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Research Article

The Role of Higher Education in Transformative Learning for the Gerontechnology Ecosystem: A Multi-Stakeholder Perspective

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Abstract

The rapidly ageing population in Hong Kong presents pressing challenges that demand innovative and sustainable solutions. Gerontechnology—a multidisciplinary field integrating gerontology and technology—has emerged as a pivotal response to these complex societal needs. Higher education institutions are increasingly recognized as key actors in advancing gerontechnology, not only through research and collaboration with diverse stakeholders but also by fostering transformative learning experiences that reshape how ageing and technology are understood.

This paper examines the critical role of universities within the gerontechnology ecosystem, highlighting how transformative learning processes can cultivate value creation and social innovation. Drawing on stakeholders' perspectives, the study explores how educational sectors contribute to gerontechnology development and respond to the evolving demands of ageing societies. The findings underscore that higher education's responsibilities extend beyond conventional teaching and research mandates. By embedding transformative learning into curricula and practice, universities can nurture a supportive environment that empowers students, strengthens stakeholder collaboration, and drives societal sustainability.

Methods

This study employed a case study approach focusing on gerontechnology education at Universities in Hong Kong. A qualitative research design was adopted, involving individual interviews conducted in 2022 with a diverse range of stakeholders. The primary aim was to capture stakeholders' perspectives on the role of universities in advancing gerontechnology and their contributions to fostering ecosystem collaboration.

Beyond exploring institutional roles, the investigation sought to identify stakeholder interactions that generate the greatest value and hold the potential to create a sustainable competitive advantage. The findings provide universities and other higher education institutions with an opportunity to reflect on and refine their engagement strategies within educational settings. Moreover, the study may encourage the adoption of practices that acknowledge and leverage stakeholder influence in shaping the strategic development of gerontechnology in Hong Kong.

Keywords: Gerontechnology; Hong Kong; Transformative learning experiences; Higher education; Gerontechnology ecosystem; Stakeholder analysis

Introduction

Gerontechnology is an interdisciplinary field that integrates gerontology with technology, aiming to harness technological advancements to study ageing processes and enhance the quality of life for older adults [1]. Its development requires collaborative efforts involving universities, research institutes, NGOs, and government departments, each playing a vital role in fostering innovation and practical application. Universities, in particular, are instrumental in advancing gerontechnology by contributing to theoretical discourse, securing research funding, and generating innovative ideas and solutions that drive product development. In recent years, several universities and higher education institutions in Hong Kong have begun embedding gerontechnology into their curricula and educational practices. Recognizing the importance of cultivating a skilled workforce in this emerging field, they now offer a range of gerontechnology-focused programs across different qualification levels, from vocational training to bachelor's and master's degrees in health and social service management. These programs integrate gerontechnology into teaching and research, supporting both the needs of an ageing society and the advancement of academic inquiry [2].

Beyond talent development, universities are playing an increasingly vital role in the gerontechnology ecosystem, particularly through collaboration with stakeholders to extend theoretical explorations into practical applications. As the global population ages, the demand for innovative solutions to address the challenges and opportunities of ageing continues to escalate. Within this ecosystem, universities are uniquely positioned to contribute through research, education, stakeholder engagement, and policy advocacy. Their involvement not only strengthens the co-creation of knowledge but also accelerates the translation of ideas into impactful gerontechnological solutions. By integrating academic inquiry with collaborative innovation, universities significantly influence both the development and dissemination of technologies that enhance the quality of life for older adults, while simultaneously preparing future generations to address the evolving needs of ageing societies.

Transformative Learning Experiences

Transformative learning is a central concept in higher education, as it emphasizes the importance of personal and intellectual transformation. According to Mezirow [3] and Cranton [4], transformative learning refers to the process of effecting change in one's frame of reference. Adults typically acquire a coherent body of experiences—associations, concepts, values, feelings, and conditioned responses—that form frames of reference shaping how they interpret their life world. These frames of reference act as structures of assumptions, selectively influencing expectations, perceptions, cognition, and emotions, ultimately guiding one's "line of action". The positive impacts of transformative learning include enhanced critical thinking skills, greater self-awareness, and deeper personal and social change [5]. Within higher education, university educators hold a unique position to design curricula that intentionally foster transformative learning experiences [4]. Such experiences are not limited to profound personal transformations but are rooted in human communication and represent a common learning process that can be applied across disciplines. In the context of gerontechnology education, transformative learning enables students and stakeholders to critically examine ageing-related challenges, prepare awareness, reframe assumptions about technology's role in society, and engage in collaborative innovation. By embedding transformative learning into educational practice, universities can cultivate both individual growth and collective capacity to address the complex demands of ageing societies.

