

Volunteering in Botanic Gardens for SDG3 Good Health and Wellbeing

Abstract

Transformative Service Research (TSR) aims to improve societal welfare through service. Based on free-flowing discussions with Garden Volunteers (GV) in Botanic Gardens (BG) and Automated Content Analyses of narratives via Leximancer and Nvivo, this TSR considers perceptions of experiences and impacts of GV activities on wellbeing. Such narratives highlight the health, wellbeing, and marked, personal transformation outcomes that volunteering in BGs brings. This exploratory study further develops insights on Sustainable Development Goal (SDG) 3: Health and Wellbeing, Target 3.4; emphasis being on BGs and public, private, voluntary, and local communities to collectively improve services, which has capacity to support and enhance health and wellbeing outcomes, whilst maintaining the vitality and viability of BGs. It is recommended that gardens and similar settings further recognise and act upon transformative service: experiences, ecosystem aspects, impacts, and outcomes. It is notable that more effective use of garden volunteer' stories to inform relevant service design and communication to the public, partners and potential partners regarding health and wellbeing outcomes become key objectives. Further longitudinal studies and analysis into monitoring and review of GV health and wellbeing would certainly be key recommendations, and to study transformative aspects of service making and subsequent marketing and management efforts.

Introduction

The purpose of this Transformative Service Research (TSR) (Anderson 2010) is to explore transformative service impact of Botanic Garden' (BG) Garden Volunteers (GVs); whilst considering dynamics Sustainable Development Goal (SDG) 3 (Health and wellbeing) (Global Goals 2022, UN 2022) and sustainable service ecosystems orientation (Alkire et al. 2019; Anderson 2010; Bitner 2020; Field et al. 2021; Fisk 2021; Gummesson, Mele, and Polese, 2019; Lusch, Vargo, and Gustafsson, 2016; Ostrom et al. 2010, 2021; Rosenbaum et al. 2007, 2011; Vargo and Lusch 2019). Healthcare sectors are usually the traditional routes for dealing with health and wellbeing associated with those areas outlined in SDG 3, Target 3.4 (CDSH 2008; Global Goals 2022, UN, 2022), however there numerous opportunities for proactive, collaborative partnerships across service ecosystems to come together for the greater good. This TSR explores such opportunities in the context of GVs in Botanic Gardens (BGs).

Vitality and viability of BGs are pivotal in sustainability for a whole host of reasons, providing multiple levels of global, ecological insights into ecosystems and ecosystem services from the nano to the macro, theoretical to practical, helping plants, people and planet, and society as a whole to become more educated and proactive to live more sustainably and healthily (Oxford University Botanic Garden and Arboretum 2021; PlantNetwork, 1994; Sharrock and Jackson, 2017; Smith, 2018, 2020). Likewise, these fascinating places are intertwined with a whole array of complex service ecosystems from the local to global;

volunteering being one key service (Catahan and Woodruffe-Burton, 2019). BGs have a long tradition of being focused on plants, plant science, botany, pharmacology, economic botany, taxonomy, conservation, and education, health and wellbeing, visitation and other means of engagement and multi-service provision; Garden Volunteering (GV) offers a unique, bilateral service provision resulting in significant health and wellbeing outcomes for both the BG and volunteer(s) (Ibid.). Economic and social impacts of BGs have been '*little researched and established*' (Benfield, 2021, p.120). GV would be considered major contributions to social capital, whilst noting economic means, the Royal Botanic Garden Edinburgh '*(RBGE) values volunteers at £8500 per person, or one volunteer saves the garden £8500 in full-time salary*' (Ibid., p. 126). Derewnicka (2016, p.4-5) highlights, '*heroes of the cultural sector go unsung in the literature*', going on to state that GV can encourage intergenerational learning whilst saving an organisation threatened with closure, and GV contributions to BGs cannot be over-estimated. This is certainly the case regarding BGs, GVs and extant literature on TSR. Therefore, this TSR explores GVs lived experience, interactions, and exchanges to consider transformative service and sustainability' orientation aspects within the BG context.

Ostrom et al. (2010) identified several overarching service research priorities intended to shed light on service areas being of great value and potential to improving individual and societal welfare. A key element to this priority focusing and expanding on collaborative, interdisciplinary means to enhance understanding of services to tackle challenges and opportunities. TSR is defined by Anderson et al. (2010, p.9) as service research which focuses on '*creating uplifting changes and improvements in the well-being of both individuals and communities*' ultimately regarding sustainability via services. TSR examines environmental, sociocultural, and economic impacts, outcomes, consequences, benefits and associated service ecosystems and their offerings. TSR also considers the positive, negative and indifference across services valued or not or not yet innovated on. In other words, those designs, and creative aspects of value co-creation (in this case, maintenance of BGs, and mind, body and soul of GVs), co-destruction (breaking down socio-cultural barriers, limiting prescribed drugs and decreasing pre-mature mortality from non-communicable diseases, and breaking down barriers in order to promoting mental health and wellbeing in novel non-medical settings), stewardship, agency and services still to emerge to meet the diversity of needs and expectations, and of global goals/Sustainable Development Goals; the list is non exhaustive. Empirical findings of this TSR provide insights to opportunities, which can serve to further validate not only BGs

service strategies including their marketing efforts, but new ways of identifying and addressing metrics for SDG3 Health and Wellbeing, Target 3.4 across other contexts and communities.

