2026

JSPS-RSE Joint Report

Fission-Fusion Perspectives and Complex Issues

Edited by Miranda Anderson

Forewords

Naoto Kobayashi

Director of the JSPS, 2021-2025

In 2024 JSPS London celebrated the 30th Anniversary of its establishment and also the 20th Anniversary of the JSPS UK and Republic of Ireland Alumni Association. During this special year, JSPS London organised regional events with valued partner organizations. For over a year, the JSPS London Office held discussions with members of the University of Glasgow, the University of Edinburgh and the RSE (Royal Society of Edinburgh) about holding a commemorative event in Scotland to mark this occasion.

On the 4th and 5th of December, JSPS London held a symposium and celebratory event hosted by the RSE. This event included talks, presentations and performances that showcased successful collaborations between Japan and Scotland. This event included the signing of a Cooperation Agreement between RSE and JSPS London to reaffirm our working partnership and commitment to strengthening research partnerships between Japan and Scotland for the future.

As part of the celebrations, we held the symposium *Fission-Fusion Perspectives and Complex Issues*, which brought together thinkers from across Japan and Scotland. After a long period of preparation, it was a great pleasure for us at the JSPS London office to hold this wonderful symposium in collaboration with the RSE on 4th December 2024. The purpose of this symposium was to bring 'together thinkers from across academia, culture and society to inspire more holistic understandings of mind, selves and world for the critical and creative development of our technologies, cultures and societies'. A wide variety of people, including artists, choreographers, curators, poets, doctors, scientists and scholars offered stimulating and inspiring presentations, providing an opportunity to think about the important role of arts and culture in harmony with technology.

We are extremely grateful for Dr Miranda Anderson's outstanding efforts, the support of the RSE and all the enthusiastic participants. We hope that you will read this report and be inspired by the insights offered. JSPS London office would like to use these outcomes to consider and support the future direction of academic research and to strengthen our collaboration with the RSE, and Scottish universities and researchers.

序文

小林直人

2024 年は JSPS ロンドン・センター創立 30 周年、JSPS 英国・アイルランド共和国同窓会創立 20 周年に当たります。これを機会にスコットランドで記念行事を開催する件について、JSPS LONDON　OFFICE は Glasgow 大学、Edinburgh 大学や RSE((Royal Society of Edinburgh)のメンバーと話し合いを一年以上に亘って行って参りました。

その過程で、Edinburgh 大学の Dr. Miranda Anderson の提案で 12 月に“Fission-Fusion Perspectives and Complex Issues”というシンポジウムを開催することになりました。長い準備期間を経て、12 月 4 日に朝からこの素晴らしいシンポジウムを開催できたことは、私たち JSPS ロンドンのメンバーにとって大きな喜びとなりました。

このシンポジウムは、「学術界、文化、社会のあらゆる分野から思想家を集め、心、自己、世界に対するより総合的な理解を促し、テクノロジー、文化、社会の批判的かつ創造的な発展に役立てる」ことを目的に行われました。実際に、芸術家、舞踏家、科学者、医者など多彩な方々が大変刺激的で興味深いを発表され、技術と調和した芸術と文化の重要な役割について考える機会となりました。

Miranda 博士の顕著な努力に加えて RSE の支援に心から感謝の意を表したいと思います。是非このレポートをお読み頂き新たな流れを感じて頂けると嬉しく思います。

JSPS ロンドンとしては是非この成果を踏まえて、今後の学術研究のあり方を考えるとともに RSE やスコットランドの大学・研究者との連携を強めて行きたいと思います。

James Njuguna

Vice President, International, Royal Society of Edinburgh

The Royal Society of Edinburgh and the Japan Society for the Promotion of Science (London) have long recognised the importance of deep, sustained collaboration between our two nations. The joint symposium, *Fission–Fusion: Perspectives and Complex Issues*, held in Edinburgh on 4 December 2024, stands as a testament to this shared commitment. Bringing together scholars, scientists, and artists from Scotland and Japan, the event created a unique space for exploring how we understand ourselves, each other, and the complex world we inhabit.

This gathering was not only a celebration of our intellectual ties but also a forward-looking dialogue that embraced complexity, creativity, and critical reflection. Guided by provocations that invited participants to consider evolving notions of human identity, the role of arts and technologies, and inclusive forms of engagement, the discussions underscored the value of thinking across disciplines and cultures. In doing so, they affirmed a shared belief: that the challenges of our time cannot be solved in isolation but demand new constellations of knowledge and cooperation.

This vision is underpinned by the 'RSE–JSPS Letter of Intent', which articulates our mutual aspiration to deepen research collaboration and explore every possible avenue for scholarly exchange. The symposium demonstrated how the fusion of diverse intellectual traditions - scientific, artistic, philosophical - can generate new insights and imaginative responses to some of the world's most pressing issues.

As we reflect on the richness of the conversations that took place, we are reminded of the vital role that international collaboration plays in shaping a more thoughtful, inclusive, and interconnected global research community.

We look forward to building on the momentum of this event, and to supporting the next generation of researchers and thinkers in Scotland, Japan, and beyond.

A Fission-Fusion Approach

Miranda Anderson

This report celebrates past and present UK-Japanese relations, as well as envisioning ways forward. One of the weaving of threads of future development between our countries, took place in the form of events at the Ashmolean Museum in Oxford and the Royal Society of Edinburgh (RSE) in 2024. At the Ashmolean, Mr Kyoichiro Kawakami, Economic Minister for the UK's Embassy of Japan, commented on the need for us to work together in tackling the challenges we face globally.[1] The JSPS-RSE Celebratory Event and Symposium in Edinburgh aimed to do this by bringing together thinkers from across academia, culture and society.[2] This is also a theme that resonates more widely, for example, the Osaka Expo 2025 themes aim to bring to life the United Nations Sustainable Development Goals and 'for solutions to global issues', and this was echoed by a multidisciplinary conference at Kyoto University on 'the realization of a multilayered society of values.'[3]

Haruki Murakami argues that 'It's all a question of imagination. Our responsibility begins with the power to imagine...Turn this on its head and you could say that where there's no power to imagine, no responsibility can arise.'[4] The symposium foregrounded the role of the arts and humanities in extending our imaginations and making them more flexible. For instance, they can increase our capacity to shift between me versus your or us versus them perspectives to widened and deepened cognitive awareness of interconnectedness. The symposium aimed to inspire people with the ways in which the arts and humanities in concert with the scientific and technological developments can invite the emergence of new ways of thinking about our minds, selves and worlds.

The term used, 'fission-fusion', describes the merging and diverging of aspects of our minds and selves with aspects of the world.[5] The Fission-Fusion Symposium considered the ways in which the coming together of different individual, disciplinary and societal perspectives enable us to collectively imagine alternatives to our current reality, by combining talks and discussions with poetry, movement, art and dance activities. A phrase associated with the tea ceremony 'one lifetime, one meeting',一期一会 (Ichi-go ichi-e), conveys the ethos of treasuring the transience of such comings together. Fission-fusion highlights the potential value of both the distinctions and continuities that persist across time, ideas and people, a diversity that in this report blossoms into this array of vibrant perspectives.

A master of the tea ceremony once set his follower to put the teagarden to rights: the disciple set about meticulously ensuring everything was in the right place, greenery pruned, and path swept. But his master, with one glance, simply shook his head. The disciple set to work again but soon could find nothing more that seemed to require his attention. Again, his master simply shook his head. Then walking to the nearest tree overhanging the path, the tea master lightly shook a branch heavy with leaves, which scattered across the path. Openness to the life of nature, to the out of place, and to the unexpected emerged as important themes during the symposium and as an aspect of the additional art workshop I created with Goro Murayama, which explored the emergence of creativity through combining structure and spontaneity, as discussed in the co-authored appendix. This report gathers together a scattering of leaves, and we hope seeds, from our discourses.

---

[1] JSPS News: https://www.jsps.go.jp/english/e-topics/2024/1115.html; Slides of speakers: https://www.jsps.org/events/2024/09/jsps-london-30th-anniversary-event.html

[2] JSPS-RSE Event, RSE News: https://rse.org.uk/rse-and-jsps-strengthen-partnership-through-letter-of-intention-signing/; JSPS-RSE Symposium (Japanese & English) ニュースレター No78（2025, JSPS Newsletter: https://www.jsps.org/jsps_newsletter/files/newsletter_no78.pdf