Stakeholder Engagement

To effectively address the challenges of ageing and promote the advancement of gerontechnology, the Hong Kong SAR Government encourages collaborative efforts among diverse stakeholders to strengthen the development of gerontechnology. Such collaboration facilitates integration with services and platforms, creating opportunities for a wide range of actors—including scientific, medical, educational, and commercial institutions—to generate synergies across sectors [6]. Stakeholder engagement is crucial for linking knowledge and technology from external sources, thereby enriching innovation with diverse insights. In the context of innovation-driven development, the exchange and co-creation of knowledge are invaluable, as the dynamics of interaction and relationship-building among participants advance the collective knowledge base and propel progress [7,8]. Literature further highlights the importance of collaborative innovation, where stakeholders from industry, academia, and beyond join forces to address societal needs and local challenges. These co-creation efforts extend beyond commercial objectives, paving the way for societal shifts toward sustainability, inclusivity, and resilience [9].

This study examines the critical role of universities and higher education institutions in advancing gerontechnology, focusing on how collaboration with diverse stakeholders contributes to innovation and talent development. Using a qualitative case study approach, individual interviews were conducted in 2022 with stakeholders in Hong Kong to gain insights into their perspectives on the university's position, interests, motivations, and influence in gerontechnology development. The research highlights how higher education fosters the co-creation of knowledge while preparing future generations to address ageing-related challenges. It further emphasizes the importance of transformative learning experiences, which enable students and stakeholders to critically reframe assumptions and adapt to the evolving demands of gerontechnology. The findings provide universities and other institutions with opportunities to refine engagement strategies and adopt practices that acknowledge stakeholder contributions, ultimately strengthening their role in shaping sustainable innovation and advancing gerontechnology in Hong Kong.

Methodology

In the process of exploring the roles and their contribution towards the gerontechnology ecosystem, a detailed analysis focusing on stakeholders' positions, interests, motivations, and power—four aspects deemed essential in stakeholder theory. By mapping these

elements, the study aims to provide a holistic view of the ecosystem, thereby enhancing collaborative decision-making. The mapping process leads toward a comprehensive data view, fostering more collaborative decision-making. This process examines other factors that influence group dynamics, such as values and interests, from a comprehensive perspective. Through interviews with various stakeholders, this research will uncover perceptions regarding engagement and involvement within the ecosystem, offering deeper insights into the relational dynamics between universities (and higher education) and other stakeholders. The process of characterizing and categorizing stakeholders will facilitate the visualization of the education sector's roles and responsibilities within the ecosystem.

- Position: Stakeholders, defined as individuals or groups with a stake in an organization's activities [10], are integral to the ecosystem's value creation. This research will inventory these actors, assessing their stances and the extent of their support or opposition [11], thereby informing the analysis process.
- Power: It is vital to identify who wields influence over key decision-makers or possesses the capacity to affect decision-making processes [11]. The assessment will consider stakeholders' resources and legitimacy, recognizing the dual nature of cooperation and competition within the ecosystem [12].
- Interest: The interests of stakeholders, a critical component in innovation ecosystems [13-15], will be explored to understand their desired outcomes and potential conflicts within the ecosystem [16].
- Motivation: Understanding stakeholders' motivations is essential for identifying the driving forces behind their engagement in ecosystem development [17]. This includes both institutional and personal motivations that influence collective value creation and performance [18].

This study seeks to shed light on how universities contribute to the ecosystem's value creation and innovation drive. The insights derived from this stakeholder analysis are intended to guide strategic management practices, with a special emphasis on optimizing the involvement and impact of universities in ecosystem development, thereby enhancing the ecosystem's overall efficacy and responsiveness to societal needs. For this study, 30 individuals were invited to participate in individual interviews and share their perspectives on the gerontechnology ecosystem. Insights specifically related to universities will be extracted and analysed for this research.

