



Collaborative sport governance in IOC and the UN Women: A case study from the perspective of actor network theory

Gobernanza deportiva colaborativa en el COI y ONU Mujeres: un estudio de caso desde la perspectiva de la teoría del actor-red

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Abstract

Introduction: Increasing complexities and changes in global sport governance required the collaboration of international organizations and governments, with traditional governance issues such as gender conflicts still persisted, while new conflicts continued to emerge, international organizations were not able to tackle governance challenges solely.

Objective: The study focused on the collaborative governance between the International Olympic Committee and United Nations Women.

Methodology: This study constructs diachronic corpus in the framework of actor-network theory, with which high frequency governance participants and keywords were analyzed via AntConc 4.2.4, while BibExcel and Ucinet 6.0 were employed to illustrate their heterogeneous networks, main problems faced in each period as well as participation in a chronological manner. Utilizing the Blau index and Ucinet 6.0, the study calculated networks' heterogeneity index and density, exploring the development and mechanism of collaborative sport governance.

Results: The collaborative sport governance revolved around female leadership, anti-violence and welfare; campaigns and programs need to integrate organizational governance, Olympic legacy inheritance, governmental gender equality, commercialization of sponsorship, etc; governance participants were the most diverse from 2017 to 2019 and exhibited the highest connectivity from 2020 to 2024, indicating that the diversity of participants in collaborative sport governance fluctuated with problems, but multilateral connections have witnessed a continuous steady increase.

Conclusions: Governance participants need to balance interests and risks, adopt changes and seek common grounds while respecting differences, therefore forming a diverse, inter-connected, stable and sustainable mechanism for collaborative sport governance, and ultimately achieving gender equality.

Keywords

Actor-network theory; collaborative sport governance; IOC; UN Women.

Resumen

Introducción: El aumento de las complejidades y cambios en la gobernanza deportiva global requería la colaboración entre organizaciones internacionales y gobiernos; persistían problemas tradicionales como los conflictos de género, surgían nuevos desafíos y las organizaciones internacionales no podían afrontarlos por sí solas.

Objetivo: El estudio se centró en la gobernanza deportiva colaborativa entre el Comité Olímpico Internacional y ONU Mujeres.

Metodología: Este estudio construyó un corpus diacrónico basado en la teoría del actor-red, con el que se analizaron los participantes de gobernanza y palabras clave frecuentes mediante AntConc, BibExcel y Ucinet se utilizaron para representar redes heterogéneas, problemas por período y participación cronológica. Con el índice de Blau y Ucinet, se calcularon la heterogeneidad y la densidad de las redes, explorando así el desarrollo y mecanismo de la gobernanza deportiva colaborativa.

Resultados: La gobernanza deportiva colaborativa se centró en el liderazgo femenino, la lucha contra la violencia y el bienestar. Las campañas integraron la gobernanza organizativa, el legado olímpico, la igualdad de género y la comercialización del patrocinio. La diversidad de los actores fue mayor entre 2017 y 2019, alcanzando su máxima conectividad entre 2020 y 2024, lo que mostró fluctuaciones en la diversidad según los problemas y un aumento sostenido de las conexiones multilaterales.

Conclusiones: Los actores de la gobernanza debían equilibrar intereses y riesgos, adoptar cambios y buscar consensos respetando las diferencias, formando así un mecanismo diverso, interconectado, estable y sostenible de gobernanza deportiva colaborativa, orientado a lograr la igualdad de género.

Palabras clave

Teoría del actor-red; gobernanza deportiva colaborativa; COI; ONU Mujeres.

Introduction

Against the international backdrop of increasing connectivity and complex changes, global governance, by resolving global issues through binding international regulations to maintain the international political and economic order, is a more orderly and reliable way to address social and political issues beyond the scope of nations' capabilities (Weiss & Gordenker, 1996) and has been unprecedented on the international arena. Any certain international organization is no longer able to resolve governance-related issues solely, more organizations and governments need to get involved and collaborate in the process (O'Boyle & Shilbury, 2015). Traditional governance issues such as gender conflicts continue to loom large in international organizations (Sokolova et al., 2023), in the realm of global sport governance, women still face challenges in sport, and new hotspots of conflicts like gender segregation continue to emerge (Castan-Vicente et al., 2019), which calls for the collaboration of global sport governance, namely collaborative sport governance (Meier & García, 2021) in the field of sport and women.

When it comes to the domain of sport governance, functioning as the biggest international sport entity, the International Olympic Committee, known as IOC, acts as a catalyst for fostering collaboration among various stakeholders within the Olympic movement, and maintains collaborative partnerships with both public and private entities, wielding significant influence over the policies governing the Olympic movement and individual sports federations.

As for women, International organizations are the main platform for global governance and multilateral collaboration, and the United Nations is the most authoritative intergovernmental international organization, which is the core and leading mechanism of the international order and global governance. Therefore, the central coordinating body for safeguarding women, the United Nations Entity for Gender Equality and the Empowerment of Women, commonly abbreviated as UN Women, assumes a pivotal role in safeguarding women's rights globally, while also providing indispensable resources and technical assistance aimed at promoting gender equality and women's empowerment. Its overarching objective is to facilitate the integration of gender equality principles across member states at diverse stages of development. In the context of globalization, global sport governance undergoes continual evolution, and the engagement of the United Nations and various international bodies in global governance has instigated novel trends. UN Women's increasingly prominent roles address pertinent issues such as the marginalization of women in sports.

Both in the field of sport and women, IOC and UN Women serve as unparalleled organizations in governance, ever since their establishment, plenty of partnerships have been made by these two organizations in terms of "sport empowering women", therefore, their collaborative sport governance maintain a cornucopia of research significance. To analyze IOC and UN Women's collaborative sport governance, this research discusses materials and documents sourced from the official websites of the IOC and UN Women, by building four chronological corpus, the collaborative sport governance can be highly represented and compared.

To conduct a comprehensive analysis over the collaborative governance between the IOC and UN Women ever since UN Women's establishment in 2010, actor-network theory is adopted as the theoretical framework, this theory sees the relations among organizations as not only collaborative, but more crucially, dynamic and interactive by underscoring the significance of engaging multiple actors in resilient networks. This study aims to offer insights into novel paradigm, as Michel Callon suggests, three components constitute actor-network theory: actors, heterogeneous network, and translation (Callon, 1986b). By applying this model, the participation, development as well as interactions can be discussed.

Collaborative sport governance

Governance involves important institutional arrangements through existing rules, it requires coordination through normative and legal principles, rules, and decision-making procedures when there are intersections between two or more regulations, or when there are competitions and conflicts of interests among two or more entities. As significant component of governance, global governance primarily addresses global development issues, many of which require joint action and collective responses from various countries and international organizations, reaching consensus on governance concepts and schemes (Rosenau & Czempiel, 1992). Global governance needs to embody publicness, diversity, and

negotiation. It is not just a set of international rules or a single international activity but a comprehensive process. Rhodes has outlined four principles of global governance: 1) Interdependence between organizations. 2) Continuing interactions between network members, driven by the need to exchange resources and negotiate shared goals. 3) Game-like interactions. 4) A significant degree of autonomy from the state. Networks are not accountable to the state; they are self-organizing. Governance necessitates and calls for collaboration, member, and network analysis (Rhodes, 2007) .

Global sport governance has been considered a part of the global governance system, being a product of globalization (Chatzigianni, 2017). From an ontological perspective, global sport governance epitomizes Olympic governance. It primarily relies on governance mechanisms and procedures centered around the International Olympic Committee and international sports federations, operating independently under stable organizational systems, structures, and frameworks, maintaining a high degree of autonomy, and being free from external intervention and control (Ferkins et al., 2017). Governance of sports organizations comprises three elements: setting direction, control and regulation, and normative behavior. Also, global sport governance is about managing and directing institutions; its mechanisms dictate how rights, powers, and responsibilities are distributed among participants, involving adjustments to the relationships between sports organizations and stakeholders, as well as changes in the governance structures of the sports domain (Sawyer et al., 2008). Regarding the impact of government organizations as emerging global sport governance actors on sports organizations, Chappelet suggested that if traditional sports management bodies decide to partner with national governments and intergovernmental organizations, they will maintain their leadership position in the sports world (Chappelet, 2013). Hierarchical or market-based governance approaches are no longer adequate for contemporary sport governance needs, and collaborative governance involving the participation of civic groups, other international organizations, local, regional, and national governments is a possible alternative (Chappelet, 2021).