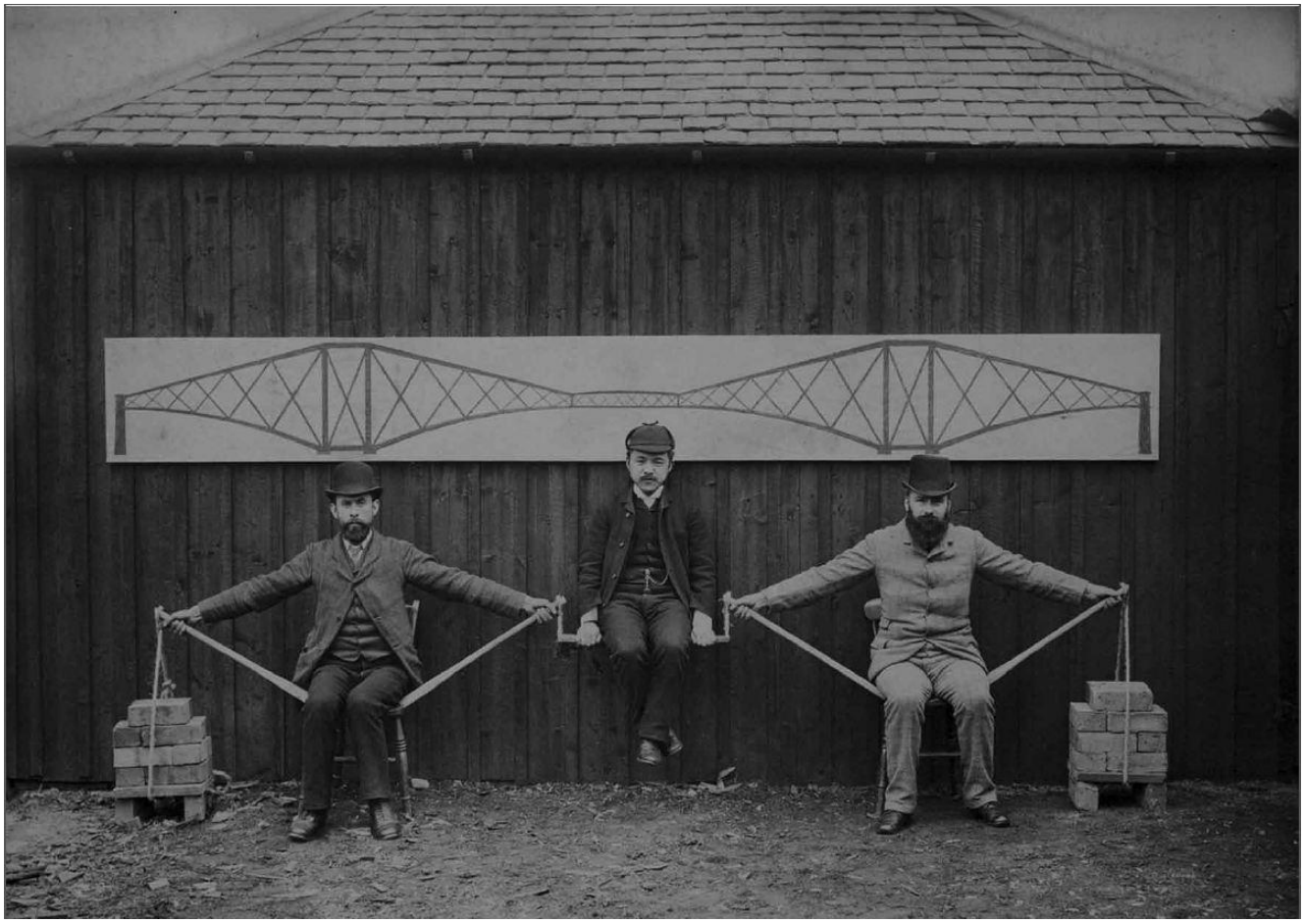
[3] Osaka Expo 2025: https://www.expo2025.or.jp/en/overview/purpose/; and The 1st Kyoto Conference 2025: Toward the Realization of a Multilayered Society of Values: https://k-philo.org/kyoto-conference/

[4] *Umibe no Kafka*, English translation by Philip Gabriel, *Kafka on the Shore*, 141.

[5] 'Developing the Fission-Fusion Concept: A Journey through the Arts, Humanities, Social Sciences and Natural Science' *SKAPE: The Centre for Science, Knowledge and Policy*, University of Edinburgh.

The Symposium

The Director of the Japan Society for the Promotion of Science in London (2021-2025), Professor Naoto Kobayashi, provided an opening overview of the long and reciprocally beneficial relations between our two countries in terms of the development of knowledge, which was echoed the following day by the MSP Angus Robertson, Cabinet Secretary for the Constitution, External Affairs and Culture.[6] Reflecting his own academic background, Professor Kobayashi focused on engineering innovations that had emerged, including the renown Forth Road Bridge.



Kaichi Watanabe, the Forth Bridge's construction foreman, demonstrating the cantilever bridge principle with Sir John Fowler and Sir Benjamin Baker who designed it.[7]

The report is intended to act as a strengthening of the bridge between our two countries, while the symposium was akin to a ship of discovery as people not generally gathered together embarked on an intellectual journey, secluded from much of the world in a space dedicated to 'Making Knowledge Useful', the Royal Society of Edinburgh. Such moments and spaces for reflection are necessary as modes of considering our customary immersion in the world.

The symposium was created in concert with the celebration of thirty years of the Japan Society for the Promotion of Science in the UK. Captain Kobayashi and his hardworking and loyal crew, Dr Yumiko Myoken, Yui Miyaura, and stalwart of JSPS London, Polly Watson, were essential to bringing it into being, along with the efforts of numerous RSE Staff, particularly Eva-Maria Schnelten. Our intention was to provide an opportunity to think collectively on how to address the complex issues we face in the world today by drawing on an array of disciplinary and personal perspectives.

[6] https://rse.org.uk/rse-and-jsps-strengthen-partnership-through-letter-of-intention-signing/

[7] https://universityofglasgowlibrary.wordpress.com/2015/09/04/the-university-of-glasgow-japan-and-the-forth-rail-bridge/

Context

The symposium and the report are structured around provocations as a way of gathering the thoughts of thinkers from across Scottish and Japanese academia, culture and society with the aim of inspiring more holistic understandings of mind, selves and world for the critical and creative development of our technologies, cultures and societies. The symposium considered how to respond to concerns, raised long since by Husserl among others, about the ways in which, by focusing merely on advancement of practical technologies, we can lose sight of more holistic notions of being human and our relations to each other and the world. It also emphasized the urgency of doing so given the epic crises the twenty-first century faces and which we as yet are inadequately responding to.[8] It was an opportunity to explore commonalities and distinctions between understandings of brains, bodies, cultures and societies, and to recalibrate and expand our notions of being human in the world through thinking about the vital roles of the arts and culture in concert with our technologies. As well as the commonalities and differences between attitudes to these across Japanese and Scottish cultures and societies, we considered the nature of fissions and fusions between each person's experiences and perspectives, and reflect on what and how we might learn from these.[9]

Since 2010 the World Economic Forum has been urging that the world needs a shift to the development of critical and creative thinking skills.[10] This marks recognition of limitations in the ways we tend currently to conceive of education and human nature. Yet even here the way these skills are described and grouped – for example, in terms of solving problems and managing the self, or as being resolvable through technology alone – stem from computational models and overly individualist notions of the self, rather than recognising the ways in which aspects of minds and selves to varying degrees interfuse with other entities and environments as part of complex ecosystems. Thus even the recognition of failures in our existing models are distorted by being imported into constructs of well-being and prosperity conceived in terms solely of their functions in an outmoded conception of the economic domain. While our societies are benefiting from the insights and resources that are the outcome of generations of investment in education, culture and research across arts, humanities and sciences, there is a peculiar lack of recognition and backlash against their importance, as well as too oft the disempowering, or even dismantling of academic, community, civic and research organisations. Following economist Marianna Mazzucato's research, which demonstrates the need for countries to adopt new forms of public-private relationships with corporations who have in the past often benefited in one-sided ways from public investment, and who advises the creation of 'mission-oriented' approaches, a co-authored report with Future Economy Scotland emphasises the need for Scotland to invest in 'system-wide transformation'.[11] As well as the practical challenges the twenty-first century presents human existence, a sense of the meaningful nature of existence has been eroded, as the Global Flourishing Study (2025) notes, 'the world contends with crises that threaten individual and societal well-being', requiring 'insights into the complex nature of human flourishing'.[12] This symposium provided space to think through how we can create educational and health systems, technologies, cultures and societies that have more awareness of and enact our interconnectedness to each other and the world, and in doing so also enable enriched collective and individual perspectives to flourish. Through drawing on research across disciplines and exploring critical, contemplative and creative practices, we explored and mapped out important areas for collaboratively developing teaching and research, and considered how to motivate tackling the epic scale global issues we face and to recalibrate our ways of being in the world.

---

[8] Husserl, *The Crisis of European Sciences and Transcendental Phenomenology:* 'these goals live on in sedimented forms yet can be reawakened again and again and, in their new vitality, be criticized' (1970, 72)

[9] Anderson (2022): Developing the Fission-Fusion Concept: A Journey through the Arts, Humanities, Social Sciences and Natural Science

[10] https://www.weforum.org/agenda/2010/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them/

[11] Mazzucato and Macfarlane (2024), 'A Mission-Oriented Industrial Strategy for Scotland': https://www.ucl.ac.uk/bartlett/public-purpose/policy-report-2024-10.

[12] https://globalflourishingstudy.com/

Reflective Exercise
Before venturing further into this document, why not take the opportunity for a moment of reflection yourself? Consider the following prompts for a moment in as wide and general a way as you choose.

- *Why have I opened this report?*
- *What do I expect or hope to find, and why?*
- *How do these perspectives relate to me? How would I answer these questions?*
- *What other questions would I have asked?*

If you have a writing tool to hand, whether pencil or computer interface, you might jot down your reflections and revisit them at the end of reading the report to see whether your perspective has changed in any way.

The Provocations
Martha Nussbaum invites us to consider 'what it is for thought to open out of the soul and connect person to world in a rich, subtle, and complicated manner' (2012 , 6).[13] As this invitation acted as a guide for our consideration of the provocations it is worth clarifying that here the word 'soul' extends beyond the religious connotations that it holds for some people, to reference more generally 'the faculties of thought and imagination that make us human and make our relationships rich human relationships, rather than relationships of mere use and manipulation' upon which the upholding of democracy depends (2012, 6).

In answering each of the questions below, you might focus on global factors, on factors that are specific to Scottish or Japanese society and culture, and/or on similarities and differences between these two countries, and/or in relation to your particular background and position in society. Thus, these questions also invite discussions on what makes elements distinct to a nation or a person, and on how the identity of each extends across space and evolves over time, composed out of and interfusing with aspects of others and of life in the world. The four provocations are:

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

2. How do the arts and culture shape, reflect and interrogate ideas about a. being human in the world and b. the roles of technologies and AI (as well as vice versa)?

3. How can we transform modes of engagement a. with each other and b. with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

Open roundtable discussions followed with attendees reflections on a. ideas that were new or surprising; b. connections made with their own perspective; and c. what they would have found helpful to have discussed further.