Results

The respondents' feedback highlighted the significant role of universities within the gerontechnology ecosystem, acknowledging their contributions to the field's development. The table below presents the abstracted keywords derived from their comments.:

Table 1: Respondents consider the Universities roles in the gerontechnology ecosystem.

Position	Interest	Motivations	Power
Favorable, impartial, emphasizing education, promoting research and development, facilitating and participating in roles.	Providing education for training new generations, considering academic values, transferring knowledge, conducting research with societal impact, encouraging exploration of relevant topics among students, promoting diversity.	Supporting sustainable development, promoting talent development, enhancing the gerontechnology ecosystem, creating new areas and businesses, achieving research impact, gaining government support, enhancing reputation and ranking.	Acquiring research and development capabilities, cultivating talents, establishing credibility, assessing influence, academic authority, administrative power within the academic community.

Universities play an important role in the development of gerontechnology in Hong Kong, as identified by respondents within the ecosystem. Despite being perceived as occupying a neutral position, the educational sector is seen as both supportive and neutral, fostering research and development and facilitating educational perspectives. Engagement by universities and schools in the gerontechnology ecosystem not only fosters transformation but also shifts the gerontechnology market from a purely business orientation towards multidimensional approaches that emphasize educational and knowledge transfer. Despite varying interests and motivations—ranging from the creation of new business areas to enhancing reputation and securing government support—academic contributions are considered vital for ecosystem synergy, environmental enhancement, and talent development. Gerontechnology, being an interdisciplinary field, benefits from mobilizing diverse faculties and students to explore relevant topics, thereby diversifying its development.

It is noteworthy that respondents acknowledge the significant research and development capabilities of academic institutions, along with their credibility, evaluative, and administrative powers (within the academy). The collaboration between academia and local communities is instrumental in fostering local partnerships, innovative approaches, and a conducive business environment. The research prowess of universities is seen as a form of academic authority. For instance, G1, a government unit representative, along with Y2 from the youth people representative and E3 from the educational sector, highlighted universities capacity to leverage administrative power for organizing varied academic endeavors and integrating community services. This integration enriches both learning and teaching experiences, particularly in gerontechnology.

G1, from the government, emphasized the influential power of universities: "I think they have the greatest power, and they are very powerful, because many colleges conduct research on gerontology, and may have access to substantial funding. While I may not be deeply familiar with this area, I recognize the need for their expertise. It's essential to engage more directly in this field. I have observed that some colleges, such as Lingnan University, have extended their reach beyond academic confines and into the community. It's clear to me that gerontechnology requires real-world experience, direct feedback from the community, and user input. Lingnan University, for instance, has been notably active in organizing symposiums and has trained older adults to serve as ambassadors. I highly value this approach as it offers insight into the reactions and needs of the older adults, and often proves more effective than traditional methods."

E3 from the academy shed light on the significant role of universities and educational institutions in amplifying elder care topics and fostering communication between the youth and the elderly: "From the perspectives of power, we have different topics related to elder care. We are trying to bring the voices to the industry and different industries."…"The Universities can start to educate students on gerontology, particularly in Hong Kong where there is a large elderly population, and to promote communication between students and the elderly... I notice that Many schools have already incorporated gerontechnology and ageing services into their programs, providing students with the knowledge and skills to assist the elderly and develop gerontechnology products. … When students go out to work, they have already benefited from the programmes and learned how to deal with the elderly and help them by applying the knowledge from gerontology. In terms of power, teachers and planners must use their power to bring about these changes; otherwise, students may not have the opportunity to participate in gerontechnology activities and product developments.

Y2, a master's program student, discussed the administrative power universities wield in making gerontechnology-related and ageing services part of compulsory service-learning: "Universities could arrange gerontechnology-related and ageing services as service-learning and make it a graduation requirement. This would provide students with valuable experiences for their personal development while also instilling important concepts and values. Universities have the power to enforce such requirements and encourage students to understand and participate in gerontechnology and ageing services."

Universities are acknowledged for their capacity to generate knowledge, inventions, and discoveries that contribute to product and service development, as well as innovation co-creation within the gerontechnology field [19,20]. The respondents highlighted the strengths of universities and academies, particularly their openness, convening power, and commitment to regional economic development [21]. By mobilizing faculty and students for interdisciplinary collaboration, universities extend problem-solving opportunities to the broader community, enhancing social care through the gerontechnology ecosystem.