With the emergence of multiple participating entities, the traditional autonomy of sport governance has been challenged, prompting scholars to explore sport governance from the collaborative perspective, namely collaborative sport governance, emphasizing the role of networks and participants (Meier & García, 2021). The federal model of sport governance networks is well suited to adopting collaborative sport governance mechanisms (Ferkins & Shilbury, 2019). In collaborative sport governance, there were often antagonistic relationships between stakeholders, but governance objectives were achieved through increased collaboration, they also discussed the different roles of trust levels, transparency, the ability to build trust, and leadership in collaborative sport governance networks (O'Boyle & Shilbury, 2015). Collaborative governance theory was advocated as a conceptual framework to analyze the relationships between sports organizations and public authorities, suggesting that comparative studies of collaborative sport governance should adopt structured, focused comparative methods to track specific collaborations between public authorities and sports organizations.

Overall, the concept of collaborative sport governance emphasizes participants and their collaboration networks, and takes form from global sport governance; while global sport governance serves as a category for global governance; global governance and domestic governance constitute the broad concept governance. Previous researches majorly focus on research paradigms, historical research, legal research, event studies, though with less emphasis on network analysis of organizational resources and collaborative governance research, the significance has been discussed.

Collaborative sport governance of IOC and UN Women

When it comes to IOC, previous research could be divided into 2 parts, theoretical development and application, this review will mainly focus on IOC's collaborative sport governance.

Luijk indicated that the IOC and the UN did not always maintain a friendly collaboration; instead, they went through many events before finally forming a mutually influential partnership. The IOC has consistently endeavored to promote the role of sports worldwide, which also influenced the UN's perception of sports (Van Luijk, 2013), also, there are many factors influencing the relationship between global sports organizations and international development organizations, including the global influence of sports and the legitimization processes of the IOC and the UN (Van Luijk, 2018).

In terms of UN Women, as an agency of the UN, literature about its collaborative sport governance mainly traces its way back to UN.



Hayhurst et al. (2014) have found that the involvement of young indigenous women in sports activities helps them challenge racism and gender discrimination in their communities, thereby challenging negative stereotypes. SDP programs assist adolescent girls in challenging gender norms, enhancing their self-esteem, confidence, and self-defense capabilities, strengthening social networks, thus enhancing their ability to survive in the current global environment, highlighting the importance of sport programs in empowering women as well as the collaboration between UN and local governments. Oxford and Spaaij (2019) pointed out that despite an increasing number of girls and women participating in male-dominated leisure activities, there were serious limitations to social change, with female participants displaying gender coloniality in their actions, female participation in sports activities disrupts fixed gender hierarchies, as these activities were originally male privileges, yet women within male structures still struggle to achieve social transformation (Oxford, S., 2019).

Previous researches focused on the collaborative sport governance of IOC especially with the UN, targets mainly focusing on collaboration narratives, responsibilities, contents and trends such as refugees, however, there is relatively little research on UN Women's involvement in collaborative governance in sport, and no research in its collaborative sport governance with IOC, which might owe to its late establishment. The current academic researches mainly focused on the UN research, including case studies and policy interpretations, especially the research on collaborative governance in the context of the SDP, and the interpretation of risks. To sum up, gender issues as well as the collaboration with other organizations or agencies have not been fully illustrated and need further research.

The participation of women in international sport organizations

Previous researches about the participation of women in international sport organizations focused on women's leadership and safeguarding women's rights.

Firstly, the low participation of women in international organizations has exacerbated gender inequality globally. Despite gains at lower levels, women have made limited inroads into leadership roles in international organizations. Though women's representation at the highest levels remains far below parity but has been improving steadily since the 1990s. One caveat is that this improvement has only occurred in a subset of institutions, which suggests a concentration of women leaders (Sokolova et al., 2023). Even when women occupy directorial positions in international organizations, they often lack significant discourse power and influence in decision-making. In a male-dominated world, women's positions in sports organizations are typically marginal or insignificant (Galily & Betzer-Tayar, 2014). This imbalance has led to uneven recruitment and incomplete representation on committees. To address this, the International Olympic Committee has exerted regulatory pressure on single-event associations, setting targets for gender inclusiveness (Postlethwaite & Grix, 2016). Boosting women's participation and representation is crucial for amplifying their voice in the sports world.

Secondly, international organizations have encountered challenges in safeguarding women's rights. Divergent opinions and tensions surrounding traditional gender roles have hindered the local dissemination of global concepts related to women's rights (Mujica & Meza, 2009). Moreover, lack of diverse and comprehensive sport source materials such as programs poses challenges to women's participation in sports (Castan-Vicente et al., 2019). Also, the invisibility of women in sporting legislation reinforced gender stereotypes and in turn limited the participation of women in certain modalities (De Moura et al., 2020).

To sum up, the participation of women in the governance of international sport organizations is facing two major struggles, representation of women's leadership and rights safeguarding. To tackle the struggles, participation in women's empowerment should be highlighted, it is recommended that launching safeguarding programs and legislating gender equality laws could alleviate and protect women's participation.

Actor-network theory

Actor-network theory, abbreviated as ANT, is a sociological theory proposed and developed by French sociologists Bruno Latour, Michael Callon, and John Law in the 1980s and 1990s. As the major architect of the actor-network theory, Latour argued that for a better understanding of a society, one must investigate human and non-human actors (Latour & Woolgar, 1979). Another proponent and contributor of ANT, Callon, used the concept "translation" to describe the emergence of a network, denoting all kinds



of interaction such as negotiation, persuasion, disputes, and even violence between the actors, with “translation” consisting of four critical moments: problematization, interessement, enrollment, and mobilization (Callon, 1984).

Core concepts of actor-network theory include actors, heterogeneous networks, and translation. In actor-networks, each actor possesses its own capabilities and interests, which may vary widely, and conflicting or opposing interests among actors are common (Latour, 1993). Therefore, network stability depends on the continuous “translation” of interests among actors, with successful translation hinging on actors being satisfied with their roles within the network.

Actor-network theory offers a new perspective and method for studying the formation of collaborative governance networks and the mechanisms for realizing network interest alliances. According to the principle of equivalence between human and non-human actors in actor-network theory, collaborative sport governance between IOC and UN Women is constituted by heterogeneous actor networks composed of both human and non-human actors. In this process, actors with different interests and behaviors all exert certain influences on the process of collaborative sport governance.

Research questions

In previous studies, collaborative governance researches have been comprehensive and focused on projects or certain organizations; however, they often overlooked the connections of actors and forming network structure, and studies tend to be general but failing in demonstrating the whole mechanism. Chronological studies focus majorly on IOC and UN, however failed in details. Additionally, IOC is always an indispensable component and the dominance factor, while in the context of women's involvement, UN Women, the targeted UN agency and comprehensive speaker for women empowerment, established as an independent agency in 2010, has remained obscured beneath the broader umbrella of the UN in previous research, failing to step fully into the academic arena as well as the field of collaborative sport governance.

Therefore, to build upon previous research, this research will address the following three questions:

- 1) How have organizations and agencies participated in the collaborative sport governance?
- 2) How has IOC and UN Women's collaborative sport governance developed ever since UN Women was founded?
- 3) What is the IOC and UN Women's collaborative sport governance mechanism?

Actor-network theory echoes with the needs of governance, especially collaborative sport governance in three ways, firstly, it focuses on the classification and power allocation of actors; secondly, its heterogeneous network emphasizes interdependence as well as continuing interactions among organizations. Thirdly, this theory focuses on dynamic governance and is able to comprehensively analyze the motivations, projects, development and mechanisms of collaborative sport governance. Additionally, inter-governmental organizations such as IOC and UN Women could be defined as actors, the dynamic partnerships revolving around their governance form heterogeneous networks, and has gone through stages in collaboration that could be applied as well as accounted by actor-network theory.

Method

Participants

The research focuses on collaborative sport governance between IOC and UN Women. Being comprehensive platforms to deliver accessible, dynamic and effective information regarding news and documents, the official websites of IOC and UN Women are of great significance in terms of data source, which constitute exhaustive and detailed records and could be used to trace interactions among organizations.

In the frame of Actor-network Theory, actors, assigned with different responsibilities and functions, can be divided into three categories: core actors, main actors, and co-actors (Burgess & Harrison, 2000), while components of each category are illustrated as follows in table 1.



Table 1. Basic components of human and non-human actors in collaborative sport governance

Category	Actors	Components
Human actors	Core actors Main actors	Governments, Businesses/Brand, Campaign. Partner, Organizations, Committees.
Non-human actors	Co-actors	Rules, Cognition, Values, Experience, Culture.