This report presents reflections from the participants on what theories and methods hold the potential to be transformative of complex issues, forming a fission-fusion web of overlapping, competing and conflicting perspectives, providing grounding for ongoing debates and action. It begins with my longer position paper, as this was the foundation and premises out of which the symposium emerged. Particularly

Dr Miranda Anderson would like to especially thank Professor Enda Delaney and Professor Shannon Vallor, alongside the staff, researchers and students of the Centre for Technomoral Futures at Edinburgh Futures Institute for hosting her as an Inaugural Visiting Fellow (2024-2025) during the organisation of the symposium, along with the dedicated support of all at the London's JSPS branch, and for the support and resourcefulness of the RSE, particularly Eva-Maria Schnelten.

Fission-Fusion Perspectives and Complex Issues

Miranda Anderson

Japanese artist Chiharu Shiota describes that she must first arrive at the site where she will create a new site-based work. Through the combining of herself at that point in time and her history with that of the site and its history the new artwork emerges. Strands of coloured thread are woven around, across and through each other, joining together in interweaving patterns features of the place and artefacts incorporated into the work. Changing arrays of participants engage with the work and each other in the distinctive space formed. If a work is moved elsewhere, it manifests differently.[14]

Shiota's art practice illuminates the mind, self and world as 'fission-fusion' in nature: the ever-changing dynamic of bodily and environmental factors, merging and diverging, recombining across different temporal and spatial scales.[15] Emerging research in physics hold implications for our understanding of this artwork and of all experience: it claims that rather than multiple possible worlds, the laws of quantum physics instead entail the co-existence and correlation of plural perspectives on reality: 'Instead of myriad alternative realities continually branching away from our own, these relational interpretations build a singular universe up from within by stitching together many subjective perspectives.'[16] The 'fission-fusion' concept is at the heart of my belief in the importance of interdisciplinary education and transdisciplinary wisdom. More fundamentally, it provides a basis for a reconfiguration of our understanding of the nature of existence and of the meaning of being human in the world. Shifting our understanding of the nature of the mind and the self through combining insights from across disciplines and society provide a grounding for different approaches to complex issues. Thinking beyond the rational, the self, and the human, can move us towards the wider circuits and deeper currents that generate surface level dynamics, now manifesting as global crises in the twenty-first century, from conflicts to climate change.

Becoming more aware of our interconnectedness across space and time can provide the motivation needed to tackle the complex and epic issues we face individually and globally. Just look around you wherever you are now and you will see an accretion of technologies, resources and environmental features that make it possible for you to be the human being that you are, as well as the natural world which also facilitates this! They are such fundamental parts of us that we often do not even notice the evolving arrays of physical, social and technological factors that are continuously composing our minds and selves. In addition, limbering up our minds and expanding their imaginative scale poises us to shift more easily between self-centred notions and more holistic relations to each other and the world around us. What follows provides the background to or flows out of this realisation, while arguing that the arts and humanities, along with our development of technologies and wider environments, all act as important modes of reorienting ourselves as a species in this world.

Conventional Notions of the Mind and their Consequences

Conventional notions of the mind constrain our concept of being human, as well as of the arts and *human*ities. The mind is often presented as being identical to the brain. Images of brain fMRI scans with a lit-up area presented as the location of a mental state lead to notions of the mind as separate from the world. Another dominant analogy is that the mind is simply a problem-solving mechanism, with the brain a mere computer processor, uploadable to a server without loss of phenomenological range. However, minds are neither simply brain-bound, nor are they merely metaphysical or sociocultural constructs. An expanded understanding of the mind invites a reorientation of ourselves across space and time. Humans have a capacity to extend beyond the confines of our own biologically based cognitive horizons: aspects of ourselves are perpetually merging and diverging with aspects of the ever-changing arrays composing other minds and the world around us. Instrumentalization and commodification of societal roles blinker us to our power and responsibility as living beings in the world that we are bringing into being around us. This report

[14] Chiharu Shiota's website is available here: https://www.chiharu-shiota.com/

[15] Development of this theory began in 2013, publications on this topic include Anderson 2015, 2023, 2026.

[16] Brooks (2025) 'How a quantum innovation may quash the idea of a multiverse.' *New Scientist*, 6 January 2025.

diversely but collectively argues for more searching and in depth recalibrations of the outmoded, and oft tacit, assumptions and norms shaping our educational and social systems.

Underlying and fuelling what appear as loosely interconnected issues, from conflicts to climate crises, lie naïve notions of the mind as merely separate and individual. Such conceptualisations underpin short-term individualism and exacerbate the anthropomorphic biases that also arise from human evolutionary and developmental histories. Entwined natural and cultural distortions and taboos are sufficiently functional to persist, yet over the longer term are perpetuating drives destructive of self and world. Recent psychiatric models have drawn on predictive models of cognition in which an individual's mental ill health predisposes their social and environmental engagements in ways that appear to confirm the warping of their perspective.[17] Since such feedback loops are perpetually occurring across neural, physical and environmental processes that extend beyond individuals due to our enmeshment with each other and the world, this analysis applies more generally to our immersion in mind-manacled circuits of entrenched thinking generated by our biological lineages and conceptual traditions, as well as by our environments which are shaped by and shape our engagements with each other and the world. Expansion of insights about predictive cognitive processing can also help us to understand the ways sociocultural issues arise from shared human cognitive traits. For example, confirmation bias, whereby we privilege experiences or ideas that appear to justify our pre-existing perspectives, can lead us individually and collectively to nonconsciously filter or consciously discount contradictory evidence. Increasing human numbers and powers amplify such constraints and biases in human cognitive tendencies rendering the world increasingly awry. Across individuals and as a species, we are now overly caught up in circuits generating self-perpetuating spirals of destruction with rippling effects. We neither adequately respond to what David Harsent describes as 'the armies of Armageddon nose to tail, each acronym a blood-pact, each flag a shroud', nor stop to hear the echoing 'Roar of a sea-bull stranded'.[18] A recalibration of our understanding of the nature of the minds, selves and world is necessary to trigger shifts in norms and conventions, and to motivate the addressing of the crises faced by the twenty-first century.

Technological developments are not in themselves problematic, instead they are one means whereby we can extend our cognitive reach and redress insularity and tribalism, but only through underpinning them with knowledge from across the cognitive sciences and the arts and humanities. As an aspect of this, better understanding of the human mind is a foundational move needed to enable the envisaging and development of alternative forms of artificial forms of intelligence (Anderson 2010). Narrow notions of the mind propagated by existing sociocultural systems are too oft further distorted by technological and computational designs and methods. The heuristics and algorithms of artificial intelligence are presented as enabling wider ranging and superior forms of objective and predictive analysis, and these systems are providing breakthroughs in many areas of knowledge. However a reconceptualization of them is necessary, including taking account of their constraints.[19] Both the partial nature of the data content and the modes of processing which are drawn from existing and historical data and are classified according to and have embedded in them our norms and conventions, together with the processors own lack of lived experience, contributing to skewed and hallucinatory fabrications, which can exhibit dangerous logical and moral aberrations. Simply offloading thinking tasks onto forms of artificial intelligence also produces an accumulative atrophying of humans' onboard critical and creative capacities, instead of such skills accruing through actively processing and doing them ourselves. Currently they too oft serve to reiterate and entrench biases and warps in our conceptual models, institutions and global structures.

A tendency towards dualistic notions of mind and body date back to Plato and beyond. These dualistic conceptualisations emerge from the ways in which consciousness can extend via merely imaginative mental flights (with minimal synchronous bodily or worldly involvement). However, all kinds of mind extendings are significant. What is most significant is the mind's flexible capacity to perform similar processes either

[17] See, for example, Wilkinson et al. 2017.
[18] Harsent (2021) From 'At the Window'.
[19] On the question of using AI as replacement or aid, see for example, Advait Sarkar's talk: https://advait.org/talks/sarkar-2025-tedai-vienna/.

through merely intellective flights or through drawing on diverse aspects of existence: neural, biological, and environmental. The mind is composed of diverse processes running across different levels and scales concurrently, and these processes themselves interact to varying degrees more or less generatively, receptively, symbiotically or parasitically. Such cognitive constellations mean that the mind is neither collapsible into merely being identical with the brain nor the self. It is this ever-changing multiplicity of factors which come together to compose mind, self or world which I term 'fission-fusion'. This is a term that also denotes the mind's capacity both to conceive thoughts while primarily in meditative, reflective, retrospective, projective, or imaginative fission modes and through more heavily fusing with aspects of our bodies and the world.

In philosophical, psychological and epistemological theories, the capacity of the human mind to achieve seemingly physically unhooked modes of cognitive extension is often foregrounded due to three related factors: a persistent anxiety around our own materiality; a desire to distinguish ourselves from other life forms; and elegant but reductive pattern making cognitive tendencies to abstract away from biological domains. Historically this has been expressed in various ways, such as in terms of the conceptualisation of an individual immortal rational soul. More recently, it has been expressed through postmodern notions of our socioculturally constructed nature: bodily particularities and histories are presented as prior to and elided, and in psychoanalytical accounts as suppressed or repressed, emerging merely as distorted psychological symptoms.

Other Conceptualisations of Cognition

The recent claims in cognitive science and philosophy of mind that cognition is distributed are often seen as emerging from the changes we are currently undergoing in terms of technological, robotic and digital advances. The History of Distributed Cognition series has shown the relevance of this theory to the arts and humanities, and across cultures and periods, by revealing that practices and ideas of distributed cognition can be found throughout Europe and beyond from classical antiquity to the twentieth century (Anderson 2015; Anderson et al, 2018-20).[20] An example that illustrates this claim, is the prologue in Shakespeare's *Henry V* which famously calls on the audience to engage their minds with that set before them in order to bring forth the world of the play: 'Piece out our imperfections with your thoughts…For 'tis your thoughts that now must deck our kings' (1.1.23, 1.1.28). In the process the audience also dynamically recalibrate the play of their own minds. Through catalytic fusions of minds in and across bodies and worlds the arts and humanities expand and reconfigure our phenomenological and conceptual horizons.