Furthermore, academic institutions endowed with substantial resources can support and collaborate with stakeholders from less-resourced settings to develop local innovation ecosystems, such as design activities and events to promote the social, cultural, and health objectives of the ecosystem [22]. Such partnerships between universities and industry sectors can significantly enhance the dynamics of knowledge transfer interactions, potentially leading to accelerated entrepreneurial activities [23]. The concept of co-creating knowledge within the innovation ecosystem has been underscored in various scholarly works [8]. Gerontechnology tech suppliers and different start-ups need to connect with different external knowledge sources to enhance and multiply their value and to enhance their tendency in innovation development. This approach not only amplifies their value but also bolsters their innovative capabilities. In this context, universities play a crucial intermediary role, facilitating access to these external knowledge pools for research and development enhancement.

Contribution of Universities in Gerontechnology

Scholars have highlighted the essence of joint innovation activities, collaborative efforts toward shared objectives, and value co-creation as pivotal to the innovation ecosystem [24,25]. These activities are designed to foster relationships and encourage stakeholders to collectively pursue the social, cultural, and health goals of the community [22]. Analysing the involvement of various stakeholders and closely examining their activities provides insights into substitutive relationships and the efficacy of key actors in generating and capturing value across different scenarios [26]. The landscape of innovative activities continues to evolve, paving the way for co-innovation networks and their innovation chains to flourish [25]. In Hong Kong, universities have been instrumental in organizing events that engage diverse actors, fostering a deeper understanding of gerontechnology. Importantly, these initiatives also embed the transformative learning experiences for students, enabling participants to critically reframe assumptions, connect theory with practice, and cultivate the skills and perspectives necessary to address the challenges of an ageing society

Collaborations for Innovation

Respondents commonly stated that an increasing trend of collaborations between academics and the community, aiming to champion the advancement of gerontechnology, initiatives include the gerontech-competition organized by the Hong Kong Housing Society, which drew hundreds of students to design innovative products that utilize creativity and technology to support ageing-in-place for older adults [23]. Furthermore, besides the Jockey Club Gerontechnology and Smart Ageing in Place Project, Lingnan University has partnered with eight secondary schools to launch the 'Gerontechnology 360° Education' project [28], providing secondary students with experiential learning opportunities and preparing them as community leaders well-versed in gerontechnology. Such projects and campaigns target young people, aiming to sensitize them to the needs of older adults and foster an inclusive community that values intergenerational harmony. These initiatives offer experiential learning opportunities, equipping the youth with a

comprehensive understanding of Hong Kong's ageing challenges and exploring potential career paths in elderly care.

Young individuals are recognized as a potential skilled workforce for the eldercare sector [2]. Universities collaborate with various entities to offer education and platforms that engage young people, preparing a future skilled workforce to support a sustainable ageing society and foster talent development in Hong Kong. Respondents also emphasized that young people, as integral stakeholders in the ecosystem, are viewed not only as future users but also as future decision-makers. Young people may have a keen interest in innovative product exposure, and personal career development, the programmes offered by the schools could enable them to leverage their talents, skills, and subject-related knowledge for income generation and professional growth in the future.

E1 from the academy commented on the participation of young people in the gerontechnology ecosystem, stating: "As for the students, they acquire subject-related knowledge, such as health management and social care. By participating in volunteer teams or taking courses focused on 'caring for the elderly,' they can also gain insights into gerontechnology." This involvement underscores the multifaceted role of universities in nurturing the next generation to meet the evolving needs of an ageing society through innovation in gerontechnology.

To further promote the concept of transformative learning experiences, universities can provide practical opportunities that bridge knowledge transfer with real-world practice. Such settings enhance communication, foster collaboration, and create meaningful learning experiences that extend beyond traditional classroom boundaries. Importantly, transformative learning is not exclusively concerned with profound personal change; rather, it represents a common educational process rooted in dialogue and reflection. By embedding these experiences into gerontechnology education, universities can cultivate both individual growth and collective understanding, preparing students and stakeholders to critically engage with ageing-related challenges and contribute to innovative solutions:

Physical Showrooms

Different respondents stated that various universities have established gerontechnology-focused laboratories and showrooms, serving as platforms for stakeholder engagement. These centers share common features: they possess a physical location for targeted groups, including NGO staff and users, to visit and acquaint themselves with the latest gerontechnology advancements within the community.