TSR applied to gardens and volunteering is unique, therefore these studies advance service research in the context of GV for the first time. Rosenbaum et al. (2007) introduced TSR and encouraged an ongoing review of ‘person-place relationships’; how welfare is promoted via exchanges of an intangible nature within service contexts – in this case the service nexus between BGs and GVs and vice versa. Based on BGCI (2022) volunteer data, volunteers are the lifeblood of the gardens they serve. Derewnicka et al. (2015) highlights that volunteers keep many of these places from coming under threat of decline or closure. However GV seem to be missing from the extant literature regarding TSR and many opportunities exist for service marketing practice, despite much positive, collective, societal health and wellbeing, gardens and volunteering create, which is found across these volunteer stories. TSR as a theoretical lens and modus operandi enables academics, practitioners, planners, developers, managers, policymakers and everyday people to consider novel ways of providing important insights for formal and/or informal strategic decision making, action planning and related provision to ultimately make people and places better (Anderson et al., 2011, 2013, 2016, 2016; Anderson and Ostrom, 2015; Fisk et al., 2016; Ostrom et al., 2010, 2015). Rosenbaum et al (2011) states that ‘TSR builds on the notion of a transformative service economy that improves the relationships among social, economic, and environmental systems through respectful, collaborative, and sustainable interactions’. A decade on and this is certainly still most salient for sustainable service ecosystems, and for the purpose of this TSR, Botanic Gardens playing a key role with all these types of services, garden volunteering in meeting SDG3, Target 3.4, being a novel contribution to the extant literature on services research, impact, and outcomes.

Measuring SDG achievements is an ongoing aim of many organisations (UN, 2015), Botanic Gardens being one with Sharrock and Jackson (2017, p.16) stating that: ‘*Over the coming years it will be valuable for [Botanic Gardens] to further define their roles in achievement [of Sustainable Development Goals] and promote greater awareness and support for plant conservation within this new framework and priorities for global development.*’ It was this statement and chance discussions with volunteers at gardens which led to this TSR. Therefore, Garden Volunteering (GV) is unique regarding TSR and also service both received and provided between volunteer and garden, and *vice versa*.

Based on BGCI (2022) volunteer data, volunteers are the lifeblood of the gardens they serve, as many gardens have support from huge numbers of volunteers across the sector. Examples of these being Royal Botanic Garden, Kew (with 179 volunteers), Royal Botanic Gardens, Edinburgh (179 volunteers), National Botanic Gardens Wales (129 volunteers). Darwenciz (2016) highlights that volunteering keep many of these places from coming under threat of decline or closure. However, GV seem to be missing from the extant literature regarding TSR despite much positive evidence on collective, societal health, wellbeing, gardens and volunteering. TSR as a theoretical lens and modus operandi enables academics, practitioners, planners, developers, managers, policymakers and everyday people to consider novel ways of providing important insights for formal and/or informal strategic decision making, action planning and related provision to ultimately make people and places better (Anderson et al., 2011, 2013, 2016, 2016; Anderson and Ostrom, 2015; Fisk et al., 2016; Ostrom et al., 2010, 2015). Environmental, sociocultural and economic transformative services and salience of GV as a service and co-creating value in terms of SDG are significant. Therefore, much scope to continue TSR associated with GV, linking long-term vision, mission, aims, objectives, plans and, sustainable and responsible developments for improved, collective and societal wellbeing are considered as part of the growing TSR agenda and that of Botanic gardens' vitality and viability regarding SDGs; in this case SDG 3, Target 3.4 (Shorrocks and Wise, 2019).

GV have a continued and important role as transformative service providers: research, conservation, working with displays of documented collections of plants (BGCI, 1999Roots), involved in various environmental (Smith), sociocultural (Vergou, 2018) and economic (Black, 2012). It was the Orto Botanico di Pisa of 1543, the first university botanic garden in the world, which gave rise to the model of what we see today as our modern botanic garden providing (BGCI, 2022b; Orto e Museo Botanico, 2018). Internationalisation of such BG services there and across this growing model of BGs received, organised and documented plants, providing a place and space for plant science, botany and medical research, pedagogy, experimentation and development. Service of providing a necessity of drugs is due to early botanic gardens, alongside services for physicians, apothecaries and the practice of medicine, but also for those of ill health and wellbeing (Hill, 1915). *Materia medica*, otherwise known as the corpus of knowledge about therapeutic properties of substances used or that could be used for healing, in other words medicines, and now popularised by the term pharmacology was the core of their main purpose and service. Obviously, a major transformative service which is common place across the world in its' many diverse array of services,

sectors and industry ecosystems, connecting plants, people and place for the ultimate goal of individual and societal health and wellbeing, and of course trade markets and a capitalism.