Yet cognitive science and philosophy have tended to view distributed cognition as necessarily beneficial, rather than realising the significance of separability and distinctness, or tackling the negative aspects and ethical issues that can arise from distributing cognition, and it also tends to define cognition narrowly in terms of problem-solving. Therefore I have combined it with insights on distinctiveness, separability and ethical issues from cultural theories, though these in turn tend to problematically elide the role of the body and materiality. I developed the term fission-fusion cognition to capture the ways ad hoc constellations merge and diverge in composing cognitive processes diversely across time and space (Anderson 2015). The distinctness and particularity of each cognitive array is of value, as much as a capacity to interconnect. Fission-fusion also enables us to understand the distinct and interconnected nature of selves, and their evolution across time and space. While aspects of our shared humanity enable commonalities in our experiences – of a play such as *Henry V*, of reading this essay, or of the world more generally – there are also distinctive features to each of our experiences which may or may not then be of significance and create consequences.

Contemporary Societal and Ecological Consequences

Our bodies and technologies can both help us to achieve new scales and modes of knowledge that are otherwise beyond our comprehension. We have generated a massive step change to ways of being in the world through the advancement of technologies, particularly through things like the internet, computers

[20] Hutchins (1995); Clark and Chalmers (1998); Anderson et al. (2018-20): https://edinburghuniversitypress.com/series/series-the-edinburgh-history-of-distributed-cognition/

and smartphones which enable the digitally connected to instantly and remotely communicate, fact-check, work, shop, socialise *and* protest or rebel against existing forms of power. These technological changes are linked to how we conceive educational and sociocultural systems and practices, and are entangled with political and economic changes shaping and being shaped by them, with multinational corporations wielding increasingly disproportionate and underregulated amounts of power that is destabilising both authoritarian and democratic societies.

Paradoxically, this has also led us back to new technologically mediated notions of intellective mind extensions: instead of being achieved through virtue as in philosophical and religious accounts, these are now conceived of as purchasable. A capacity to disconnect from immediate surroundings and project across absent, fictional or virtual realms can also have negative as well as positive consequences. Seemingly symbiotic relationships with smartphones, for example, can technologically enable a new experience of the mind as a virtual entity, through its capacity to take us on intellective flights out of our bodies, while our bodies remain more or less stationary or journey around in the physical world largely on automatic. Despite wariness around new technologies historically, from writing to the printing press to our use of mobiles, conversely there can be an idealism around technology and virtualisation that speaks of our old hubris of human superiority – seeing ourselves as lords of the world rather than as entangled in it.

Several art works in an exhibition I curated with Talbot Rice Gallery, *The Extended Mind*, such as those by Agnieska Kurant, highlight the negative effects of technology being dominated by narrow corporate interests, raising concerns that it is making us servile rather than super-human. For instance, Kurant created the work *A.A.I*. (Artificial Artificial Intelligence) using unwitting termite colonies supplied with mounds out of coloured sand and glitter and compares this with our silent exploitation by social media corporations. This matters because what has enabled us to make the breakthroughs that we have as a species is our capacity to work collaboratively and across generations. Economist Mariana Mazzucato similarly argues that 'History tells us that innovation is an outcome of a massive collective effort […] If we want to solve the world's biggest problems, we better understand that.' Poet Jorie Graham similarly discusses how 'our attention is harvested and leached from us – and our simple acceding to the game, with its programmatic collection of data, is the monetizable product.'[21] What then becomes too easily elided are the real human and environmental consequences of our speed-fuelled, emotive click baiting psyches in our supposed cloud existences, as starkly set out in Graham's poem 'Time Frame', which iconically runs the reader up against the limits of the page:[22]

> […] the violin solo
> has begun, it is screaming from one
> ruined soul to another to beware, to pull the
> bloody bodies from the invisible
> where we are putting them daily –
> no, every minute, no,
> faster – we are o-
> bliterating the one chance we had to be
> good. There it is. The word. It brings us up
> short. […]

Raised here too is a certain awkwardness that has arisen around the idea of being 'good'. Neoliberal individualism has undermined our sense of ethical responsibility for our roles in the world, and dimmed awareness that these roles are also formative of who each of us becomes. Even considered from the narrowest perspective of ourselves, it is in our own self-interest to behave ethically and be virtuous if we wish to lead flourishing lives. Haruki Murakami's claim about the need of imagination for responsibility to

[21] 'Jorie Graham Takes the Long View.' *The New Yorker Interview*, by Katy Waldman, January 1, 2023: https://www.newyorker.com/culture/the-new-yorker-interview/jorie-graham-takes-the-long-view.
[22] Extract from 'Time Frame', *To 2040*, 59.

arise continues: 'Just as we see with Eichmann'.[23] The trial of the Nazi war criminal Adolf Eichmann famously caused Hannah Arendt to comment on 'the banality of evil', observing his sense of lack of personal responsibility for the role he played in organising the transportation of thousands of Jews to their deaths. The importance of personal responsibility is a virtue foregrounded in the work of the Scottish author Darren McGarvey, though he argues this from a position based on a more conventional notion of personhood. What fission-fusion further emphasises is that our personal responsibility is intractably entangled with that of our responsibility to others. Our moral natures arise from an accretive ethics that emerges both from our lineages, environments and our own activities: what we do becomes who we are and that feeds back into those environments from which we emerge. This is both empowering and demanding of each of us.

Victor Frankl in seeking to understand his own survival of the Holocaust argues for the roles that one's attitude and creating and caring for other humans, nature and art plays in saying 'Yes to life, despite everything.' It does not seem coincidental that one of the articles inscribed into the relatively recently post-war 1948 United Nations Universal Declaration of Human Rights was that: 'everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.' (Article 27.1) As François Matassaro comments: 'Denying people the right to participate in the cultural life of the community is to deny them a voice. And preventing people from being heard is the first step to denying them other rights' (2019: 44). The Guardian journalist, Carole Cadwallader, discovered on googling the Holocaust that due to the auctioning of keywords in search engines the top result is a claim that it did not happen. Economic fuelled parameters and narrow values are too oft filtering our access to information and pruning our linguistic range. Paul Gilroy comments on the ways in which this leads to a 'weakening of imagination' that 'incubates the loss of hope' increasing anger or apathy at forms of disenfranchisement from human rights and marginalisation on our shared home, the earth.

Fission-Fusion Perspectives

Fission-fusion illuminates the positive nature of limits, separations and distinctions, as well as of openings, merging and continuities. Paradoxically such fissions enable deeper understanding of our holistic embodied natures and emergence from wider sociocultural and natural ecologies. This concept holds underexplored implications for the ways we teach, learn and inhabit the world. Addressing and learning from the partial and situated nature of perspectives requires deeper and wider notions of education, extending across and within disciplines, lives and spheres of existence.

Recent decades have seen the rise of doubts about the relevance and value of the arts and humanities (Collini 2009; Nussbaum 2010). However, research has shown that participation in the arts has a positive effect on mental well-being; that it has the capacity to help offset childhood disadvantage; to lead to the creation of more compassionate, critical and civilized societies; and that there is currently significant inequality in terms of participation in the arts.[24] Such inequalities exacerbate economic disadvantage and emotional deprivation. While exclusiveness narrows the diversity and fruitfulness of culture experienced by us all, participation in the arts and humanities creates not only resilience and flexibility but meaningful lives along with a sense of connectedness or of greater understanding across communities.

The global epidemic, rather than leading to serious reflection on how we have gone awry, has led to further fetishization of technologization and an increased stress on interactivity. In response, while William Davies stressed the importance of live interactions with learners, he also foregrounded the importance of lone reflection. Like Collini and Nussbaum before, Davies raised the issue of the ways in which educational models are now being framed merely according to economic parameters, for instance, in terms of factors such as tuition fees and graduate earnings, rather than flourishing. Nussbaum reminds us of our need for the humanities' influence in our philosophical and political discourses – for their richness and language that is concrete, human and 'suffused with feeling' – in order that we recall the complexities of the human in our systems. Both fissions and fusions are significant in our academic domains too. Interdisciplinarity enables a

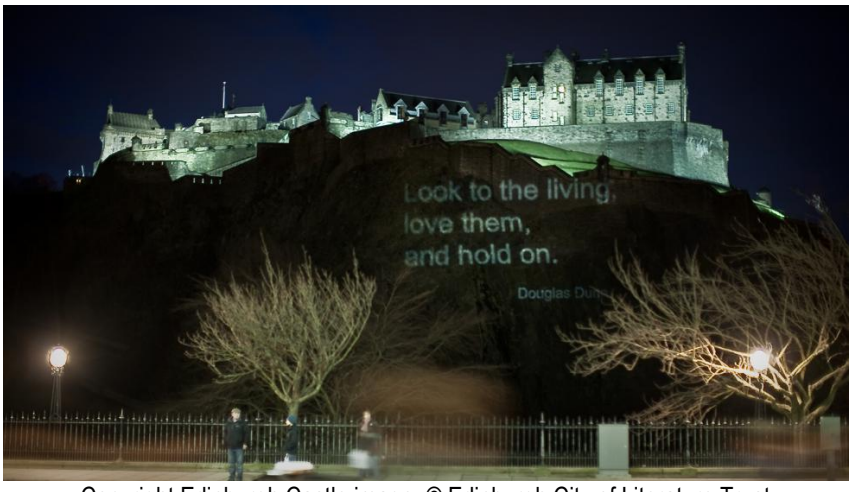
[23] *Umibe no Kafka*, *Kafka on the Shore*, 141.

[24] http://www.artshealthandwellbeing.org.uk/appg-inquiry/; https://beta.gov.scot/policies/arts-culture-heritage/culture-strategy-for-scotland/;https://www.gov.uk/government/topics/arts-and-culture.

recalling of connections between each of the distinct multifaceted aspects of being in the world while individual disciplines provide means of reflection between and across disciplinary approaches. The arts and humanities can make the familiar seems strange and the strange familiar, increasing cognitive range and flexibility. So too can the dialogical approaches encouraged by philosophical organisations such as *Thoughtful* (also known as P4C) and *The Philosophy Foundation*, which build people's capacity to evaluate their own and our societies' conventional beliefs, as well as to question the kinds of complex or difficult issues that our age of fraught online diatribes tends to smother beneath vitriolic personal attacks.