The significance of a physical environment in fostering knowledge creation and learning is well-documented [29-31]. Such spaces not only facilitate specific knowledge development but also nurture tacit knowledge, emerging from social networks and environments [31]. Physical centers foster creativity and innovation, allowing individuals to contribute ideas and feedback, which in turn, optimize product development and enhance user satisfaction.

Events offer participatory interactions, enabling different stakeholders to engage in two-way meaning-making processes, establish self-connections [32,34], and foster networking opportunities to leverage various technologies and capabilities. Notably, some gerontechnology showrooms, such as the Jockey Club Smart Ageing Hub at Hong Kong Polytechnic University and the LU Jockey Club Gerontech-X Lab (under the Jockey Club Gerontechnology and Smart Ageing in Place Project) at Lingnan University, are located on-campus. Supported by the Hong Kong Jockey Club Charity, these universities provide educational platforms for training courses and workshops on gerontechnology, encouraging students to interact with community members and promote intergenerational communication.

Training and Education

Training and education are consistently identified by respondents as critical components of the gerontechnology ecosystem. These programs are crucial for fostering an innovation ecosystem, facilitating knowledge and technology transfer, and developing talent. Effective training aligns with development strategies, addressing skills gaps and determining training and resource allocation needs in the community [35]. The trained programme participants, often referred to as ambassadors, acquire essential skills and knowledge, becoming a workforce that champions the development and expansion of the gerontechnology ecosystem. Moreover, training is fundamental for ecosystem sustainability, as it empowers individuals to disseminate skills and knowledge across disciplines, laying a strong foundation for continued development.

OA1, an older adult participant, shared his experience of receiving gerontechnology training from the university, which equipped him with the knowledge and skills to volunteer in hospitals: "Fortunately, I have received professional training from Lingnan University, enabling me to understand gerontechnology products and user needs. When serving at the hospital, I can share information on the latest gerontechnology products and offer advice."

Lingnan University recruits older adults, caregivers and young people as gerontechnology ambassadors. These community members, from varied backgrounds and age groups, demonstrate passion for promoting gerontechnology. The work of these ambassadors, as recognized by respondents, significantly contributes to gerontechnology development. They share knowledge and experiences, enriching services across sectors. H1, a healthcare service sector respondent, highlighted the "train the trainer" concept developed by the universities, where trained individuals support services across sectors: "Volunteers connect with various service units, serving as bridges to actively promote gerontechnology… I hope for more collaborative efforts to advance technology use in hospital service units, particularly for patients and caregivers, to support comprehensive medical treatments."

Young people on campus also benefit significantly from learning about gerontechnology through interactions with gerontechnology ambassadors. These experiences provide insights into practical

applications of gerontechnology in home settings and underscore the potential for youth to contribute to intergenerational development within society. Gerontechnology serves as a bridge, enhancing young people's understanding of the needs of older adults, thereby fostering intergenerational harmony and underscoring the educational and societal value of such initiatives spearheaded by universities.

Discussion

Universities are increasingly important within the gerontechnology ecosystem, particularly in the realms of knowledge transfer and talent development. Their involvement is indispensable, leveraging their ability to shape curricula and enhance research and development initiatives. The academic sector stands at the forefront of knowledge creation and dissemination, a cornerstone for ecosystem growth. Through active engagement, the educational sector paves the way for the exploration of new services and innovation, fostered by collaborative efforts and knowledge transfer activities. Partnerships between academia and industry inject the innovation ecosystem with valuable experience and knowledge, spearheading social benefits and driving innovative teaching and learning reforms [16,36]. Furthermore, an interdisciplinary exchange of ideas within academia promotes stakeholder communication, fostering future knowledge and innovation.

Moreover, universities have evolved beyond their traditional educational roles, assuming a significant stance in sustainable development as a fundamental component of university social responsibility (USR). USR has gained recognition as an essential feature of the higher education system, particularly among universities. By integrating social responsibility strategies with their overarching development plans and collaborations, Universities are training socially-responsible leaders poised to effectuate positive changes within the community. Their engagement in the gerontechnology ecosystem facilitates dialogues between academics and researchers, amplifying their contributions towards knowledge accumulation. This collaborative effort assists policymakers and practitioners in comprehending the extent to which knowledge-based contributions can bolster social sustainability on a broader scale.