No doubt there were all manner of volunteers across the ages, even well into ancient times in those botanical gardens predating the very Western exemplar of the Orto Botanico di Pisa and those that emerged because of such service provision and service ecosystem, linking traditions and innovations of related service and product exchange of *materia medici*.

Many historical developments of these wondrous places have been documented across disciplines, academic schools of biology, botany, plant science, environmental science and pedagogy (Smith, 2022); garden history (nnnn), garden tourism (Benfield, 2022) to name some examples. However, regarding a TSR context and opportunities resulting from potential studies are non-existent across the extant literature.

There is a need to address ongoing challenges that many of our gardens are facing, such as financial changes, constraints, limited support from traditional sources, and a lack of awareness of the value and importance of BGs (Catahan and Woodruffe-Burton, 2019). Patterns and trends of decline of gardens as establishments of services have been observed since the 1960s and are under continued threat (Garrod et al., 1993).

Botanic Gardens (BGs) for instance are valuable, important institutes of scientific discoveries, holding biophysical and cultural collections (Smith, 2019). BGs collaborate and work on invaluable conservation projects, constantly developing education, training and awareness roles and ever-expanding on their significant works and impacts linked to plants, people, places and services which harness health and wellbeing opportunities (Derewenicka, 2016); despite public perception of many of these places focusing servicescape elements,...the '*view, brew and loo*' (Catahan and Woodruffe-Burton, 2019). BGs world-wide continue their focus on a range of services with broad ranging environmental, sociocultural and economic impacts (Sharrock, 2018) whilst aiming to develop as diverse, efficient, effective, exciting and engaging places (Catahan and Woodruffe-Burton, 2019)

Smith (2018) highlights a global footfall of 500 million visitors a year to BGs with opportunities to change attitudes, likewise, SDGs achieved across BGs both in and outside their garden walls are proving impactful at local, regional, national and international levels. However, there is a call from BG leaders for momentum, for ongoing collaborative partnerships and innovations regarding BG vitality and viability, and

being a key component in meeting SDGs (Oxford University Botanic Garden and Arboretum, 2021; Shorrocks, 2018; Smith, 2019, 2018).

However, the importance and value of GV is not fully explored or clear in consideration of the above-mentioned challenges, alongside TSR, health and wellbeing aspects. Thus, from a TSR perspective, which focuses on the wellbeing of individuals, communities and ecosystems (Anderson et al. 2013; Blocker and Barrios 2015; Vargo and Lusch 2019), highlighting complexities of trans-disciplinary, ecosystemic services (Gummesson et al., 2019; Lusch et al., 2016)(Lusch, Vargo and Gustafsson, 2016; Mele, Russo-Spena and Tregua, 2018; Gummesson, Mele and Polese, 2019) offers up GV as a novel and worthy TSR context to explore for the good of people, places and the development of TSR theory and practice. Managers still lack detail which would contribute to informed decisions regarding services marketing (Wilson *et al.*, 2016). Vargo and Lusch (2017) state that further studies are needed into services linked to institutions and their arrangements, which facilitate coordination across service ecosystems. Parowicz (2019) highlights the need for further studies to deepen the knowledge about marketing linked to heritage, conservation and services. Price (2019) questions and calls for debate on the nature of marketing and being prepared to embark on imaginative, attentive studies of the full continuum of interactions and creative production across places, services, people and social systems.

Botanic Garden Conservation International (2021) “Botanic gardens are institutions holding documented collections of living plants for the purpose of: scientific research, conservation, display and education. In 2018, BGCI updated the criteria that define a botanic garden to have a greater emphasis on conserving rare and threatened plants, compliance with international policies and sustainability and ethical initiatives.” To further position Botanic Gardens and their significance and purpose, the International Union for Conservation of Nature (IUCN) (2020) state that ‘the value (importance) of ecosystems to human welfare is still underestimated and not fully recognized in every day planning and decision-making, in other words, the benefits of their services are not, or only partly, captured in conventional market economics. Furthermore, the costs of externalities of economic development (e.g. pollution, deforestation) are usually not accounted for, while inappropriate tax and subsidy (incentive) systems encourage the over-exploitation and unsustainable use of natural resources and other ecosystem services at the expense of the poor and future generations.’ Botanic Gardens are research institutes instrumental in developing our understanding of the

state of our natural world, informing innovations, conservation, planning, decision-making and development; we still know so very.