Plato depicts Socrates in the *Phaedrus* emphasising the importance of embodied face to face dialogical communication, an argument we now find powerfully re-emerging in the works of thinkers such as Jes Bertelstein and Ed Casey or organisations such as the *Presencing Institute*. Bertelstein also emphasises the importance of reflective space in a classroom, for everyone to reconnect with their breath and heart, and bodily awareness and intelligence more generally, in order to move out more truly in our connections with others through this process of grounding the current composition and flow of the self. In contrast with more conventional educational models this may sound disturbingly like unsupported new age fantasies. However, the benefits of thinking of humans more holistically have been shown to reap benefits in terms of their emotional and intellectual growth. For instance, something as simple as school children taking time out of the classroom, for a 'daily mile' has been shown to 'improve a child's mood, attention and memory - enhancing their ability to learn.'[25] Art works not only through generating surprise, but can also create time out of our immersions in our day to day lives for a moment of wonder through a reacquaintance with the familiar. The simplicity of a line from Douglas Dunn's poem 'Disenchantments' was juxtaposed by its projection onto the daunting splendour of Edinburgh Castle Rock: 'Look to the living, love them, and hold on'. This line reflects Dunn's belief simply 'in being kind, in the holding of hands'.[26] A variety of ways to recalibrate human thinking can be enabled through a range of different resources, methods and environments: but these need to be actively envisioned and implemented.

Drawing on insights from across the arts and humanities and the cognitive sciences invites us to collectively consider how through creating opportunities for more holistic conceptualisations of being in the world we can redress the hermeneutic circles narrowing our cognitive horizons. Often emerging from grassroot collectives, we are already seeing movement towards a new emphasis on contemplative and embodied pedagogies, material culture, creativity and collective practices. Through shifting to a new understanding of the need to continue to develop ourselves across our lifespans and through expanding our imaginations' capacity to comprehend how our own lives' potential emerges from and is indebted to past efforts, how we in turn are responsible to future generations, as well as distant populations and life forms, I believe we can be motivated to transform the ways in which we inhabit and orient ourselves in the world.



Copyright Edinburgh Castle image: © Edinburgh City of Literature Trust

[25] See: https://www.stir.ac.uk/research/research-spotlights/the-daily-mile/

[26] 'Disenchantmentshttps://scottishpoetrylibrary.wordpress.com/2010/02/15/look-to-the-living-love-them-and-hold-on/; https://www.scottishpoetrylibrary.org.uk/2012/10/happy-birthday-douglas-dunn/

Perspective 1

Masahiko Hara

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

Throughout my career I have been engaged in scientific research, including working on experimental studies in nanotechnology and self-assembly processes. Science has traditionally demanded unambiguous explicit knowledge – answers that are or should be the same no matter who performs the same experiments. However, we have now come to understand the limitations of 20th century science and technology, recognizing that the singular and seemingly definitive answers provided by them are not always the best explanations or solutions for addressing the diverse problems of complex society. This realization implies the need for a new scientific approach that ventures into the realm of ambiguity and tacit knowledge to address social diversity. Now we face the urgent tasks of critically questioning and rethinking, conventional understandings based on 20th-century scientific ideas. These ideas, like the proliferation of semiconductor chips which transformed the 20th century, have always been about producing precise, reproducible results that tolerate no errors.[27] However, rather than a simplistic objective concept of knowledge, the 21st century calls for exploration of new forms of scientific knowledge that not only accept, but also welcome, differing answers from individuals: a multipersectival approach that is capable of understanding and contributing to our diverse and complex society.

2. How do the arts and culture shape, reflect and interrogate ideas about a. being human in the world and b. the roles of technologies and AI (as well as vice versa)?

Currently, I am particularly interested in exploring how we can understand the importance of the emotions through AI and how machines perceive our world. As a novel experimental framework, I am engaging in art installations. Through these experiments, I have found that the emotions and perceptions that machines will develop in the near future will necessarily differ fundamentally from our own. Addressing the challenge of 'coexisting' with these entities reveals areas where conventional explicit scientific knowledge falls short. Art, in this context, is an essential element in designing new experimental frameworks for science. Moreover, how machines themselves perceive art has emerged as another significant point of discussion.

3. How can we transform modes of engagement a. with each other and b. with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?

Viewing art installations as new experimental systems exemplifies the embodiment of non-conventional modes of interaction. Gaining insights through such methods involves elements that overturn established norms. Furthermore, one of these non-conventional modes of interaction and engagement is coexistence with AI and machines. While machines can read vast amounts of text, they cannot grasp context without corresponding semantic data. They generate answers but lack an understanding of their meaning. As humans, we must learn to communicate with these new 'beings', which differ from animals we have known so far. Understanding and interacting with them as novel 'living entities' present an opportunity for science to expand its awareness and scope. In this process, art installations will likely become a vital experimental framework for 21st-century science.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

The concept of 'nature' itself is now entering a new phase. Humanity has traditionally regarded nature as something distinct from artificial creations, viewing living systems and non-living systems as fundamentally separate. However, our society, planet, and the universe are now surrounded by machinery and networks, creating a new 'natural sphere' that could aptly be called 'planetary intelligence'. Human beings have

[27] https://www.bbc.com/future/bespoke/made-on-earth/how-the-chip-changed-everything/

introduced numerous non-living systems into living ecosystems, creating a more convenient society. Today, the digital data traversing the networks encircling the Earth has begun to take on the characteristics of living organisms. In this context, I feel we must see ourselves as part of 'planetary intelligence' and start envisioning a sustainable society within this new 'natural sphere'. Just as 20th-century societies learned to some extent to coexist and develop knowledge despite *and through* differences in nationalities and cultures – such as Scottish and Japanese identities – our current challenge is to understand the similarities and differences between living and non-living systems as we move toward the next stage of tackling complex global issues.

Perspective 2
Toward Science and Technology from Society

Osamu Sakura

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

Advances in Science and Technology and their Impact on the Humanities

My specialty lies in science and technology studies, focusing on the relationship between science and technology (SciTech)[28] and society, as well as SciTech's role within human communities. Two crucial issues emerge from this perspective: the first is the importance of democracy and individual freedom in the management of SciTech, and the second concerns how to design frameworks that enable participation from both experts and the public.

In regard to the first point, examining historical approaches to the social management of SciTech helps elucidate key issues. Throughout history, SciTech has been closely tied to governing powers largely due to its reliance on the concentration of resources, including capital and labour (Acemoglu and Johnson 2023, Sakura 2020). For instance, in ancient times rulers maintained authority by stabilizing people's lives through advancements in calendar systems, water control, and public health – achievements often managed alongside the development of SciTech itself. During periods of conflict, military technologies also played significant roles. The world's first national institution for higher education in SciTech, École Polytechnique, was established in France in 1794 by the Revolutionary Government with the intent of training (military) engineers to address the nation's military disadvantage.

On the other hand, the development and dissemination of SciTech has reduced the minimum resources needed to employ it. While ancient Egyptian rulers required extensive manpower and time to construct monumental structures like pyramids, today, buildings of similar scale do not demand such vast human resources. The Industrial Revolution accelerated the efficient use of energy, and the Information Revolution further amplified this trend, enabling wider access to SciTech even for those with limited resources. This expansion of access has yielded both positive and negative outcomes. SciTech's development toward 'convenience' is a double-edged sword (Sakura 2013). For example, online conflicts and the spread of fake news represent forms of social control via SciTech – essentially exercises of power – that contribute to internet lawlessness, as these tools are now widely accessible.

The second issue I raised highlights the need for appropriate management and regulation, yet achieving this is highly challenging. Ideally, a healthy democratic ideology and a deep respect for human rights would take root within broader society. However, relativistic discourses surrounding core concepts like democracy and freedom complicate this process. To address this difficulty, I believe it is crucial to provide education, particularly in SciTech literacy, as a means to bridge the divide between scientific perspectives and everyday perspectives – the world of daily life, or *Lebenswelt*, as described by Edmund Husserl (1936, 1954). This is further discussed in my response to the third provocation.

2. How do the arts and culture shape, reflect and interrogate ideas about a) *being human in the world and* b) *the roles of technologies and AI (as well as vice versa)?*

Intersections and Interactions Between Science and Other Domains

I believe that art and culture can help bridge the gap between scientific perspectives on humanity and those rooted in everyday life. For example, while the existence of God may be scientifically dismissed, many people maintain strong religious beliefs in their daily lives. In such cases, denying God's existence often only leads to increased conflict and division rather than providing any meaningful resolution.[29] Scientific

[28] In this context, 'SciTech' refers to the integration of science and technology. Although science and technology are distinct fields, the author acknowledges that their intersection poses particular challenges in modern society.

[29] See, for example, McGrath and Collicutt McGrath (2007) in response to Dawkins (2006), who offers an aggressive critique of religion and assertive promotion of atheism.

knowledge and rational thought can form the foundation for universal ideas, yet they do not inherently exclude other frameworks of thought.

Consider, for example, observing a beautiful sunset over the ocean and composing a poem about it or expressing love to a partner by saying, 'the sun is setting over the sea'. Although this statement reflects the geocentric view, which is scientifically inaccurate, it feels perfectly natural in everyday life and is, in fact, the more fitting expression.[30] The Ptolemaic coordinate system aligns with our intuition, making it a valid and useful framework in ordinary contexts. In this way, it is essential to use the scientific worldview and the everyday worldview appropriately, depending on the context and situation. Art and culture, I believe, serve as valuable guides for determining the appropriateness of these uses.