Given the academic sector's critical role in boosting innovation, providing contextual and specialized knowledge, and mediating the co-creation of knowledge and innovation alongside various ecosystem stakeholders, there is a growing concern about the implications of government funding support and allocations to universities and to review how these investments can best maximize economic and social impact through the work of the universities for sustainability [37]. The commitment of Universities to promote the 'public good' has emerged as a central responsibility within the educational sector. Some respondents also suggested for sustainable government funding directed at university-led community projects and initiatives (such as training and education, and physical showrooms), suggesting such contributions could significantly extend the universities' reach to the broader community could more effectively engage young individuals and other community members, furthering the mission of Universities in societal development and innovation.

Conclusion

The involvement of universities in the gerontechnology ecosystem contributes not only to industrial development but also facilitates research discovery. Collaborative efforts among public and private entities leverage their expertise, thereby enhancing research and development capacities and fostering diversification. By integrating knowledge from both producers and users, universities play a pivotal role in refining and building fundamental knowledge. This collaborative approach leads to the creation of superior products and cultivates an environment where new knowledge continuously emerges, accelerating product development and promoting academic interaction.

Beyond innovation and research, universities foster a shared vision, momentum, and social responsibility. Faculty and young individuals are vital resources for advocacy and innovation, aiming to improve services and reform gerontechnology within the ecosystem. Through talent and knowledge engagement, cross-disciplinary collaborations extend support for the development of innovative solutions that offer sustainable value [22].

Equally important is the promotion of Transformative Learning Experiences, which enable students and stakeholders to critically reframe assumptions, engage in reflective dialogue, and connect theoretical knowledge with real-world practice. Diverse settings and curricula can foster individual responsibility while preparing talent to meet the demands of an ageing society. By embedding transformative learning into gerontechnology education, universities not only equip future generations to address ageing-related challenges but also strengthen their role as catalysts for societal change. Universities' contributions further enhance the academic–industry interface, facilitating knowledge transfer and co-creation as essential components of sustainable development. Future research should continue to examine how university social responsibility (USR) evolves within industries, how stakeholders perceive universities' role in addressing societal issues, and how transformative learning impacts community well-being. Such inquiries will deepen our understanding of universities' capacity to foster innovation, sustainability, and positive social transformation [38,39].

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Conflict of Interest

No conflict of interest.

References

1. Tam E (2020) Gerontechnology: Solution to successful ageing? [Conference presentation]. CPCE Health Conference 2020.
2. Our Hong Kong Foundation (2021) Building an age-friendly city—embedding gerontechnology into everyday life. https://

s3.ourhkfoundation.org.hk/sites/default/files/media/pdf/OHKF_Gerontech_report_en.pdf?ext=1