The extant literature on the development of Botanic Gardens highlight that it really is important that we ensure the enhancement and support of these key aims and potential transformational roles, responsibilities and actions of our botanic garden communities. Building on the innovation of staffing and workforce development to meet such critical aims; growing these institutions to be more “research active”, grow staff and volunteers alike, cultivating, nurturing, branching out, rooting deep, blossoming and fruiting for seasons to come; with “purpose”, with “responsible management, marketing and responsible tourism and ultimately with global goals” in mind. Approach on developing the information on our botanic gardens should be from multiple perspectives, academic, practical, personal, past, present and considering the future. Innovating on provision, characteristics, features and facilities at our Botanic Gardens and connections to others are ongoing. Following good practice on managing plant collections and ensuring good, creative developments of informed, evidence-based representation and interpretation of these, even with the most limited of resources and applying “effectual entrepreneurship” is important. Building on the democratisation and accessibility of Botanic Gardens for all and the associated conservation programmes, research programmes, education programmes are all-important and key to developing as contemporary Botanic Gardens, making these programmes happen with those partnerships mentioned earlier regarding global goals; and also using such goals as metrics for our global community of Botanic Gardens and stakeholders to realise and recognise impacts, outcomes and implications for policy and legislative formulation and action among other means to develop the work of Botanic Gardens and also as strategic communications and transformational service’ power houses via one such role as volunteering provision, as catalysts and channels for such strategic service marketing communications to the masses.

This paper contributes to ongoing debates and conceptualisation of the complexities of TSR in the context of GV and understanding on the multiplicity and dynamics of sustainable service ecosystems and opportunities, ultimately leading to the improvement of transformative services and making better outcomes for collective and societal wellbeing via gardens.

Methodology

This is a qualitative, ethnographic study which embraces the precepts and principles of interpretivism and constructivism (Hammersley and Atkinson, 2007; Ellis, Adams and Bochner, 2011; Creswell, 2015; Silverman, 2017; Bell, Bryman and Harley, 2018). It is a study carried out within a qualitative, value-laden, feminist research framework (Mackinlay, 2019) utilising extended observations, online sources and free flowing discussions (Baron, Harris and Hilton, 2009; Kozinets, 2019).

The emphasis is not on quantification but sentiments, thoughts, feelings, words with practical outcomes and contributions (Bell, Bryman and Harley, 2018). Content analysis and text analytic software was used to draw out themes and concepts from sources of data (Silverman, 2017). Leximancer (Leximancer, 2019) and NVivo 12 Plus (QSR, 2019) was used to analyse text relating to the BG, identifying high level concepts, links between concepts, and offering key concepts and insights which can be further actioned by marketers of BGs with the use of interactive visualisations to aid strategic services marketing decision making.

Main findings

Transformative Service Economy

TSR applied to BGs is unique and underexplored, therefore these studies advance service research in the context of BGs for the first time. TSR enables BG marketing managers to consider novel approaches to provide important insights for strategic decision making and action planning. Environmental, sociocultural and economic transformative services and salience of BG service value is significant. There is much scope to continue TSR associated with BGs' long-term vision, mission, aims, objectives, plans and, sustainable and responsible developments for improved, collective and societal wellbeing. BGs have an important role as transformative service providers: research, conservation, displays of documented collections of plants, education, and environmental, sociocultural and economic enterprise.

GV stories

“I felt that there was a purpose to life and many people there were feeling the same way.”

“[...] my self confidence and mental health has improved a huge amount as has my physical health.”

“Aside from the obvious benefits of getting out in the fresh air it has given me back some structure.”

“Anti depressants quickly became a thing of the past within three months of starting as a volunteer.”

“Volunteering is giving the structure to my week that I was hoping for.”

“Positive experience for my mental and physical wellbeing. Good to meet fellow volunteers on a regular basis hence positive social aspect. Find gardening, even mundane duties, therapeutic. Feel positive about doing volunteering work.”

“A lot healthier to be in the outdoors as opposed to staying inactive indoors. [...] I am 67 but planning a longer life - volunteering helps this goal.”

“Immediately prior to volunteering, I was in intensive outpatient treatment for anorexia nervosa and signed off work following multiple suicide attempts. Very lost, very isolated, very lonely, very scared, very tired, very anxious, very ashamed (and trying to hide all of this); life was free-falling into a great big black hole. [...] But I'm still here and have volunteered nearly every week doing this whole time. Anorexia - still in recovery but getting more recovered on balance, won't miss out on the opportunity for my coffee and biscuits when I'm volunteering. Physical health - so much stronger, more robust, less tired, sleeping bit better. Mental health - handling the crisis points much better [...], the anxiety is still hideous off and on but goes mostly when I'm volunteering [...].”

I love my life now! Volunteering is just THE best thing ever!

Discussion

As a result of this exploratory TSR, there is certainly a novel contribution to the extant literature, enabling a community of Garden Volunteers (GVs) in Botanic Gardens (BGs) co-creating a dynamic service ecosystem

(Vargo and Lusch, 2008) a voice. These prosumers, BGs and GVs provide evidence of a significant Transformative Service Economy (TSE) (Rosenbaum et al, 2011) not only for the vitality and viability of the BGs, but the GVs themselves, and between each other, regarding a significant health and wellbeing economy, and subsequent “lifesaving, transformative service”. Such qualitative insights create opportunities for innovation, and for the purposes of these insights, key content of narratives can serve theory development across TSR and for the good of policy and practice for individual and societal wellbeing, in this case attached to Botanic Gardens and linking the UN SDG 3 Ensure healthy lives and promote well-being for all at all ages, Target 3.4, By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.