As mentioned above art and culture can serve as reference points when redefining the purpose of technology use. For instance, Sota Fujii, the Japanese *shogi* Grandmaster, has described AI's role in *shogi* by stating, 'I think we have moved on to a new stage, from the confrontation between humans and AI to how humans can become stronger by using AI' (Yamanaka and Fujii 2023). He also notes that AI brings fresh appeal to *shogi* by using new indicators, such as evaluation values, to predict the winner during a match. As he highlights, 'fans can now enjoy *shogi* more easily', suggesting that AI is endowing the game with new layers of appeal (Yamanaka and Fujii 2023). In essence, the coexistence of humans and AI is adding new value to *shogi*.

When AI *shogi* programs first emerged, the focus was largely on their strength and ability to surpass human players. If an AI's sole purpose were to defeat human opponents, its *raison d'être* (from a human perspective) would vanish once it achieved supremacy (although the AI itself might then have a different *raison d'être…*). However, through human and AI collaboration, new dimensions of enjoyment and complexity in *shogi* can now be explored, potentially leading to an upgraded experience of the game. I believe that a similar trajectory and outlook are likely in both academia and the arts.

Conversely, we might view this as an opportunity for AI to reevaluate human artistic and cultural activities. The history of AI is also a history of repeatedly uncovering the surprising complexity of what we consider 'ordinary' and 'simple' human cognition and behaviour, as seen with challenges in automatic translation, frame problems, and symbol grounding (cf. Mitchell 2019). With the advent of generative AI, we may need to rediscover these complexities not only in the arts and culture but also in everyday social behaviours. For example, AI and robots are not yet able to seamlessly perform housework tasks such as cleaning, cooking, and laundry.[314] This limitation could remind us of the intricate nature of such seemingly simple human activities.

3. How can we transform modes of engagement a) *with each other and* b) *with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?*

Switching Between Scientific Perspectives and Everyday Life

In response to both questions a) and b), I believe there is a need for mutual translation between scientific knowledge and the sense of everyday life, or *Lebenswelt* (Husserl 1936, 1954). As mentioned in Section 2, science often presents a perspective that contradicts human intuition, creating tension with the everyday experience of reality (see also Dunbar 1996). Previously, I referenced the Copernican and Ptolemaic theories, and here I would like to highlight another example: risk perception. There exists a discrepancy between scientifically measured risk and the psychological perception of risk, which complicates effective risk communication (Slovic 1987, 2000, 2015). For example, events where there is greater room for control tend to be perceived as less risky than they actually are, whereas risks involving little room for control are

[30] As an example of a more poetic expression, we can cite a sonnet by William Wordsworth (1807: 123) that begins: 'It is a beauteous evening, calm and free, / The holy time is quiet as a Nun / Breathless with adoration; the broad sun / Is sinking down in its tranquillity…'

[31] Ekaterina Hertog, Nobuko Nagase, and their colleagues analyze unconscious gender biases in predictions about the future of automation in household work. They suggest that the more pessimistic perspectives among Japanese males, compared to those in the UK, might be attributed to the lower level of gender equality in Japan (Hertog et al. 2023; Nagase et al. 2022). I am grateful to Miranda Anderson for bringing this information to my attention. Their research may bring to mind Tadao Umesao's (1959) prediction that housewives would eventually disappear due to the progress and advancement of automation in household work.

perceived as greater than they truly are. A good example of the former is cycling, while the latter applies to plane accidents. Additionally, new and unfamiliar risks are often perceived as more significant than they actually are. Radiation exposure and the health risks of genetically modified foods illustrate this tendency well. This pattern in risk perception is thought to have evolved from the fact that, in environments with many unknown factors, overestimating the risk of poorly understood phenomena is a safer strategy (a false positive is less dangerous than a false negative). Consequently, the human mind has evolved to easily accept false positives—that is, to judge something as dangerous when uncertainty exists. From a physical science perspective, this may be considered a 'bias,' but from an evolutionary standpoint, it should be seen as a rational human trait. When communicating risk in modern society, it is essential to carefully balance public risk perception with the actual physical risk.

The Japanese philosopher Shōzō Ōmori (1994) referred to this relationship between scientific and everyday perceptions as 'overlapping images' [32] suggesting that the cognitive images derived from scientific knowledge are superimposed upon the simple, intuitive cognitive images formed in everyday life. However, simply layering these two perspectives may not be sufficient for comprehending the outside world; it is also crucial for individuals to develop the ability to 'switch' between them, applying the appropriate perspective depending on the context. This ability to use knowledge contextually – i.e., 'situated' knowledge (Haraway 1988) – might be described as 'scientific literacy'. For instance, the existential questions *D'où venons-nous? Que sommes-nous? Où allons-nous? (Where Do We Come From? What Are We? Where Are We Going?)* – questions posed by Paul Gauguin in his renowned painting created in 1897–98 – are inquiries that humanity has pursued since prehistoric times. Today, scientific knowledge is as essential as logical and philosophical reflection (as explored by thinkers like Husserl and Ōmori) and artistic sensibility (as expressed in Gauguin's work) in attempting to answer such questions. Modern science has indeed offered insights into questions that have intrigued humanity for centuries.

But how can we make an 'appropriate' distinction between the world of everyday life and the world of science? Who should decide what is 'appropriate'? In the context of societal or governmental responses (such as to COVID-19), decisions can only be made by politicians, based on expert knowledge provided by scientific or medical advisors.[33] However, in individuals' everyday lives, these distinctions can only be made by each individual as the primary actor in their own life. Therefore, cultivating each person's scientific literacy is essential. This literacy is not merely a matter of scientific knowledge but rather the ability to translate between scientific understanding and the everyday world.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

Education for Adults

I believe it is essential to consider how we can educate people and foster a harmonious relationship between the everyday world and science moving forward. While scientific knowledge and systems are universal, the values and worldviews of everyday life are diverse, and the two often come into conflict. However, aside from some extreme anti-scientific beliefs (such as creationism, which denies evolutionary theory, and anti-vaccinationism, which rejects scientific medicine), I believe that the scientific and everyday worlds are not inherently contradictory. Rather, they can complement each other through appropriate usage, much like a couple who whisper 'the sun is setting' as they express their love.

For the everyday and scientific worlds to complement each other and form a foundational framework (similar to a computer operating system) for building a richer, more stable society, it is necessary to present them as an integrated value system. This system should combine science, art, and the humanities, rather than treating these domains as separate, independent fields. This integrated system would reflect cultural and social diversity, and thus would not consist solely of universal elements. Instead, it would have a

[32] Shōzō Ōmori (1921 – 97), a Japanese philosopher, is perhaps not widely known in Western academic circles. Therefore, a brief note on his contributions to epistemology regarding the scientific and ordinary worlds is provided here. Ōmori developed a theory of perception and epistemology grounded in the unity of body and mind. He argued that the scientific world and the everyday world are not mutually exclusive but can coexist.

[33] Of course, the decisions made by politicians are not always correct – in fact, they are often flawed – and the relationship between politicians and experts is also a significant issue, but that is another matter.

common, universal foundation supported by options that embrace cultural diversity. I am eager to help bring about such a value system and to promote its education.

The ideal audience for this education would be students in higher education or adults who have completed their higher education, rather than children who have not yet acquired foundational knowledge. This is because this type of education focuses on how to combine and apply the knowledge they have already acquired.[34]

[34] Acknowledgements: I would like to express my sincere gratitude to JSPS London and RSE, and in particular to Dr Miranda Anderson, for organizing this joint symposium and providing me with the opportunity to participate and present my research. I am also deeply thankful to Dr Yumiko Myoken for her invaluable support and assistance with the preparations. Financial support for my presentation and the research underlying this chapter was generously provided by the Korea Foundation Fellowship for Field Research 2023 and the Taiwan Fellowship Program 2023.

Perspective 3
Architectural Exchanges

Jo Gill

The question of the relationship between the arts, culture and technology is both a key theme of this symposium and of broad topical concern. My own research interests lie in modern American poetry and culture – and specifically in poetry and place. I explore this theme in my recent book, *Modern American Poetry and the Architectural Imagination: The Harmony of Forms* (Oxford University Press, 2023) – work that provides the foundation for the brief contribution below.

This may seem like a strange starting point for a discussion of Japan and Scotland. But as I will go on to explain, the nexus of poetry and architecture in the period unexpectedly provides an insight into transnational influence (spanning continental Europe, the United States, Scotland and Japan); about changing experiences of place and space; about location and dislocation; tradition and innovation; about the lasting value of arts and culture, and about the confluence of innovative ideas and practices in the early decades of the twentieth century.

Looking again at the brief for this symposium, we have been asked to take a 'holistic' approach, to think about 'commonalities' across cultures, to address 'interconnectedness,' and to consider 'temporal and spatial' relationships. To respond to this, I would like to take the case study of American architect, Frank Lloyd Wright (1867-1959) and, specifically, Frank Lloyd Wright in relation to his contemporary, Scottish architect and designer, Charles Rennie Mackintosh (1868-1928). I will also consider Frank Lloyd Wright in relation to his contemporaries in Japan, such as one-time art dealer and later hotel manager, Aisaku Hayashi and the architect Tori Yoshitake, both of whom visited Wright's home in the United States and with whom he built a productive and mutually influential relationship when Wright was working on the design and construction of the Imperial Hotel in Tokyo from around 1913 to 1921 (Wright 1943: 193-4; Gill 1990: 263-64).[1]

Reflecting on the theme of this symposium, I cannot emphasise enough how important transcultural dialogue, exchange and thus influence were to architects (and other artists, writers and poets) in this period. Frank Lloyd Wright was an American architect of Welsh ancestry, but his work first became known in Germany in the 1910s when it was published in the Wasmuth edition (Giedion 1967: 589; Arts Council 1987: 15) thereby inspiring European architects such as Le Corbusier and figures associated with the Bauhaus Movement – all of whom exerted a reciprocal influence on poetry and other contemporary cultural forms. Charles Rennie Mackintosh was a Scottish architect, artist and designer whose own work, and that of his circle, was extensively featured in the early twentieth century in the British architectural press. This, in turn, was widely circulated in the United States – where Wright became aware of his distinctive style and ethos (James-Chakraborty 2018: 397). Meanwhile, Japanese traditions, materials and forms of art and design were increasingly familiar to knowledgeable and influential critics, artists and designers in Europe and the United States (Sparke 2020).[2] Reflecting in his *Autobiography* on the commission of the design for the Imperial Hotel, Wright reflects on the happy convergence of these influences when he refers to 'the lands of my dreams – old Japan and old Germany' (Wright 1943: 194).