In the collaborative governance actor network, IOC and UN Women play leading roles in collaborative governance and can be designated as core actors, these agencies involved in policy formulation, coordination, and implementation. Main actors refer to the businesses, the public, and other organizations that hold power in collaborative actions for sport governance. Co-actors refer to the non-human actors in the heterogeneous network for collaborative governance. Lacking consciousness, values, subjective cognition, and social experiences provide basic guidelines for public participation in governance. Nevertheless, non-human actors are subtle and imperceptible, and need to be realized with the assistance of human actors, therefore, this study will not include non-human actors as quantitative objects.

Procedure

Based on official news and documents from UN Women, IOC, as well as common goals from UN, 4 corpus were built in the study, When preparing to build these corpus, three standards are taken into consideration.

(1) Selecting research materials

“IOC” and “International Olympic Committee” were used as keywords to collect materials on UN Women’s official websites to build UNW-IOC corpus; materials featuring “UN Women” were collected on IOC’s official websites to build IOC-UNW corpus. Each corpus consists of both the IOC-UNW corpus and the UNW-IOC corpus for that time period.

The corpus retrieval involved a combination of machine language-based searching and manual verification. Initially, the Requests and BeautifulSoup libraries were imported into a Python script to crawl 558 web pages. Subsequently, a second-round web search and content verification were manually conducted to filter out irrelevant contents (eg. Blank pages and videos) and make supplements, resulting in 539 valid.

(2) The time span

Considering this study focusing on portraying the collaborative governance between IOC and UN Women in a chronological way, based on major events, the time span of the 4 corpus are set to be (table 2):

Table 2. Significant events for IOC and UN Women

Year	Events & Press Release
2010	1.The inaugural United Nations-International Olympic Committee Forum on Sport for Development and Peace was held, and the International Olympic Committee was granted a permanent observer seat. 2.The United Nations General Assembly created UN Women as part of the UN reform. https://www.un.org/womenwatch/osaginem/sta_creationUNWomen.html#:~:text=In%20a%20momentous%20decision%20on%202%20July%202010%2C,level%2C%20to%20be%20operational%20by%201%20January%202011.
2011	UN Women is officially established as a composite entity. https://www.unwomen.org/en/about-us/about-un-women
2012	1. IOC first signed an MoU (Memorandum of Understanding) with UN Women. https://www.unwomen.org/en/news/stories/2012/8/un-women-signs-partnership-agreement-with-the-international-olympic-committee-to-advance-gender-equa 2. London 2012 Summer Olympics
2013	1. The third session of the UN-IOC Forum on Sport for Development and Peace was held. 2. April 6th was set as the International Day of Sport for Development and Peace (IDS DP). https://www.daysoftheyear.com/days/international-day-of-sport-for-development-and-peace/#:~:text=The%20date%20of%20celebration%20for%20the%20International%20Day,April%206%2C%201896%2C%20taking%20place%20in%20Athens%2C%20Greece.
2014	1. The proportion of female chairs of International Olympic Committee commissions exceeds 20%. https://www.olympics.com/ioc/news/female-membership-of-ioc-commissions-reaches-an-all-time-high-of-47-7-per-cent-two-new-female-chairs 2. Olympic Winter Games Sochi 2014
2015	The United Nations has recognized sport as a crucial driving force for sustainable development and has revised the “International Charter of Physical Education, Physical Activity and Sport”. https://www.un.org/en/chronicle/article/role-sport-achieving-sustainable-development-goals
2016	Rio 2016 Olympics, launching “One Win Leads to Another”. https://www.unwomen.org/en/news/stories/2016/8/press-release-in-sport-and-for-gender-equality-one-win-leads-to-another



2017	1. IOC and UN Women renewed their commitment through a second MoU. https://www.unwomen.org/en/news/stories/2017/11/announcement-un-women-and-the-international-olympic-committee-renew-partnership
	2. UN Office on Sport for Development and Peace were removed to reinforce the collaboration between UN and IOC. https://archives.un.org/content/sport-development-and-peace
2018	2018 Pyeongchang Winter Olympics
2019	The proportion of female chairs of International Olympic Committee commissions exceeds 40%. https://www.olympics.com/ioc/news/female-and-youth-membership-of-ioc-commissions-at-an-all-time-high?displayAsWebViewdark=true
2020	1. IOC has joined the Sport for Generation Equality Initiative established by UN Women. https://www.olympics.com/ioc/news/ioc-takes-leadership-role-in-un-women-sports-for-generation-equality-initiative
	2. Beginning of the pandemic, posing unprecedented challenges to collaboration and all actors.
	3. Gender Equality and Inclusion Goals for 2021-2024 https://www.olympics.com/ioc/gender-equality/objectives
	4. Female chairs proportion has reached a all-time high in IOC of 47.7% https://www.olympics.com/ioc/news/female-membership-of-ioc-commissions-reaches-an-all-time-high-of-47-7-per-cent-two-new-female-chairs
2021	1. Tokyo 2020 Olympics
	2. The inclusion of sport in UN Women's Strategic Plan 2022-2025 https://www.unwomen.org/en/digital-library/publications/2021/09/un-women-strategic-plan-2022-2025
	3. IOC adopted new Gender Equality and Inclusion Objectives for 2021-2024. https://www.olympics.com/ioc/gender-equality/objectives
2022	Beijing 2022 Olympics
2023	IOC and UN Women renewed their commitment through a third MoU. https://www.olympics.com/ioc/news/ioc-and-un-women-sign-new-agreement-to-advance-gender-equality-in-and-through-sport
	Paris 2024 Olympics, for the first time in history see an equal number of men and women competing, making the Summer Games the first to reach gender equality. https://www.unwomen.org/en/paris-2024-olympics-new-era-for-women-in-sport

1) Initiation: 2010-2013, as UN Women was created in 2010 and officially established in 2011, January 1st, also, the inaugural UN-IOC Forum on Sport for Development and Peace was held in 2010, when IOC has also been granted a permanent observer seat, 2010 was of great significance. This period marked the prelude of collaboration by the first MoU signed by IOC and UN Women, witnessing the first three sessions of the UN-IOC Forum on Sport for Peace and Development, in 2013, Sport for Development and Peace was set as an international day on April 6th, signifying recognition of sport;

- 1) Ascendance: 2014-2016, the year 2014 succeeded in expanding the collaborative governance with a milestone-like 20% in women proportion in IOC commission. In 2015, UN has recognized sport as a crucial driving force for sustainable development. Moreover, the year 2016 marked Rio Olympics, with legacy programs "One Win Leads to Another" showcasing collaborative sport governance programs in women empowerment;
- 2) Advancement: 2017-2019, the year 2017 has witnessed signing the second MoU, also, UN office on Sport for Development and Peace were removed to reinforce a more harmonious collaboration with the IOC, also, 2019 has embodied another milestone that women proportion in IOC commissions has reached 30%;
- 3) Challenge and Recovery: 2020-2024, as the outbreak of pandemic, posing unprecedented challenges to collaboration and all actors, 2020 was also the milestone for IOC joining the Sport for Generation Equality Initiative established by the UN Women. This period has seen the extension of the third MoU and two Olympic events, Tokyo Olympics and Beijing winter Olympics, both contributing timelessly to gender equality in representation as well as collaborations.

For time spans, the first period is consisted of four years, but given that UN Women was formally established in 2011, thus having a negligible impact on results. The fourth phase also spans four years, however for completeness, the entire period of the epidemic were included.

(3) The comparability of the corpus

With each corpus combing information both from IOC and UN Women, therefore, collaborative governance could be highlighted, extraneous factors such as linguistic habits of a certain website creator could be mitigated.

As for corpus capacities, statistics are illustrated in table 3, 2010-2013 corpus is made up of 47964 words; 2014-2016 corpus is composed of 51883 words; 2017-2019 corpus encompasses 100101 words; 2020-2023 corpus is comprised by 57055 words.



Table 3. Basic information of the four corpus

Corpus name	Time span	Data source	Capacity(words)
2010-2013 corpus	2010.01.01-2013.12.31	IOC's official website	47964
2014-2016 corpus	2014.01.01-2016.12.31	https://olympics.com/ioc	51883
2017-2019 corpus	2017.01.01-2019.12.31	UN Women's official website	100101
2020-2023corpus	2020.01.01-2023.12.31	https://www.unwomen.org/en	57055

Data analysis

In this research, three types of software are applied to facilitate the research – AntConc 4.2.4, BibExcel and Ucinet 6.0.