Encouragement of a distinct pluralism of service innovations is certainly important, and regarding service integration there are key developments with theoretical underpinnings which impact on emerging new roles and responsibilities (Kurtmollaiev and Pedersen 2022). Such roles are evident in this study of GV and BGs, roles in both institutions have the potential to integrate beyond BGs into the spheres of healthcare settings and related roles. Dynamics here in this context is one of a potentially greater integrated health and wellbeing economy, not as fully realised across related public, private and voluntary’ service ecosystems; therefore, implications on this wider service ecosystem should become more diverse and integrated with activities such as GV in places like BGs become commonplace. Likewise, such creative destruction in service innovation should lead to relevant, service design, integrated policy and practice developing generalisation, infrastructure, and efficacy to follow.

“a relatively self-contained, self-adjusting system of resource-integrating actors that are connected by shared institutional arrangements & mutual value creation through service exchange.” (Vargo and Lusch, 2016:10–11; Vargo & Lusch, 2018)

Beyond dyads (Barile et al. 2016) with ecosystemic thinking and service design as a mindset and tool for TSR success (Anderson, Nasr and Rayburn 2018) opportunities for the efficacy of transformative service,

knowledge exchange, impact and outcomes can be applied to GV in BGs. Beyond the dyadic relationship of GV and BG, opportunities of integration and proaction (Alkire et al. 2020; Vink et al. 2020) between actors and institutions across service ecosystems (Vargo and Lusch 2018) can be developed. Integration and informed service design between BGs (and potentially a whole host of other novel contexts and settings), healthcare professionals and local authorities pivotal in services dealing with SDG 3, Target 3.4 can innovate on service offering and service development. Prescribing GV across BGs is certainly one synergetic, proactive approach and service design opportunity to meeting several SDGs, not just SDG 3; impacts are far-reaching for both ecosystem services and service ecosystems, and the vitality and viability of BGs. Findings of this TSR support inclusive service ideas (Fisk et al. 2018), and as there is a diversity of participants with varying healthcare markers highlighted in this TSR, value cocreation from a range of services can come together, healthcare being one of the key components. Conditions (Karpen, Gemser and Calabretta 2017) to bring together actors and institutions are evident across BGs with the number of GV and the services they provide and health and wellbeing services received, which warrant strategic attention and service design innovation from relevant parties. Newman et al. (2015) emphasise the need for more service integration, more involvement and choice of service for those with mental health problems. Research on such service innovation is still young and poses questions such as evaluation of the tangible, intangible and singular, of value creation, and emerging business models (Merlin-Brogniart 2021). In this sense, such innovation will create opportunities for institutions and actors to come together to meet SDGs, such as SDG 3 Target 3.4.

Conclusions

Determinants of transformative service in botanic gardens

Among the numerous, multiple and diverse offerings from past to present day and those transformative services of the future, this study touches upon one key component apparent of BGs and Volunteers as agents and actors in the co-creation of transformative services for the good of individual and societal wellbeing. It is important at this stage to highlight the determinants of such services for other institutions, communities

and individuals to consider innovating in whatever ways they can be inspired from this brief but salient insight into volunteers narratives. For structure, determinant factors are presented in

- Contribution to transformative service theory/practice
- Informed service & place marketing
- Increased, mindful participation
- SDGs & metrics
- Transformative health & wellbeing

Implications and ongoing research

TSR opens up opportunities to apply ideas touched upon in this study to other novel contexts.

Longitudinal studies with opportunities across other contexts and partners, building on this wealth of health and wellbeing insights may be informed by ongoing qualitative, evidence-based studies, whilst cross referencing to quantitative studies linked to health and wellbeing statistics of volunteers and service centred outcomes in all their guises in keeping BGs vital and viable. Such studies would assist in further realising impacts, outcomes, consequences, and opportunities to develop transformative service economies and more integrated service ecosystems across actors who could be involved (e.g. health and wellbeing professionals). Efforts for the vitality and viability of BGs and GVs health and wellbeing, mapping across to SDG 3, Target 3.4 should be ongoing, whilst considering connections to other SDGs, to inform institutional policies across sectors and the good practice of sustainable service design, innovation and all that comes with such efforts, for example, informed service marketing communications; increased participation in volunteering across BGs, but also other contexts; addressing and meeting SDGs and providing another set of metrics to illuminate transformative service/health and wellbeing economies.