Mackintosh drew on what he knew of Japanese style in his designs for the exterior and furnishings of the early twentieth-century The Hill House, in Helensburgh on the western coast of Scotland, for example (Thompson 2020), finessing a style that influenced Wright; Wright's interpretation of Japanese architecture and design, in turn, influenced Mackintosh. Wright had first visited Japan in 1905-6 and, like others of his generation, including poet Wallace Stevens (Ragg 2017), was interested in and collected Japanese prints, bronzes and ceramics (Gill 1990: 239-40; Wright 1943: 193-212). In Wright's practice, he adopted some of the aesthetic vocabulary, responsiveness to landscape and technical distinctiveness of Japanese architecture. We see this first in his early, low profile, open-plan 'prairie houses' and later in his vision for the Imperial Hotel. Such influence, though, was not only one way. In the case of the Imperial Hotel, while

[1] Wright also designed a family home for Hayashi. See http://www.wrightinjapan.org/eng_wij/e_buildings/dsgn04hayashi_e.html (last accessed 29 January 2025).

[2] For a summary of international architectural influence in the period, see Gill 2023: 36-40.

Wright experimented in Japan with Japanese motifs and materials (such as the laval rock, oya), he also imported some of the look of Central American Mayan architecture, and the layout of European Beaux Arts style (Gill 1990: 257-60) thereby exemplifying, in one building, a transcultural practice.

'Japanese art and architecture really did have organic character,' Wright recalled in his 1943 *Autobiography*. It is the attentiveness to natural elements, to light, to space, to 'organic' and elemental patterns that both Wright and Mackintosh took from Japan – or, at least, from the Japanese style with which they were familiar. Edward Said's influential 1978 study of *Orientalism* has, of course, raised questions about the accuracy and ethics of western artists' and writers' understanding and representations of the east and provides a useful way of thinking about Wright and Mackintosh – albeit not a line of enquiry that I have space to pursue here. Nevertheless, the aesthetic took shape and soon became a hallmark of modernist architecture, as indeed of other artistic and cultural practices, in their various inflections on both sides of the Atlantic and Pacific oceans. Of the work of Austrian-born American architect, Rudolf Schindler, for example, Harry Mallgrave notes the 'bare simplistic elements' which lend 'almost a Japanese character' (2005: 291). What we encounter in this period and among these close contemporaries is a shared visual language and a shared enthusiasm for innovation through the refinement of form. We see it in the design of the Imperial Hotel or of Fallingwater as of The Hill House or of Mackintosh's distinctive furniture – an aesthetic that circulates beyond borders of discipline, period and nation.

This brief example, tracing just the bare outline of the relationship between Scottish, American and Japanese design at this moment in late nineteenth- and early twentieth-century culture, helps us to frame a response to one of the key questions of this symposium: How do the arts and culture shape, reflect and interrogate ideas about being human in the world and about the role of technology? Poetry and architecture meld aesthetics and technology; use, affect and ornament; history, place and politics; subjectivity (the lone poet, the 'master' architect) and community (poetry and architecture's material and social conditions). Considered together, they exemplify the ways in which we experience and interpret the world and our own place in it. Lyric poetry in particular offers both a crystallisation of certain experiences, positions, perspectives and circumstances and, conversely, opens things up, or brings nuance, ambiguity and uncertainty.

The arts and culture more broadly show us how to see differently, how to ask difficult questions, how to find and understand the complexity of what we might otherwise regard as simple, coherent and absolute. The arts and culture (poetry, architecture and myriad other forms) show us how to read and think from a range of perspectives and to recognise that meaning is constructed and mutable, not self-evident and unchanging. As regards the role of technology; what the arts and culture – poetry, prose, dance, film, painting, sculpture, architecture and so on – did with radio or typewriters (such as in Part III, 'The Fire Sermon' of T.S. Eliot's *The Waste Land*) or with new modes of transport (airplanes in Virginia Woolf's *Mrs Dalloway* and in Willian Faulkner's *Pylon*, or the new ariel perspectives we see in Georgia O'Keeffe's 'Sky Above Cloud' paintings (Eldredge 1993: fig. 85)), it will continue to do with other novel technologies as they evolve. In other words, the arts and culture will imagine, mediate, deploy, critique, reject or embrace new technologies and new modes of communication.

Having said this we need to be mindful of unequal access to advanced technologies and the risk they pose of perpetuating or exacerbating inequalities. This is where the arts, culture and the humanities and, in particular, the turn over the last thirty years or so, towards addressing disparities of race, ethnicity, gender, disability, class and geography, along with a focus on ethics, democracy and power, has the opportunity to lead the way. Looking to the future, what we also learn from the serendipity and huge influence of the subtle transnational exchange of ideas that I mentioned earlier between architects and poets, Scotland, Europe, the United States and Japan, is that great, fruitful and lasting ideas come from unexpected connections.

Perspective 4

Helen Parker

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

My general field of Japanese Studies, as an example of Area Studies, shows an established educational trend towards holistic and multidisciplinary approaches. Students on Scottish or UK undergraduate and postgraduate degree programmes undertake study of various aspects of Japan such as its language, history, literature, society, politics and international relations, to gain in-depth knowledge of issues relating to Japan. There is also an increasing trend towards applying this range of perspectives to examine Japan within the context of East Asia.

Within my particular field of traditional Japanese theatre, there is a consistently developing trend towards interaction between academics who focus on theoretical studies, and practitioners engaged in theatrical performance; and between academics and practitioners in Japan and internationally. Another important, emerging trend is the consideration of the effects of the COVID-19 pandemic on Japanese traditional performing arts and audience-actor relations. Given the international impact of the pandemic, this is part of a worldwide trend.

2. How do the arts and culture shape, reflect and interrogate ideas about a) *being human in the world and* b) *the roles of technologies and AI (as well as vice versa)?*

Contemporary practices in traditional Japanese theatre offer some innovative methods of shaping, reflecting and interrogating ideas about being human in the world, and/or the roles of technologies and AI, and the relationships between the two. These have often been enhanced by the increasing opportunities for conversation and collaboration across theory and practice, and across international boundaries. They may also provide inspiration for non-conventional interaction and engagement to foster critical and creative thinking. I outline below some examples from noh and kabuki.

2.1 *Intercultural Japanese Noh Theatre*

A forthcoming book on this topic, edited by Richard Emmert and Ashley Thorpe (Bloomsbury 2024), presents a collection of English language noh play texts and analyses from the 1970s, when the composition of noh plays in English emerged, to recent times. Each piece applies the textual, musical, and performative forms and conventions of noh to express its content, which invites philosophical or spiritual reflection on being human in the world, revolving around a central character. The works illustrate the versatility of noh as a traditional performing art, and its capacity for adaptation and development beyond the classical Japanese repertoire. English language noh may be seen as a progression from ‘new works’, that is those written since the Meiji period (1868-1912), in the modern Japanese noh repertoire: some of these rework and reconsider classical materials, and some address current issues and include non-Japanese characters and settings. Academic activity such as the translation into English of the aesthetic theories of noh recorded by Zeami Motokiyo (c.1363-c.1443), and opportunities for cultural exchange among practitioners, such as the Traditional Theatre Training workshops on noh for non-Japanese performers (now held in London as well as Kyoto), have been important factors in enabling English language noh to evolve effectively from the Japanese form and to achieve recognition as part of its tradition.

2.2. Noh and the pandemic in Japan

David Sandor Cseh’s recent presentation, ‘Japanese Aesthetics of Noh in the (Post-) Pandemic Japan’ (*World Philosophies Lecture Series*, University of Edinburgh, October 2024), was itself experimental, inspired by the Japanese literary form of zuihitsu: Cseh found this apt because of the freedom it offers the author when examining a complex topic. Its narrative highlighted the importance of the 650-year-old tradition of noh, and its sustained connections with spirituality, in enabling performers to navigate chaotic and unpredictable times. There was a focus on how pandemic conditions had affected and intensified the act of creating and attending noh events, making both actors and audiences more aware of the uniqueness of each performance. A key instance examined was an outdoor performance of traditional noh plays in the precincts

of the A-Bomb Dome in Hiroshima in November 2021 – an event that was only viable because the location was empty due to the pandemic. The prayerful aspect of noh became more prominent, so that the performance became a requiem for victims of Hiroshima and a petition for peace, despite the content of the plays not being directly linked to these things.

2.3 Ultra kabuki

Ultra kabuki is a form of "augmented art" that goes beyond overlaying virtual content on actual scenery, by combining live acting and animated 3D media content. The performances heighten the already very stylised aesthetic of traditional kabuki, which dates from the early 17th century, and raise questions about the fluidity between reality and creativity. They also reflect traditional kabuki's openness to innovation and experimentation.

Since 2016, ultra kabuki productions have been part of the 'Niconico Chōkaigi' festival hosted annually at a convention centre in Chiba prefecture by video-streaming website Niconico. They are a collaboration between professional kabuki actor Nakamura Shidō and the 'virtual pop idol' Hatsune Miku (a well-known example of a 'vocaloid', that is a digitally projected character identified with a voice synthesis software program that enables users to create song tracks for music). Performances take place on a stage, with a big screen in the area behind and above this main acting space. Other, smaller screens are used for some sections of the shows. Nakamura Shidō appears live, occupying the stage space, while Hatsune Miku's hologram is projected on to the stage to create the impression of a three-dimensional performer interacting with the human actor. The productions draw on material from both the kabuki and vocaloid repertoires, and the techniques used to present them. A feature that demonstrates their fusion of modern and traditional culture is the use of Kirari!, an 'immersive telepresence' technology developed by Nippon Telegraph and Telephone (NTT), to capture images of live actors and transmit real-time holograms of them as acting avatars. This occurs, for example, in a scene where Nakamura Shidō's character conjures his avatars to fight his enemies. It may be viewed as an extension of the kabuki tradition of keren, spectacular stage tricks, using state-of-the-art technology. In this case, audiences experience special effects that depend not only on the skill of the live actor, but also on the capacity of Kirari! to represent convincingly the physically real actor on the same stage.