After selected texts being downloaded from official websites of IOC and UN Women, AntConc 4.2.4 is utilized to detect the top 10 high-frequency human-actor collocates and keywords of each corpus, with minimum frequency standards set to be 5 for representativeness (Lachmann et al., 2016). The researchers built a target corpus by converting the downloaded texts into separate txt files, which are stored in the same folder. To ensure compatibility with AntConc 4.2.4, the encoding of each file will be set to UTF-8. Also, the stop-word list will be sourced from the NLTK Library, removing blanks, erroneous values, and stopwords from the corpus, which is crucial for enhancing the purity of the data and ensuring more accurate subsequent analyses. It's worth noting that the two authors verified each other's work in corpus building and key collocates to enhance the reliability and validity of the analysis, by comparing the keywords obtained from different batches of corpus data, the keywords from various batches show high consistency and coverage, indicating that the keywords are representative and stable, further confirming the achievement of data saturation, ensuring that the collected corpus is sufficient and representative.

With the detected collocates files, co-occurrence matrix models were established using BibExcel, and the resulting matrix model was imported into Ucinet 6.0. Through its data analysis program NetDraw, the co-occurrence matrix of keywords computed by BibExcel software is visualized as a network graph for discovering heterogeneous networks. Subsequently, based on the characteristics of the visualized network graph, and by observing the proximity relationships between keyword network nodes, an analysis would be conducted to assess the proximity relationships among keywords. Hence, this study is to firstly discover high-frequency actors and keywords by employing AntConc 4.2.4, while utilizing BibExcel and Ucinet 6.0 to draw heterogeneous networks, a historical analysis on the efforts made by the IOC and UN Women in collaborative sport governance can be provided, from which the participation of actors can be generalized; secondly, this study interprets the development of the collaborative sport governance through two indicators, one is diversity out of the Blau index of heterogeneity, the other is density produced by Ucinet 6.0; finally, constructs the collaborative sport governance mechanisms, namely the mechanism of actors and mechanism of translation. Along the analysis, IOC and UN Women's collaborative sport governance will be presented.

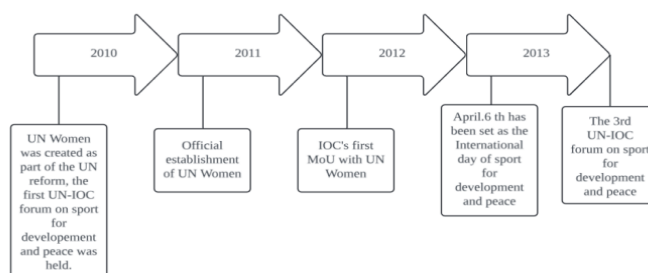
Results

Endeavors of IOC and UN Women's collaborative sport governance

1. The 1st period: Initiation (2010-2013)

Figure 1 summarized achievements made in the first period, as a period for the signing the first MoU in promoting and advocating for sport and healthy lifestyles internationally, the IOC has long held that sport can contribute to building the psychological well-being, leadership capacity and empowerment of girls and women, while enhancing their roles and integration in society, its aim to promote women in and through sport at all levels aligns with the principles and work of UN Women, in its work to advance gender equality and the empowerment of women worldwide.

Figure. 1. Timeline for IOC and UN Women's collaborative sport governance in the first period.



Through this partnership, IOC and UN Women has committed to joining efforts within their respective mandates, to promote the participation of women in sport and physical activity, and advance gender equality and sustainable development in line with the Millennium Development Goals, developing and maintain programs of international collaboration and implement activities of common interest, making efforts to encourage advocacy, education and field-level activities at country levels in collaboration with their national and regional networks.

Campaign keywords during this period appeared as UNiTE, The UNiTE to End Violence against Women initiative is a multiyear effort to prevent and eliminate violence against women and girls around the world, launched in 2008 under the leadership of the UN Secretary-General, and was therefore developed by UN Women as well as IOC. Also, UNAIDS as well as UNEP were frequently spotted, emphasizing the early collaborative governance over problematization for health issues such as HIV and the hindrance of environmental problems over women.

Top 10 keywords of the 2010-2013 corpus have been sorted by frequency. The focus of collaborative sport governance appeared as development, violence, sustainable, carrying out Millennium plans and Agenda 2020, culture, health and doping, education, religion, with campaigns and focuses mutually reinforcing (table 4).

Table 4. Top 10 Keywords and their frequencies of the 2010-2013 corpus

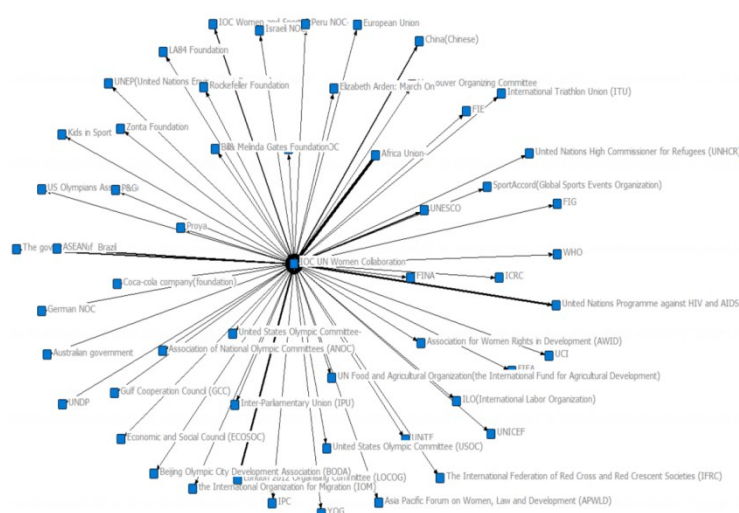
2010-2013 corpus	Keywords	Frequency
	Development	280
	Violence	167
	Sustainable	95
	Agenda	90
	Millennium	82
	Culture	61
	Education	60
	Doping	59
	Health	57
	Religion	52

Collaborating organizations could be divided into four parts: UN's agencies, e.g. UNICEF in children's sport participation, WHO in promoting women's sport-facilitated healthy lifestyles; IOC's agencies such as ECOSOC; IFs such as FIFA, FINA. ITU and UCI in women's representation and leadership; other IGOs and NGOs such as IFRC, IOM. International organizations deal with migrant refugees, children, education, labor, food, environment and so on, while sport focus on popular sports and female-dominated sports such as soccer and diving.

Moreover, committees of this time emphasized LOCOG (London 2012 Organizing Committee), Vancouver Organizing Committee, USOC (United States Olympic Committee) as well as BODA(Beijing Olympic City Development Association), also, NOCs of United States, German, Peru, Turkey, etc. Governments were synchronized with committees and Olympics ahead. In implementing the MoU, Sponsors were composed of multinationals such as Zonta Foundation, P&G, Coca-cola and Microsoft (Bill Gates) and the foundation of IGO, for example, LA84 Foundation.

Figure 2 showcased the heterogeneous network of the first period, it can be found that actors at the central, also the most mentioned was the collaborative sport governance of IOC and UN Women, the width of the lines represents the frequency of mentions, the thicker the line, the higher the frequency of mentions. Distribution of each node is relatively equal, the peak and highest mention frequency actors were African Union, LOCOG and UN AIDS, BODA as well as UNESCO, signifying contributions of the London 2012 Olympic Games and the urgency of the AIDS response in collaborative sport governance, also echoing with the keywords of corpus in table 4.

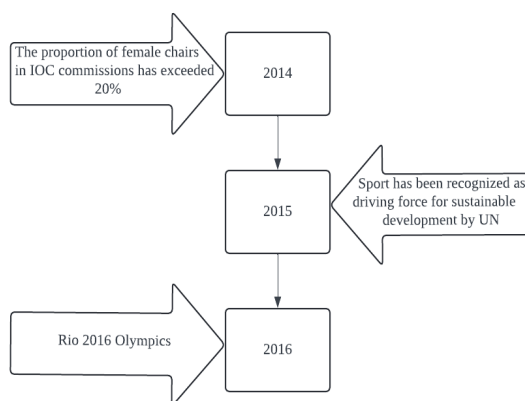
Figure. 2. Heterogeneous network of the first period



2. The 2nd period: Ascendancy (2014-2016)

Figure 3 has demonstrated major events during the 2014-2016 period, witnessing milestones in female chair proportion, the recognition of sport as a driving force and Rio 2016, providing an abundant source of inspirations for program “One Win Leads to Another”.

Figure 3. Timeline for IOC and UN Women’s collaborative sport governance in the second period



Top 10 keywords of the 2014-2016 corpus have been sorted by frequency (table 5).