Reference list

- Alkire (née Nasr), Linda, Christine Mooney, Furkan A. Gur, Sertan Kabadayi, Maija Renko and Josina Vink (2019), "Transformative Service Research, Service Design, and Social Entrepreneurship," *Journal of Service Management*, 31 (1), 24–50. <https://doi.org/10.1108/JOSM-05-2019-0139>.
- Anderson, Laurel and Amy L. Ostrom (2015), "Transformative Service Research: Advancing Our Knowledge About Service and Well-Being," *Journal of Service Research*, 18 (3), 243–49. <https://doi.org/10.1177/1094670515591316>.
- Anderson, Sidney, Linda Nasr and Steven W. Rayburn (2018), "Transformative Service Research and Service Design: Synergistic Effects in Healthcare," *The Service Industries Journal*, 38 (1-2), 99–113. <https://doi.org/10.1080/02642069.2017.1404579>.
- Anderson, Laurel, Amy L. Ostrom, Canan Corus, Raymond P. Fisk, Andrew S. Gallan, Mario Giraldo, Martin Mende, Mark Mulder, Steven W. Rayburn, Mark S. Rosenbaum, Kunio Shirahada, Jerome D. Williams (2013), "Transformative Service Research: An Agenda for the Future," *Journal of Business Research*, 66 (8), 1203–10. <https://doi.org/10.1016/j.jbusres.2012.08.013>.
- Anderson, Laurel, Jelena Spanjol, Josephine Go Jefferies, Amy L. Ostrom, Courtney Nations Baker, Sterling A. Bone, Hilary Downey, Martin Mende and Justine M. Rapp (2016), "Responsibility and Well-Being: Resource Integration Under Responsibilization in Expert Services," *Journal of Public Policy & Marketing*, 35 (2), 262–79. <https://doi.org/10.1509/jppm.15.140>.
- Andreassen, Tor Wallin, Per Kristensson, Line Lervik-Olsen, A Parasuraman, Janet R McColl-Kennedy, Bo Edvardsson and Maria Colurcio (2016) "Linking Service Design to Value Creation and Service Research," *Journal of Service Management*, 27 (1), 21–29. <https://doi.org/edgehill.idm.oclc.org/10.1108/JOSM-04-2015-0123>.
- Barile, Sergio, Robert Lusch, Javier Reynoso, Marialuisa Saviano and James Spohrer (2016), "Systems, Networks, and Ecosystems in Service Research," *Journal of Service Management*, 27 (4). <https://doi.org/10.1108/JOSM-09-2015-0268>.
- Benfield, Richard (2021), *New Directions in Garden Tourism*. Wallingford, Oxfordshire, UK: CABI.
- Bitner, Mary Jo (1992), "Servicescapes: The Impact of Physical Surroundings on Customers and Employees," *Journal of Marketing*, 56 (2), 57–71. <https://doi.org/10.2307/1252042>.
- Bitner, Mary Jo (1990), "Evaluating Service Encounters: The Effects of Physical Surroundings and Employee Responses," *Journal of Marketing*, 54 (2), 69–82. <https://doi.org/10.2307/1251871>.
- Blocker, Christopher P. and Barrios Andrés (2015), "The Transformative Value of a Service Experience," *Journal of Service Research*, 18 (3), 265–83. <https://doi.org/10.1177/1094670515583064>.
- Catahan Nicholas and Helen Woodruffe-Burton (2019), "The view, brew and loo: perceptions of botanic gardens?," *Journal of Place Management and Development*, 12 (1), 20–38. <https://doi.org/10.1108/JPMD-12-2017-0127>