3. Mezirow J (1997) Transformative learning: Theory to practice. New Directions for Adult and Continuing Education 1997(74): 5–12.
4. Cranton P (2006) Understanding and promoting transformative learning: A guide for educators of adults. Jossey-Bass.
5. Taylor EW (2007) An update of transformative learning theory: A critical review of the empirical research (1999–2005). International Journal of Lifelong Education 26(2): 173–191.
6. Ferguson S, Langer LJ (2021) The U.S. National Institutes of Health - founding a national biomedical "innovation ecosystem." Journal of Commercial Biotechnology 26(1): 72–82.
7. Silva PJ, Schaibley VM, Ramos KS (2018) Academic medical centers as innovation ecosystems to address population -omics challenges in precision medicine. Journal of Translational Medicine 16(1): 28.
8. Nouman M, Yunis MS, Atiq M, Mufti O, Qadus A (2022) "The forgotten sector": An integrative framework for future research on low- and medium-technology innovation. Sustainability 14(6): 3572.
9. Kreiling L, Paunov C (2021) Knowledge co-creation in the 21st century: A cross-country experience-based policy report. OECD Science, Technology and Industry Policy Papers, No. 115. OECD Publishing.
10. Clarkson MBE (1995) A stakeholder framework for analysing and evaluating corporate social performance. Academy of Management Review 20(1): 92–117.
11. Varvasovszky Z, Brugha R (2000) A stakeholder analysis. Health Policy and Planning 15(3): 338–345.
12. Zhao X (2021) Cooperation and competition in the innovation ecosystem from the perspective of evolutionary psychology. Frontiers in Psychology 12: 769847.
13. Autio E, Thomas LDW (2014) Innovation ecosystems: Implications for innovation management. In The Oxford handbook of innovation management. Oxford University Press pp. 204–288.
14. Russell MG, Smorodinskaya N (2018) Leveraging complexity for ecosystemic innovation. Technological Forecasting and Social Change 136: 114–131.
15. Klimas P, Czakon W (2022) Species in the wild: A typology of innovation ecosystems. Review of Managerial Science 16(1): 249–282.
16. Taratori R, Rodriguez-Fiscal P, Pacho MA, Koutra S, et al. (2021) Unveiling the evolution of innovation ecosystems: An analysis of triple, quadruple, and quintuple helix model innovation systems in European case studies. Sustainability 13(14): 7582.
17. Kolagar M, Parida V, Sjödin D (2022) Ecosystem transformation for digital servitization: A systematic review, integrative framework, and future research agenda. Journal of Business Research 146: 176–200.
18. Bridoux M, Coeurderoy R, Durand R (2011) Heterogeneous motives and the collective creation of value. The Academy of Management Review 36(4): 711–730.
19. Clarysse B, Wright M, Bruneel J, Mahajan AS (2014) Creating value in ecosystems: Crossing the chasm between knowledge and business ecosystems. Research Policy 43(7): 1164–1176.
20. Dedehayir O, Makinen SJ, Roland Ortt J (2018) Roles during innovation ecosystem genesis: A literature review. Technological Forecasting & Social Change 136: 18–29.
21. Budden P, Murray F (2019) MIT's stakeholder framework for building & accelerating innovation ecosystems. MIT Innovation Initiative.
22. Mitra S, Ashby J, Muhumuza A, Ndayishimiye I, Wasserman I, et al. (2020) Surgathon: A new model for creating a surgical innovation ecosystem in low-resource settings. BMJ Global Health 5(2): e002162.
23. Gu Y, Hu L, Zhang H, Hou C (2021) Innovation ecosystem research: Emerging trends and future research. Sustainability 13(20): 11458.
24. Jütting M (2020) Exploring mission-oriented innovation ecosystems for sustainability: Towards a literature-based typology. Sustainability 12(16): 6677.
25. Feng L, Lu J, Wang J (2021) A systematic review of enterprise innovation ecosystems. Sustainability 13(10): 5742.
26. Granstrand O, Holgersson M (2020) Innovation ecosystems: A conceptual review and a new definition. Technovation 90-91: 102098.
27. Hong Kong Housing Society (2022) HKHS gerontech competition attracts nearly 700 students to apply creativity and technology helping the seniors ageing in place [Press release].
28. Lingnan University. (n.d.). Gerontechnology. https://www.ln.edu.hk/gerontechnology
29. Senoo D, Magnier-Watanabe R, Salmador MP (2007) Workplace reformation, active ba and knowledge creation. European Journal of Innovation Management 10(3): 296–315.
30. Nonaka I, Takeuchi H (1995) The knowledge creating company: How Japanese companies create the dynamics of innovation. Oxford University Press.
31. Oksanen K, Ståhle P (2013) Physical environment as a source for innovation: Investigating the attributes of innovative space. Journal of Knowledge Management 17(6): 815–827.
32. Finkel R, Sang K (2016) Participatory research: Case study of a community event. In Critical events studies: Methods and approaches. Palgrave.
33. Wood E, Latham KF (2016) The objects of experience: Transforming visitor-object encounters in museums. Routledge.
34. Murti DCW (2021) Home and away: Australian travelers' consumption of everyday village life in Indonesia. Tourism Culture & Communication 21(3).
35. Theodotou M (2022) Innovation blueprint: 6 foundational elements of an innovation ecosystem. Elearning Industry.
36. Traitler H, Watzke HJ, Saguy IS (2011) Reinventing R&D in an open innovation ecosystem. Journal of Food Science 76(2): 62–68.
37. Hamdullahpur F (2021) Making choices: Matching sustainable funding with strategic priorities in higher education. In International experience in developing the financial resources of universities. Springer pp. 37-47.
38. Lingnan University (2021) Lingnan University joining hands with secondary schools in promoting gerontech education boosts the eldercare sector.
39. University Grants Committee (UGC) (2017) UGC launches Research Impact Fund [Press release].