Table 5. Top 10 Keywords and their frequencies of the 2014-2016 corpus

2014-2016 corpus	Keywords	Frequency
	Violence	194
	Sustainable	95
	#SayNo	73
	Brazil	71
	Adolescent	70

Health	62
Orangetheworld	54
Refugee	47
HeforShe	41
Development	38
SDG	36

It is notable that violence and sustainable still listed the top keywords in collaboration focus, showcasing the pursuit of sustainable development led by IOC and UN Women, along with #SayNo--UNiTE to End Violence against Women as a social mobilization platform in 2009, emphasizing the importance of sport aiding women in gender-based violence-resistance. Moreover, in terms of major age focus, adolescent was manifested, owing to their vigor but vulnerability, health remained approximately the same as in the previous period, and development echoed with sport for development and peace (SDP) programs.

Differently, campaigns over this period have shifted in diversity, UNiTE, SDG, CSW (Commissions on the Status of Women) 60, HeforShe, “One Win Leads to Another” and “Orange the world” were the most covered programs. As mentioned in 4.1.1, UNiTE and “Orange the world” were both programs targeting at ending gender based violence through sport, also, two agendas, Agenda 2020 and Agenda 2030 have been attached with great importance in being mentioned 32 and 58 times, meaning that IOC and UN Women share the objectives of the outline document and work towards them.

As for three of the most mentioned campaigns/programs, HeForShe is an invitation for men and people of all genders to stand in solidarity with women to create a bold, visible and united force for a gender equal world. Created by UN Women and collaboratively carried by IOC, the HeForShe solidarity movement for gender equality provides a systematic approach and targeted platform, since its launch in 2014, millions of people from around the world including Heads of State, CEOs and global luminaries from all walks of life have committed to gender equality, including IOC president Thomas Bach. While OWLA initially targeted 2,500 girls aged 12-14 in disadvantaged areas of Rio de Janeiro, using a series of sports programs to build leadership skills. Acts as the 2016 Rio Olympic legacy, the project also created safe spaces for girls to break social barriers and equipped them with basic economic skills, increased knowledge of their bodies and the confidence to access services in the event of violence. Following the success of the pilot project, the programme has now successfully been implemented across Rio de Janeiro. It is set to be expanded to other cities in Brazil in the hope that it will serve as a model that can be rolled out internationally. CSW60 featured the first review of the historic agreed conclusions from the fifty-seventh session of the CSW, , and has discussed roles women play in all goals including women’s health and equality in sport.

As can be seen in figure 4, the heterogeneous network of the second period, collaborating organizations could be divided into four parts: UN’s agencies, e.g. UNESCO and WHO; IFs such as ISSF, ITF and Rugby World Cup; other IGOs and NGOs such as WEF, WDC, OIC and WADA. Committees of this time focused on Brazil (especially for NOC of Brazil being the most mentioned among all actors), POCOG (PyeongChang 2018 Organizing Committee), Brazilian, United States, Chinese, Japanese, Australian, Swiss government and EU were among the top government frequencies, IOC and UN Women’s collaborative governance has extended relations with P&G, Swedish Postcode Lottery Sport Foundation, as the main sponsor for OWLA, also had crucial frequencies. Notably, multi-lateral connections can firstly be witnessed among UNiTE, GASC (General Administration of Sport of China), WADA and INTERPOL (The International Criminal Police Organization) in the field of sport, drugs, crime and anti gender violence. In terms of line width, UNiTE, NOC of Brazil, orange the world, Agenda 2020, PASO, CSW 60 were the most identifiable, signifying their participation as anti-violence programs, instructive agenda as well as meetings in solving problems.

periods and peaked in the current period, programs in the last period still loomed large in this period. Also, climate change hindrances have been considered and included.

It is worth mentioning that Winners of the 2019 Women and Sport awards winner Marta Vieira da Silva, UN Women Goodwill Ambassador, were also among the keywords. Marta, along with IOC President Thomas Bach and UN Women Executive Director Phumzile Mlambo-Ngcuka have won the prize. The awards have showcased the collaborative sport governance between IOC and UN Women in the leadership domain.

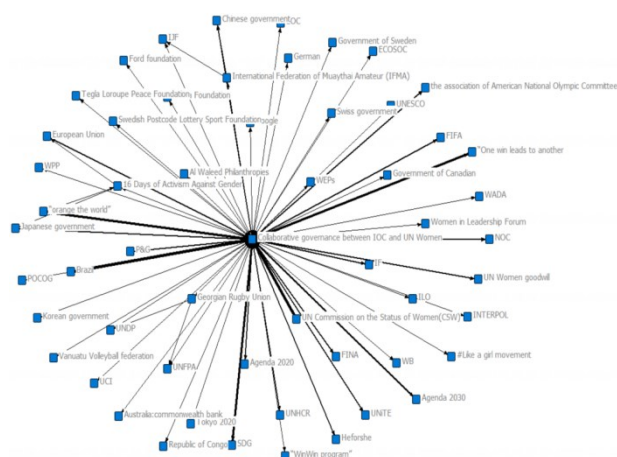
Table 6. Top 10 Keywords and their frequencies of the 2017-2019 corpus

2017-2019 corpus	Keywords	Frequency
	Violence	395
	Empowerment	91
	Leadership	68
	Discrimination	64
	Refugee	54
	One Way Leads to Another	52
	#HeforShe	48
	Marta	46
	Protection	44
	Climate	40

Campaigns #LikeAGirl, OWLA, #HeforShe, “Orange the world”, “16 Days of Activism Against Gender-Based Violence”, UN Women Goodwill as well as UNiTE were among the collaborative top lists, #LikeAGirl is collaborated by P&G, IOC and UN Women, believing in girl empowerment and boosting confidence through sport. The frequencies of OWLA has peaked at 107.

As can be seen in figure 6, the heterogeneous network, committees of this time focused on POCOG (PyeongChang 2018 Organizing Committee). Apart from committees, all actors' frequencies have witnessed the highest frequencies, with governments mainly covering EU, North America and East Asia. As for collaborating organizations, FIFA has seen the most mentioning, partially owing to the success of 2019 France FIFA Women's world Cup. More multinationals have joined in funding IOC and UN Women's collaborative governance along with P&G, Zonta Foundation and Swedish Postcode Lottery Sport Foundation. Also, multi-lateral connections have grown significantly, both acting as anti-violence campaigns, “orange the world” and “16 days” have witnessed collaboration with EU and Japan in terms of implementation and adjustment, while UNDP and UNFPA contributed in Georgian Rugby Union's girls' empowerment and inequalities reduction through rugby. More inter-connections can be seen in the heterogeneous network, when it comes to the width of lines, CSW, OWLA, orange the world, Japanese government, FIFA, Agenda 2020, SDG and Brazil were the thickest, also compared with the former period, this period has been more abundant and outnumbered in thick lines,signifying the deepening of collaboration.

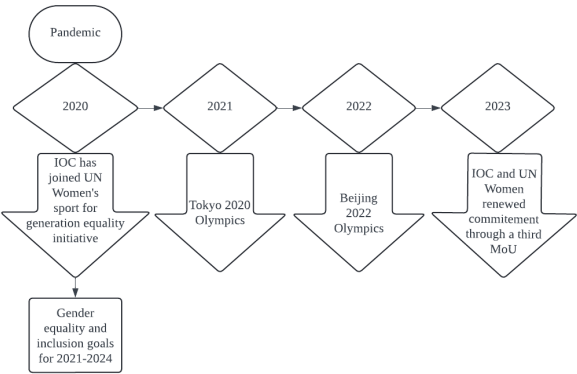
Figure 6. Heterogeneous network of the third period



4. The 4th period: Challenge and Recovery (2020-2024)

Figure 7 depicted the major events during 2020-2024. Despite the shadow of the epidemic, Collaborative Sport Governance has witnessed the sport for generation equality initiative, the Tokyo Summer and Beijing Winter Olympics, and the signing of the third MoU.

Figure. 7. Timeline for IOC and UN Women’s collaborative sport governance in the fourth period



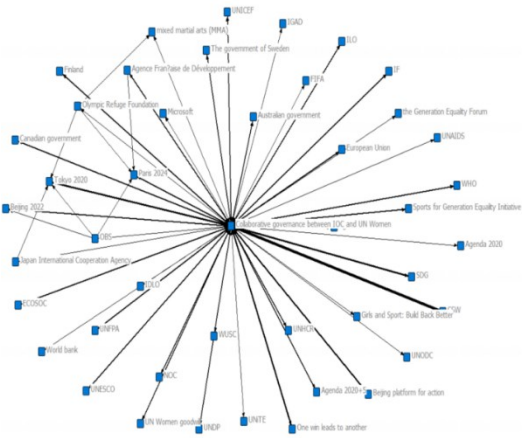
Top 10 keywords of the 2020-2024 corpus have been sorted by frequency, as was shown in table 7, focuses of this period were equality, Covid-19, poverty, justice, violence, refugee, financing, crisis, empowering and Afghanistan. Compared with the former period, this period focused on violence, refugee and poverty problems especially in developing countries resulted from pandemic (Covid-19) and wars.