- CSDH (2008), Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization.
- Derenwnicka, Liliana (2016), "First Word Hail to the Volunteer!," *Botanic Gardens Conservation International Education Review roots*, 13 (2), December 2016. Accessed July 31, 2022. https://www.bgci.org/wp/wp-content/uploads/2019/04/Roots_13.2.pdf
- Dietrich, Timo, Jakob Trischler, Lisa Schuster and Sharyn Rundle-Thiele (2017), "Co-Designing Services with Vulnerable Consumers," *Journal of Service Theory and Practice*, 27 (3), 663–88. <https://doi.org/10.1108/JSTP-02-2016-0036>.
- Field, Joy M., Darima Fotheringham, Mahesh Subramony, Anders Gustafsson, Amy L. Ostrom, Katherine N. Lemon, Ming-Hui Huang and Janet R. McColl-Kennedy (2021), "Service Research Priorities: Designing Sustainable Service Ecosystems," *Journal of Service Research*, 24 (4), 462–79. <https://doi.org/10.1177/10946705211031302>.
- Fisk, Raymond P., Laurel Anderson, David E. Bowen, Thorsten Gruber, Amy Ostrom, Lia Patrício, Javier Reynoso and Roberta Sebastiani. (2016), "Billions of Impoverished People Deserve to Be Better Served." *Journal of Service Management*, 27 (1), 43–55. <https://doi.org/10.1108/JOSM-04-2015-0125>.
- Fisk, Raymond P., Laurel Anderson, David E. Bowen, Thorsten Gruber, Amy Ostrom, Lia Patrício, Javier Reynoso and Roberta Sebastiani (2016), "Billions of Impoverished People Deserve to Be Better Served," *Journal of Service Management*, 27 (1), 43–55. <https://doi.org/10.1108/JOSM-04-2015-0125>.
- Gallan, Andrew S., Cheryl Burke Jarvis, Stephen W. Brown and Mary Jo Bitner (2013), "Customer Positivity and Participation in Services: An Empirical Test in a Health Care Context," *Journal of the Academy of Marketing Science*, 41 (3), 338–56. <https://doi.org/10.1007/s11747-012-0307-4>.
- Garrod, Guy, Anne Pickering and Ken Willis (1993), "The Economic Value of Botanic Gardens: A Recreational Perspective," *Geoforum*, 24 (2), 215–24. [https://doi.org/10.1016/0016-7185\(93\)90035-G](https://doi.org/10.1016/0016-7185(93)90035-G).
- Global Goals (2022), "The Global Goals, 3 Good Health and Well-being" *Global Goals SDG 3*. Accessed July 31, 2022. <https://www.globalgoals.org/goals/3-good-health-and-well-being/>
- Gummesson, Evert, Cristina Mele, and Francesco Polese (2019), "Complexity and Viability in Service Ecosystems," *Marketing Theory*, 19 (1), 3–7. <https://doi.org/10.1177/1470593118774201>.
- Gustafsson, Anders, Claes Högström, Zoe Radnor, Margareta Friman, Kristina Heinonen, Elina Jaakkola and Cristina Mele (2016), "Developing Service Research – Paving the Way to Transdisciplinary Research," *Journal of Service Management*, 27 (1), 9–20. <https://doi.org/10.1108/JOSM-03-2015-0098>.
- Hill, Arthur W. (1915), "The History and Functions of Botanic Gardens," *Annals of the Missouri Botanical Garden* 2, (1-2), 185–240. <https://doi.org/10.2307/2990033>.
- Hurley, Erin, Jakob Trischler and Timo Dietrich (2018), "Exploring the Application of Co-Design to Transformative Service Research," *Journal of Services Marketing*, 32 (6), 715–27. <https://doi.org/10.1108/JSM-09-2017-0321>.
- Jonas, Julia M., Julian Boha, David Sörhammar and Kathrin M. Moeslein (2018), "Stakeholder Engagement in Intra- and Inter-Organizational Innovation," *Journal of Service Management*, 29 (3), 399–421. <https://doi.org/10.1108/JOSM-09-2016-0239>.
- Karpen, Ingo Oswald, Gerda Gemser and Giulia Calabretta (2017), "A Multilevel Consideration of Service Design Conditions," *Journal of Service Theory and Practice*, 27 (2), 384–407. <https://doi.org/10.1108/JSTP-05-2015-0121>.

- Kurtmollaiev, Seidali and Per Egil Pedersen (2022), "Bringing Together the Whats and Hows in the Service Innovation Literature: An Integrative Framework," *International Journal of Management Reviews*, (20220425), 1-29. <https://doi.org/10.1111/ijmr.12297>.
- Lusch, Robert F., Stephen L. Vargo and Anders Gustafsson (2016), "Fostering a Trans-Disciplinary Perspectives of Service Ecosystems," *Journal of Business Research*, 69 (8), 2957–63. <https://doi.org/10.1016/j.jbusres.2016.02.028>.
- MERLIN-BROGNIART, Céline (2021), "Services – Defining Service Innovation," In *Innovation Economics, Engineering and Management Handbook 1 Main Themes*, Uzunidis, Dimitri, Fedua Kasmi and Laurent Adatto eds, London, UK: ISTE Ltd., 313-318. <https://doi.org/10.1002/9781119832492.ch39>.
- Mulder, Mark R, Justine M Rapp, Anne Hamby, and Todd Weaver (2015), "Consumer Transformation through Volunteer Service Experiences," *The Service Industries Journal*, 35 (15-16), 865–82. <https://doi.org/10.1080/02642069.2015.1090981>.
- Newman, Daniel, O'Reilly, P., Lee, S.H. and Kennedy, C. (2015), "Service users' experiences of Mental Health Care," *Journal of Psychiatric Mental Health Nursing*, 22, 171-182. <https://doi.org/10.1111/jpm.12202>.
- Ostrom, Amy L., Joy M. Field, Darima Fotheringham, Mahesh Subramony, Anders Gustafsson, Katherine N. Lemon, Ming-Hui Huang and Janet R. Mccoll-Kennedy (2021), "Service Research Priorities: Managing and Delivering Service in Turbulent Times," *Journal of Service Research*, 24 (3), 329–53. <https://doi.org/10.1177/10946705211021915>.
- Ostrom, Amy L., A Parasuraman, David E. Bowen, Patrício Lia and Christopher A. Voss (2015), "Service Research Priorities in a Rapidly Changing Context," *Journal of Service Research*, 18 (2), 127–59. <https://doi.org/10.1177/1094670515576315>.
- Ostrom, Amy, Mary Bitner, Stephen Brown, Kevin Burkhard, Michael Goul, Vicki Smith-Daniels, Haluk Demirkan and Elliot Rabinovich (2010), "Moving Forward and Making a Difference: Research Priorities for the Science of Service," *Journal of Service Research*, 13 (1), 4–36. <https://doi.org/10.1177/1094670509357611>.
- Oxford University Botanic Garden and Arboretum (2021), "Celebrating Botanic Gardens: Past, Present and Future," Accessed July 31, 2022. https://www.youtube.com/watch?v=v_De47ORt-U&list=PLQF4XjqZizVU5HiCdDpLsXNevHkjPnI6t
- Patrício Lia, Nelson Figueiredo de Pinho, Jorge Grenha Teixeira and Raymond P. Fisk (2018), "Service Design for Value Networks: Enabling Value Cocreation Interactions in Healthcare," *Service Science*, 10 (1), 76–97. <https://doi.org/10.1287/serv.2017.0201>.
- Patrício Lia, Raymond Fisk, Falcão e Cunha João and Larry Constantine (2011), "Multilevel Service Design: From Customer Value Constellation to Service Experience Blueprinting," *Journal of Service Research*, 14 (2), 180–200. <https://doi-org.edgehill.idm.oclc.org/10.1177%2F1094670511401901>.
- PlantNetwork (1994), "Plant Collections Network Britain & Ireland First Conference." Edinburgh, 5-7th October 1994. Accessed July 31, 2022. <https://plantnetwork.org/wordpress/wp-content/uploads/8593/Proceedings-Edinburgh-1994.pdf>
- Rosenbaum, Mark, Canan Corus, Amy Ostrom, Laurel Anderson, Raymond Fisk, Andrew Gallan, Mario Giraldo, Martin Mende, Mark Mulder, Steven Rayburn, Kunio Shirahada, Jerome Williams (2011), "Conceptualisation and Aspirations of Transformative Service Research," *Journal of Research for Consumers*, Pace University Marketing Research Paper 2016 (03), 1-6. SSRN: <https://ssrn.com/abstract=2643219>.
- Rosenbaum, Mark S., James Ward, Beth A. Walker and Amy L. Ostrom (2007), "A Cup of Coffee with a Dash of Love : An Investigation of Commercial Social Support and Third-Place Attachment," *Journal of Service Research*, 10 (1), 43–59. <https://doi.org/10.1177/1094670507303011>.

