart Tourism as a Driver for Culture and Sustainability*, edited by V. Katsoni and M. Segarra-Oña, 481–502. Cham: Springer.
- Warner, M., J. Robinson, B. Heal, J. Lloyd, P. O’Connell, and L. Rose. 2020. “A Comprehensive Sport for Development Strategy Using Collaborative Partnerships to Facilitate Employment among Youth Facing Barriers.” *Journal of Sport for Development* 8: 10–24. https://jsfd.files.wordpress.com/2020/12/warner.comprehensive.sfd_strategy.version.pdf.
- Weinstein, M., R. Turner, and C. Ibáñez. 2013. “The Global Sustainability Transition: It Is More than Changing Light Bulbs.” *Sustainability: Science, Practice and Policy* 9 (1): 4–15. doi:10.1080/15487733.2013.11908103.
- Whitley, M., W. Massey, M. Camiré, L. C. Blom, M. Chawansky, S. Forde, M. Boutet, A. Borbee, and S. Darnell. 2019. “A Systematic Review of Sport for Development Interventions across Six Global Cities.” *Sport Management Review* 22 (2): 181–193. doi:10.1016/j.smr.2018.06.013.
- Whitley, M., W. Massey, M. Camiré, M. Boutet, and A. Borbee. 2019. “Sport-Based Youth Development Interventions in the United States: A Systematic Review.” *BMC Public Health* 19 (1): 89. doi:10.1186/s12889-019-6387-z.
- Whitley, M., W. Massey, and M. Wilkison. 2018. “A Systems Theory of Development through Sport for Traumatized and Disadvantaged Youth.” *Psychology of Sport and Exercise* 38: 116–125. doi:10.1016/j.psychsport.2018.06.004.
- Williams, A., S. Kennedy, F. Philipp, and G. Whiteman. 2017. “Systems Thinking: A Review of Sustainability Management Research.” *Journal of Cleaner Production* 148: 866–881. doi:10.1016/j.jclepro.2017.02.002.
- World Commission on Environment and Development (WCED). 1987. *Our Common Future*. Oxford: Oxford University Press.