Table 7. Top 10 Keywords and their frequencies of the 2020-2024 corpus

2020-2023 corpus	Keywords	Frequency
	Equality	449
	Covid-19	117
	Poverty	68
	Justice	50
	Violence	48
	Refugee	44
	Financing	36
	Crisis	32
	Empowering	29
	Afghanistan	25

Pandemic has aggregated gender-based violence towards women and girls, providing recommendations for policymakers related to collaborative sport governance0(UN Women, 2020).

Figure. 8. Heterogeneous network of the fourth period



Seen from figure 8, during this period, Rio 2016 and YOG 2018 legacy--OWLA still took the lead in major campaigns. In order to tackle the deteriorating repercussions of Covid-19, IOC joined with UN Women in “Girls and Sport: Build Back Better”, together with UNiTE, aiming at leadership, ending gender-based violence, economic opportunities, media participation, representation, and girls participation in sport. Collaborative governance reviewed Agenda 2020, fulfilling Agenda 2020+5 and SDGs, and looking forward to Agenda 2030, the IOC and UN Women have also collaborated on the Beijing Platform for Action, the Sport for Generation Equality Initiative, the Generation Equality Forum, and the OBS’ BTP project in reaching consensus. As for width of the network, there is a noticeable presence of thicker and more concentrated lines, showcasing a more intensive collaboration.

It was worth mentioning that The IOC has taken a leadership role in the UN Women Sports for Generation Equality Initiative, which aims to advance gender equality and the empowerment of women and girls in and through sport. The Initiative was launched in March 2020 by UN Women in partnership with the IOC, which was invited to join the Initiative to accelerate progress on a set of common principles and aligned objectives that will harness the power of sport in making gender equality a reality in and through sport, therefore building a powerful multi-stakeholder coalition--consisting of governments, United Nations organizations, sport for development and peace organizations, civil society, sports federations, event organizers, leagues, teams, brands, marketers, media and sport influencers, etc.

Among the collaborating actors during the 20-24 period, the organizing committees have been formed by 2021 Tokyo Olympic Games’ Committee, the 2022 Beijing Winter Olympic Games’ Committee, and the upcoming 2024 Paris Olympic Games Committee. Reports from UN Women and the IOC discussed the contributions of the Tokyo Olympic Games and Beijing Winter Olympic Games to gender equality, such as raising awareness and mobilizing action around women’s participation and leadership in sports, equal pay, safeguarding policies, representation in the media, and incentives for girls to participate, and jointly committed to and monitored the steady improvement of gender equality in Olympic events. In terms of organizations like WHO and WB, there has been a dramatic increase of the need for healthy lifestyles and women empowerment, as well as women’s outstanding achievements in events such as MMA. In terms of multi-lateral connections, as the Olympic and Winter Games with the highest quota of female participation in history, mega-events like 2020 Tokyo Olympics and 2022 Beijing Winter Olympics have provided fertile grounds for collaborative sport governance especially in refugees and media coverage, while Paris 2024 will take over as the first Olympics in history to achieve the exact same number of men's and women's competitors, reinforced by AFD.

The development of IOC and UN Women’s collaborative sport governance

From the perspective of ANT, networks are assemblages of diverse elements that interact and shape each other's actions and identities (Law, 1992), therefore, by comparing the heterogeneity of network for each period, the development of collaborative sport governance is portrayed thereafter.

In this regard, this study has employed Blau index of heterogeneity (Collins & Blau, 1979) to reflect scope of diversity, according to Harrison and Klein (2007), the Blau index is the most frequently used approach for measuring diversity in work group heterogeneity studies. In the formula, $h_{j,k}$ represents the heterogeneity index of code j in period k , P_i is the score assigned to the i -th category given in content analysis research for code j , and “ n ” is the number of categories for code j . The range of the index values is from 0 (minimum heterogeneity) to $(n-1)/n$ (maximum heterogeneity, infinite close to 1), the latter meaning that the research is evenly distributed among the categories of a specific code, a larger heterogeneity index indicates an increase in diversity.

$$h_{j,k} = 1 - \sum_{i=1}^n p_i^2$$

In order to supply the data, density generated by the centrality model of Ucinet 6.0 would also be listed, indicating numbers of relations and connections in the network (table 8).

Table 8. Heterogeneity index and density of each corpus

Year	2010-2013	2014-2016	2017-2019	2020-2024
Heterogeneity Index	0.953	0.951	0.968	0.962
Density (Ucinet 6.0)	0.0364	0.0460	0.0478	0.0497



The initial phase, spanning from 2010 to 2013, signifies the nascent stage of collaborative governance endeavors. During this period, the heterogeneity index stands at 0.953, indicating a notable level of diversity within the collaborative network, which might be attributed to the first MoU for laying a sound foundation. This diversity likely arises from the convergence of disparate viewpoints and strategies as stakeholders initiate collaborative efforts and form governance structures. Density stands at 0.0346, reflecting an emphasis on triple-lateral collaboration, formed by IOC and UN Women accompanied with any single actor, multi-lateral collaboration were very few, probably owing to lack of resources or relations in the initial stages.

Continuing into the subsequent period from 2014 to 2016, the heterogeneity index remains relatively stable at 0.951 with a slight decrease, however, a considerable increase can be witnessed in terms of density from 0.0364 to 0.0460, suggesting a sustained level of diversity within the collaborative governance framework, with actors continuing to contribute varied perspectives and approaches. Also, there were more multi-lateral connections among various actors. The continuity in heterogeneity underscores the resilience of collaborative efforts and the maintenance of inclusive decision-making processes.

A discernible increase in heterogeneity was observed in the period spanning from 2017 to 2019, with the heterogeneity index rising to 0.968, highest among the four times, and density climbing to 0.0478 as the second highest compared from all times. This surge in diversity and density signifies a significant expansion of the collaborative governance network, on the one hand, this period has the highest number of words in corpus, likely driven by the deepening as well as expanding of partnerships, the inclusion of new actors, the second MoU and the adoption of innovative multi-lateral approaches. The heightened heterogeneity and density reflects a maturation of collaborative endeavors and a broadening of perspectives to address emerging challenges.

Conversely, the period from 2020 to 2024, coinciding with the onset and aftermath of the COVID-19 pandemic, sees a slight decline in heterogeneity, with the index dropping to 0.962. This reduction in diversity suggests a potential constriction for actors in the collaborative governance network, possibly influenced by the disruptions and constraints imposed by the global health crisis. However, density level reached its peak compared with the other three periods at 0.0497, indicating that crisis might have triggered more intensive collaboration, especially mega-events like Olympics during this time posed higher requirements for collaboration for solving problematization.

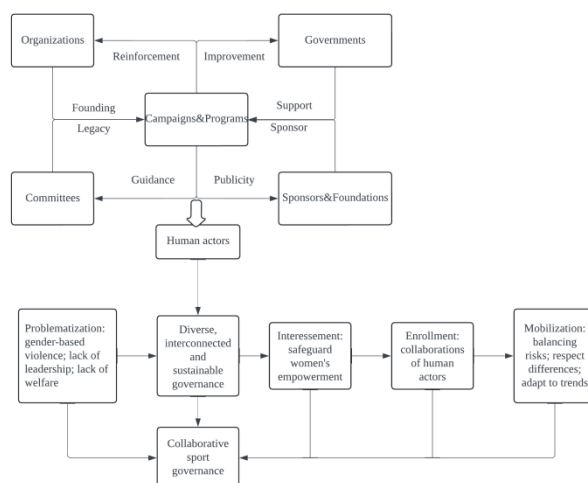
The analysis of heterogeneity indices and density across distinct time periods illuminates the evolution of collaborative governance, the development tendencies are 1) Fluctuations in heterogeneity underscore the impact of problematization on collaborative efforts, periods of heightened diversity signify robust engagement and innovation of collaborative sport governance, with year 2017-2019 being the summit; 2) The increase of density during each period signifies that actors share constantly more and more intensive, multi-lateral collaborations in IOC and UN Women's collaborative sport governance, several factors contribute to this trend, firstly, collaborative risk management efforts play a significant role. When facing common risks and challenges, organizations tend to strengthen their partnerships and coordinate their actions more closely to enhance resilience and effectiveness. The IOC and UN Women, recognizing the shared risks that can impact their respective missions, such as issues related to health promotion, sports integrity, gender equality, and social inclusion, have likely intensified their collaborative efforts to mitigate these risks and achieve their goals more successfully; secondly, the rapid advancement of digital technologies has made information sharing and communication more efficient, breaking down geographical barriers and enabling real-time collaboration. This digital transformation has likely facilitated more frequent and closer interactions between the IOC and UN Women, allowing them to better align their strategies and initiatives; thirdly, the deepening of globalization has significantly impacted the landscape of international cooperation. As the world becomes increasingly interconnected, necessitating more comprehensive and multi-faceted approaches to governance, leading to more intensive and diverse collaborations between these organizations.