- Russell-Bennett, Rebekah, Raymond P. Fisk, Mark S. Rosenbaum and Nadia Zainuddin (2019), “Commentary: Transformative Service Research and Social Marketing – Converging Pathways to Social Change,” *Journal of Services Marketing*, 33 (6), 633–42. <https://doi.org/10.1108/JSM-10-2018-0304>.
- Sharrock, Suzanne (2018), “Botanic gardens and their contribution to the Sustainable Development Goals,” *Journal of Botanic Gardens Conservation International*, 15 (1), 14-17. Accessed July 31, 2022. https://www.bgci.org/wp/wp-content/uploads/2019/04/BGjournal%2015_1.pdf
- Sharrock, Suzanne and Peter Wyse Jackson (2017), “Plant Conservation and the Sustainable Development Goals: A Policy Paper Prepared for the Global Partnership for Plant Conservation,” *Annals of the Missouri Botanical Garden*, 102 (2), 290–302. <http://www.jstor.org/stable/26379597>
- Smith, Paul (2018), “Botanic gardens and their contribution to the Sustainable Development Goals,” *Journal of Botanic Gardens Conservation International*, 15 (1), 2. Accessed July 31, 2022. https://www.bgci.org/wp/wp-content/uploads/2019/04/BGjournal%2015_1.pdf
- Stephan, Ute, Malcolm Patterson, Ciara Kelly, and Johanna Mair (2016), “Organizations Driving Positive Social Change: A Review and an Integrative Framework of Change Processes,” *Journal of Management*, 42 (5), 1250–81. <https://doi.org/10.1177/0149206316633268>.
- United Nations (2022), “Sustainable Development Goals,” *United Nations SDGs*. Accessed July 31, 2022. <https://sdgs.un.org/goals>
- Vargo, Stephen L. and Robert F. Lusch, (2018), *The SAGE Handbook of Service-dominant Logic*. London: SAGE. <https://dx.doi.org/10.4135/9781526470355>.
- Vargo, Stephen L. and Robert F. Lusch (2017), “Service-Dominant Logic 2025.” *International Journal of Research in Marketing*, 34 (1), 46–67. <https://doi.org/10.1016/j.ijresmar.2016.11.001>.
- Vink, Josina, Kaisa Koskela-Huotari, Tronvoll Bård, Bo Edvardsson and Katarina Wetter-Edman (2021), “Service Ecosystem Design: Propositions, Process Model, and Future Research Agenda,” *Journal of Service Research*, 24 (2), 168–86. <https://doi.org/10.1177/1094670520952537>.
- Vink, Josina, Bo Edvardsson, Katarina Wetter-Edman and Bård Tronvoll (2019), “Reshaping Mental Models – Enabling Innovation through Service Design.” *Journal of Service Management*, 30 (1), 75–104. <https://doi.org/10.1108/JOSM-08-2017-0186>.
- Zomerdijk, Leonieke, and Christopher Voss. 2010. “Service Design for Experience-Centric Services.” *Journal of Service Research* 13 (1): 67–82. <https://doi-org.edgehill.idm.oclc.org/10.1177%2F1094670509351960>.