IOC and UN Women's collaborative sport governance mechanism

Based on participation and development analysis out of heterogeneous networks, diagram over IOC and UN Women's collaborative sport governance were constructed. In terms of human actors, campaigns as well as programs led by IOC and UN Women are influenced and counteracted by other four actors--

organizations, governments, committees as well as sponsors/foundations. As for the translation process, under the background of problematization portrayed in figure 9, human actors and non-human actors pass OPP, the obligatory passage point, and through interessement, they are endowed with powers and profits to enroll in the governance, by overcoming and balancing in mobilization, the collaborative sport governance can be accomplished.

Figure 9. The mechanism of IOC and UN Women's collaborative sport governance



Therefore, the mechanism for IOC and UN Women's collaborative sport governance is elaborated as follows:

Problematization means the problems faced by various actors, Violence against women and girls, lack of welfare and lack of representation in leadership listed the top problems in all time periods. While OPP stands as diverse, highly interconnected, and sustainable collaborative sport governance mechanism, thus advancing global gender equality efforts.

Interessement in this research means "endow with benefits", in interessement, profits are the main driver for actors to act together, and collaborative sport governance cannot be realized without strong safeguards for the profits of actors. It is significant to allow the sports movement to multiply the impact for gender equality and women's and girls' empowerment by learning from one another and accelerating efforts. More specifically, promote women's leadership and gender equality in governance models; prevent and respond to gender-based violence; undertake to close the gap in investment in women's sport and promote equal economic opportunities for women and girls; promote women's as well as sport's equal participation and bias-free representation in the media; and provide equal opportunities for girls in sport, physical activity and physical education.

Enrollment means collaborate to solve problems, firstly, organizations out or in IOC and UN Women participate in the co-founding process, offering valuable experiences as well as consulting, conversely, campaigns would reinforce the collaboration and experience in dealing with issues over various domains. Secondly, governments participate, as well as participants around the world are in the supporting process, their attitude towards campaigns directly having an impact on implementation, instead, campaigns can also improve government's role and achievements in sport and gender field, coincidentally, the top collocates for governments are also among the top donors for IOC and UN Women, or governments that develop legacy-related programs for sustainability, such as Sweden, Canada, Switzerland, Australia and Brazil. Thirdly, Olympic and National Committees offer invaluable legacies to campaigns such as non-human actors like culture, infrastructure, and consensus, adding to the sustainability of both sport events and campaigns, also, campaigns bring about guidance to committees, focusing on gender equality, public sport and sport for sustainable development. Fourthly, Sponsors and Foundations donate to make campaigns come true, and campaigns bring publicity and positive brand effect to sponsors and foundations, during the four periods, P&G, Zonta foundation and Swedish Postcode Lottery Foundation has played a consistent role, sponsors and philanthropies embrace women-targeted

fields and worldwide foundations. With the human and non-human actors' inner network, collaborative governance can better be realized.

Mobilization in collaborative governance mainly focus on three fields. Firstly, the risk of balancing benefits, meaning changing world situations pose questions regarding whether the economic costs of activities can be borne, mobilization has profound connection with time, social and economic benefits. Secondly, with the increased number of emergencies and international conservatism since 2020, different governments and supporters may hold divergent political views, and the influence of power dynamics may lead to the mobilization of collaboration, therefore it is necessary to build common grounds. Thirdly, the continuous evolution of new events and sports demand adaptation to new trends, which necessitates mobilization, calling for more diverse and enriching forms of sport empowerment for women. Collaborative governance appears both powerful and fragile from this perspective, and in need of shared planning.

Discussion

This research holds significance on two fronts. Theoretically, it explores the potential fusion of qualitative Actor-Network Theory with the quantitative methodology of social networks within the realm of collaborative sport governance. By utilizing the Blau heterogeneity index to assess the heterogeneity and diversity of actors (participants) and formulating a collaborative sport governance mechanism, this study expands the scope of research in collaborative sport governance, and refines the previous researches on the partnerships of IOC and UN. Also, by identifying the actors and their interactions, the mechanism furthers ANT's adaptation and application to organizational studies.

In practical terms, it fills the research gap in the study of sport governance collaboration between IOC and UN Women. This study discusses their efforts in sport governance collaboration, the involvement of high-frequency actors, and the development of such governance, which aids readers in understanding the collaborative sport governance efforts of these two organizations since their inception, as well as the power dynamics among the actors in collaborative sport governance.

It should be noted that this study is still subjective to several limitations. First, as a pioneering descriptive study, this research does not encompass the impact or outcomes of women's sports programs by the IOC and UN Women. In this regard, further research could include trajectory research on impact of these projects to fulfill the mechanisms of collaborative governance. Second, this study does not systematically compare the similarities and differences of keywords in various periods quantitatively, future work can be done to compare keywords of corpus. Finally, though emphasizing the significance of actors, the design of this study does not include interviews with governmental officials, organizational officials or programme beneficiaries due to the lack of resources. For further research, it is recommended that first-hand materials like interviews, questionnaires, etc. be incorporated concerning officials' collaboration and participation so as to shed on more light on this issue.

Conclusions

Drawing upon actor-network theory, this study constructed chronological corpus to document collaborative sport governance endeavors between the IOC and UN Women. Through AntConc 4.2.4 for analyzing high-frequency collocates of actors and keywords, alongside BibExcel and Ucinet 6.0 for mapping out heterogeneous networks, this research delved into the endeavors undertaken and the extent of actor involvement over distinct time periods. Employing the Blau heterogeneity index and Ucinet 6.0 to assess network diversity and density, the study further examined the evolution of collaborative sport governance, culminating in the establishment of collaborative sport governance mechanism.

In terms of endeavors as well as the participation of actors, four periods were illustrated, 2010-2013, 2014-2016, 2017-2019, 2020-2024, the collaborative sport governance between the IOC and the UN Women primarily revolved around three aspects: women's leadership, women's anti-violence and women's welfare. Also, five categories of human actors were demonstrated, namely campaigns/pro-

grams, organizations, governments, committees/associations and sponsors/philanthropies. The frequency of actors' participation implied their power contributions. As the primary actors, the IOC and UN Women organized other actors to participate in collaborative sport governance: campaigns/programs focused on addressing the predominant issues, known as problematization faced by women during this period. Organizations were classified into three categories: intergovernmental organizations, non-governmental international organizations, and international federations. Frequencies correlated with problematization in each period, with notable increases in mentioning of the WHO during the 2020-2024 period compared to the previous three periods. Governments were composed of countries that have made significant contributions to collaborative sport governance, such as host countries of major events and funding countries for the IOC and UN Women. Committees mainly comprised of organizing committees for major events and national committees of host countries. Moreover, event legacy projects could increase the frequency of actors, such as repeated mentions of the NOC of Brazil and the Rio 2016 Committee throughout 2014-2016, 2017-2019 and 2020-2024, which was closely intertwined with the sustainable development of the "One Win Leads to Another" project. For sponsors/philanthropies, entities mainly included women-related brands, multinational corporations, and foundations focusing on women's sports, with Procter & Gamble (P&G) being mentioned most frequently.

When it comes to the development of IOC and UN Women's collaborative sport governance, heterogeneity ranged from 0.951 to 0.968, the peak of heterogeneity index could be witnessed during the 2017-2019 period, signifying the most robust diversity of actors engaging in collaborative sport governance, fluctuations in heterogeneity underscore the impact of problematization, for example, the wave of isolation in pandemic during 2020-2024, and the probability of shifting priorities on strengthening collaborative efforts during 2017-2019. As for density, the density exhibited a clear and consistent upward trend over time, with values gradually increasing from 0.0364 to 0.0497. The summit of Density could be seen during 2020-2024, meaning actors sharing intensive, multi-lateral collaborations in IOC and UN Women's collaborative sport governance under the pandemic metric.

In the mechanism of collaborative sport governance, problematization arose around three main areas: violence against women, lack of female leadership, and absence of welfare. Regarding the interestment and enrollment in collaborative sport governance, governance projects originated from the Olympic Committee, were jointly planned by various international organizations, and served as part of the Olympic legacy and international organizational governance achievements, providing valuable experiences for collaborative governance and Olympic legacy inheritance. Moreover, projects contributed to improving gender equality processes within countries, sponsorship from corporations and foundations supported project implementation, bringing about mutual commercial effects. In terms of mobilization, three areas should be taken into consideration: balancing risks between time and social benefits, seeking common ground while respecting differences, and promptly responding to new challenges to ensure actors' loyalty to the network, contributing to a diverse, highly connected, stable, and sustainable collaborative sport governance mechanism, therefore forming a diverse, inter-connected, stable and sustainable mechanism for collaborative sport governance, and ultimately achieving gender equality.

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References

- Burgess, J., Clark, J., & Harrison, C. M. (2000). Knowledges in action: an actor network analysis of a wetland agri-environment scheme. *Ecological Economics*, 35(1), 119-132. [https://doi.org/10.1016/s0921-8009\(00\)00172-5](https://doi.org/10.1016/s0921-8009(00)00172-5)
- Callon, M. (1984). Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. *The Sociological Review*, 32(1_suppl), 196-233. <https://doi.org/10.1111/j.1467-954x.1984.tb00113.x>



- Callon, M. (1986). The sociology of an actor-network: The case of the electric vehicle. In Mapping the dynamics of science and technology: Sociology of science in the real world (pp. 19-34). London: Palgrave Macmillan UK. <https://doi.org/10.1007/978-1-349-07408-2>
- Castan-Vicente, F., Nicolas, C., & Cervin, G. (2019). Women in sport organizations: Historiographical and epistemological challenges. In G. Cervin & C. Nicolas (Eds.), *Histories of women's work in global sport* (pp. 17 - 48). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-26909-8_2
- Chappelet, J. (2021). The governance of the Olympic system: from one to many stakeholders. *Journal of Global Sport Management*, 8(4), 783-800. <https://doi.org/10.1080/24704067.2021.1899767>
- Chappelet, J. (2013). The global governance of sport: An overview. In I. Henry & L.-M. Ko (Eds.), *Routledge handbook of sport policy* (1st ed., pp. 63-74). Routledge. <https://doi.org/10.4324/9780203807217>
- Chatzigianni, E. (2017). Global sport governance: globalizing the globalized. *Sport in Society*, 21(9), 1454-1482. <https://doi.org/10.1080/17430437.2017.1390566>
- Collins, R., & Blau, P. M. (1979). Inequality and heterogeneity: a primitive theory of social structure. *Social Forces*, 58(2), 677. <https://doi.org/10.2307/2577612>
- De Moura, G. X., Fernandes, A. V., Starepravo, F. A., & De Assis Pimentel, G. G. (2020). The invisibility of women in legislations and National Conferences of sport and leisure in Brazil. *Journal of Gender Studies*, 29(7), 779 - 790. <https://doi.org/10.1080/09589236.2020.1770060>
- Ferkins, L., & Shilbury, D. (2019). Theoretical underpinnings of sport governance. In D. Shilbury & L. Ferkins (Eds.), *Routledge Handbook of Sport Governance* (pp. 18-32). Routledge. <https://doi.org/10.4324/9780429440250>
- Ferkins, L., Shilbury, D., & O'Boyle, I. (2017). Leadership in governance: Exploring collective board leadership in sport governance systems. *Sport Management Review*, 21(3), 221-231. <https://doi.org/10.1016/j.smr.2017.07.007>
- Galily, Y., & Betzer-Tayar, M. (2014). Losing is Not an Option! Women's Basketball in Israel and its Struggle for Equality (1985-2002). *The International Journal of the History of Sport*, 31(13), 1694-1705. <https://doi.org/10.1080/09523367.2014.933508>
- Harrison, D. A., & Klein, K. J. (2007). What's the difference? diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review*, 32(4), 1199-1228. <https://doi.org/10.5465/amr.2007.26586096>
- Hayhurst, L. M., MacNeill, M., Kidd, B., & Knoppers, A. (2014). Gender relations, gender-based violence and sport for development and peace: Questions, concerns and cautions emerging from Uganda. *Women's Studies International Forum*, 47, 157-167. <https://doi.org/10.1016/j.wsif.2014.07.011>
- Lachmann, M., Trapp, I., & Trapp, R. (2016). Diversity and validity in positivist management accounting research—A longitudinal perspective over four decades. *Management Accounting Research*, 34, 42 - 58. <https://doi.org/10.1016/j.mar.2016.07.002>
- Latour, B. (1993). *The pasteurization of France*. Harvard University Press.
- Latour, B., & Woolgar, S. (1979). *Laboratory Life: the construction of scientific facts*. <http://dx.doi.org/10.2307/j.ctt32bbxc>
- Law, J. (1992). Notes on the theory of the actor-network: Ordering, strategy, and heterogeneity. *Systems Practice*, 5(4), 379-393. <https://doi.org/10.1007/bf01059830>
- Meier, H. E., & García, B. (2021). Beyond sports autonomy: a case for collaborative sport governance approaches. *International Journal of Sport Policy and Politics*, 13(3), 501-516. <https://doi.org/10.1080/19406940.2021.1905035>
- Mujica, R. A., & Meza, M. C. (2009). Women's rights in Peru: insights from two organizations. *Global Networks*, 9(4), 485-506. <https://doi.org/10.1111/j.1471-0374.2009.00265.x>
- O'Boyle, I., & Shilbury, D. (2015). Exploring issues of trust in collaborative sport governance. *Journal of Sport Management*, 30(1), 52-69. <https://doi.org/10.1123/jsm.2015-0175>
- Oxford, S. (2019). 'You look like a machito!': a decolonial analysis of the social in/exclusion of female participants in a Colombian sport for development and peace organization. *Sport in Society*, 22(6), 1025-1042. <https://doi.org/10.1080/17430437.2019.1565389>
- Oxford, S., & Spaaij, R. (2019). Gender Relations and Sport for Development in Colombia: A Decolonial Feminist analysis. *Leisure Sciences*, 41(1-2), 54-71. <https://doi.org/10.1080/01490400.2018.1539679>



- Postlethwaite, V., & Grix, J. (2016). Beyond the acronyms: sport diplomacy and the classification of the International Olympic Committee. *Diplomacy and Statecraft*, 27(2), 295-313. <https://doi.org/10.1080/09592296.2016.1169796>
- Rhodes, R. (2007). Understanding Governance: Ten years on. *Organization Studies*, 28(8), 1243-1264. <https://doi.org/10.1177/0170840607076586>
- Rosenau, J. N., & Czempiel, E. (1992). *Governance without government: Order and Change in World Politics*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511521775>
- Sawyer, T. H., Bodey, K. J., & Judge, L. W. (2008). *Sport governance and policy development: an ethical approach to managing sport in the 21st Century*. Champaign, IL: Sagamore Publishing. https://scholar.google.com/scholar?hl=zh-CN&as_sdt=0%2C5&q=Sport+governance+and+policy+development%3A+An+ethical+approach+to+managing+sport+in+the+21st+century&btnG=
- Sokolova, M. V., DiCaprio, A., Collinson, N. B., & Quirante, Z. (2023). Beating the odds: Women's leadership in international organizations. *Politics & Gender*, 19(4), 1087-1109. <https://doi.org/10.1017/s1743923x23000107>
- Tackling violence against women and girls in sport: A handbook for policy makers and sports practitioners. (2020, July 31). UN Women-Headquarters. <https://www.unwomen.org/en/digital-library/publications/2023/07/tackling-violence-against-women-and-girls-in-sport-a-handbook-for-policy-makers-and-sports-practitioners>
- Van Luijk, N. (2013). *A Historical Examination of the IOC and UN Partnership: 1952-1980*. [Doctoral dissertation, University of British Columbia]. <https://open.library.ubc.ca/media/download/pdf/24/1.0216479/4>
- Van Luijk, N. (2018). The International Olympic Committee: A United Nations Permanent Observer of post-politics? *International Area Studies Review*, 21(2), 134-149. <https://doi.org/10.1177/2233865918761110>
- Weiss, T. & Gordenker, L. (1996). *NGOs, the UN, and Global Governance*. Boulder, USA: Lynne Rienner Publishers. <https://doi.org/10.1515/9781685855987>

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