Perspective 5

Natasha Gilmore

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

There has been a shift in the way that we approach professional dance training and practice that recognises the individuality of the dance artist, partly emerging from more inclusive approaches to Dance. In contemporary dance there used to be much more emphasis on perfecting technique through repetitive set exercises: how high can you lift your leg, how long can you hold it in the air, how many pirouettes can you do. Now there is a more holistic approach, each dancer in the room is called upon to engage in a more creative way to explore the movement through experiential and improvisatory techniques in order to learn to understand their bodies in relation to themselves, the space and others . This approach is more open for you to interpret your own movement and uses a lot more imagery and possibly touch to bring a deeper understanding of your practice. For example, if you were working on lengthening your spine, you might now use an exercise where you think about sending roots down into the Earth through your feet and a marionette string lengthening it up through the top of your head. Moving away from repeating exact exercises creates a deeper learning experience as through exploring and answering questions yourself you can take forward that learning into your practice. While it remains useful to be taught and have to remember longer movement phrases in order to develop skills learning choreography, it is now recognised that this is just one way of learning to dance.

There is also now an understanding that formal dance training and placing value and emphasis on classical ballet has connections with a colonising of the human body. Historically a freely dancing expressive body has been seen as a threat. Many dancers oppose this colonisation of the body through shifting the value system positively towards more diverse forms of dance, for example, traditional African dance, and street dance. This physical colonisation also relates to idealised concepts of the female body as ethereal. Consequently, as a choreographer, I always want as many lifts by female dancers of men as the reverse.

Another important trend is considering who are accessing theatre as makers, performers and audiences and who are not. I work in theatre, including theatre for young audiences and there has been a large shift by various companies and venues towards making work for and with children with complex needs, such as autism, and adapting the theatre environment to remove barriers for these audiences. Through the understanding that all children should have access to the arts and to theatre experiences it was recognised that a lot of work had to be done to facilitate this. The concept of 'relaxed' performances which started in cinemas was then developed and applied to theatre productions. We are frequently asked to provide a version of our work that can be presented as a 'relaxed' performance, during which, for example, audience members are not expected to sit quietly but may move in and out of the space so the auditorium doors are left open and the lights raised slightly to facilitate this, and we might make the show shorter and modify any sudden loud bangs I have also created specific touring productions for neurodivergent audiences that tour across the world alongside our other productions. Another trend in children's theatre is to take the work out of traditional venues and into communities, for example, by using local community centres or schools.

The National Theatre of Scotland and Imaginate run a theatre in schools program in Scotland which is an egalitarian way of ensuring that children from different communities including rural ones get to see high-quality theatre. The work is brought to them, into their spaces and paid for by the organisation not the individuals, with the work going into these community spaces now being respected as being of the same calibre as that going into internationally renowned venues. My company, Barrowland Ballet, take the same work to world class venues, such as the Lincoln Centre in New York or the Southbank in London, as we do into a tiny school in Shetland. Some of the festivals employ engagement offices and have funding schemes where you can opt to pay for an additional ticket donated to children's charities.[1]

The conversation has moved to addressing issues of representation in terms of casting, asking questions about cast members' ethnicity, and some have made a move towards what they call 'colourblind

[1] https://barrowlandballet.co.uk/

casting' and there is a purposeful move to having cast members who may have physical or learning disabilities on stage. Some dance companies have this as the focus of their remit, including Indepen-dance and Birds of Paradise which are both based in Scotland. There is now also a course for deaf actors run by the Royal Conservatory of Scotland and more expectation for access needs to be met when presenting work such as audio description, captioning, or BSL interpreters. The main funding body for Scotland, Creative Scotland, has changed the questions that it asks companies seeking regular funding, shifting from just focusing on the work's quality and an aim of reaching bigger theatre audiences to also considering audience access, diversity and inclusion, environmental sustainability and fair work practice. The issue is that these asks often require more funding that is currently not forthcoming from the Scottish government. And sadly, the arts are suffering through lack of support and funding and have been since the Covid pandemic.

2. How do the arts and culture shape, reflect and interrogate ideas about a. being human in the world and b. the roles of technologies and AI (as well as vice versa)?

Many contemporary theatre productions directly connect to the creators' lived experience, through calling on autobiographical experiences to communicate something about the human condition and explore and challenge social norms. One example of the exciting productions coming out of Scotland's rich theatre sector is Rosana Cade and Ivor MacAskill's the *Making of Pinnochio*, which they have been making since 2018, alongside and in response to Ivor's gender transition: it is described as 'A true tale of love and transition told through the story of Pinocchio'.[2] Set in a fictional film studio, you are invited to go behind the scenes of their creative process and their relationship, and question what it takes to tell your truth. Mark Fisher's review describes it as a 'funny, clever and thoughtful two-hander, rich in playful imagery' in which their tender and complex autobiographical experience meets the magical story of the lying puppet who wants to be a "real boy".' [3]

I also frequently base work on autobiographical experiences to share something intimate with the audience. In British culture social rules of what is appropriate to share and what we should be ashamed of are being challenged and embraced by the arts community. Honest and heartfelt productions that respond to a wider range of lived experiences, including racism, toxic masculinity, abuse, and homosexuality can help create deeper understandings of being human in the world and develop empathy in society. In *Chunky Jewellery* I share with the audience my experience of becoming a single mother, around which there still can be judgement and shame.[4] The work is created and performed with a good friend as a means to present an alternative love story where sisterhood and chosen family are celebrated in the way that is normally reserved for romantic love stories.

Carers of children with complex needs observe that they behave differently in our creative arts environment: after a performance at Edinburgh's capital theatre, one teacher told me that it was the first time that they had ever seen the children in their care laugh. In this work we are able to engage in an alternative way, without verbal instructions and with the children inspired to participate in the theatrical and dance experience.

3. How can we transform modes of engagement a. with each other and b. with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?

In terms of my own practice, I have now created several productions that are adaptations, transforming modes of engagement with our audiences. Moving away from the conventional mass theatre experience, these works invite only eight children with complex needs such as autism and their carers or families. This enables us to be able to respond to the individual needs of each of the children: the structure has elements that are set and move the story forward but within that structure there is flexibility to improvise in response to the audience's specific interests. Often the audience want to move around what would

[2] https://www.cademacaskill.com/

[3] https://www.theguardian.com/stage/2021/may/24/take-me-somewhere-review-the-making-of-pinocchio-glasgow-festival

[4] https://barrowlandballet.co.uk/chunky-jewellery

traditionally be seen as the performance space, which in these productions is no longer reserved for the professional artists. As the audience are responding physically or vocally, then this becomes a celebrated aspect of the work, rather than being seen as an interruption as it would in traditional theatre. Instead, it is often at the heart of these works and means that the children are not expected to sit still and quiet. Each of the characters within the productions will respond to and interact with the children from their character's perspective. For example, in one story a lonely daughter who is desperate for somebody to play with responds in a playful way any time someone enters into the performance space. Rather than distracting from the story and theatrical experience, each version of the performance is unique because we respond to and are led by the children in the space giving them creative agency in the work.

There is a lot of material and preparation for these productions. For example, we provide the families and audiences with a visual story in advance which includes photographs of the venue, set, characters, and props with brief explanations, and they send a briefing video explaining how to best support the children to have a positive experience. We also provide a space to talk to carers and meet the children before the performance to check if they have any particular touch or sound sensitivities or anything else they want us to know about their individual children. We have undergone a sensory audit of the venues across Scotland by taking a boy who is on the autism spectrum with us to give us feedback about things like the noise levels or the lighting that can be challenging for children on the autism spectrum as well as offering front of house staff training to venues. We aim to address as many barriers as we can to facilitate these children having a positive experience.

We have been called upon to do professional training workshops and talks about this throughout the world at international children's festivals because there is a real understanding now that itis our responsibility to remove barriers for children who are neurodivergent or have multiple learning difficulties. To create these productions, we can make the work in a school setting by building our set in the school gym and creating the work with the children, by responding to and working with them, and facilitating the development of their own creative agency in the process.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

The arts have a central role to play in society to develop connection, meaning, joy, and empathy. There was a study that showed that people who dance together like each other more. This belief is at the heart of community dance projects and engagement. I run an intergenerational dance company for 25 participants, aged from 7 to 80 plus, and this incredible sense of belonging and deep understanding is clear. We are now living with remote communication. Dance in many ways is the antithesis of this, offering an embodied means of expression which also uses the sense of touch.

My vision is of a world where the arts are valued and celebrated, not as they currently exist in Scottish secondary education where children's innate creativity and expression are often quashed with dance barely featuring as a subject. Where the arts do exist in our society they are still too oft valued in terms of perfect technique, the precision of a drawing, a sophisticated vocabulary Therefore my provocation is to celebrate and find more ways to engage in more holistic creative experiences. Celebration of individuals' creativity allows their distinctive voices to be heard and expressed. How brilliant it would be if it was a norm for us to be in an intergenerational dance company, a choir, or to regularly create collective artworks in our communities. The mental health implications would be incredible. There is also a lot of evidence to show that dance is really useful, for example in the aging population that we have in here in Britain and in Japan. Dance has been proven to be really useful in terms of preventing falls and developing brain activity. There has been a lot of positive use of dance with patients with dementia, and my next work is for dementia audiences working with the sensory aspects of the work in a nonverbal way to create meaningful experiences.

There's a lot of evidence that currently men and boys are suffering with some serious mental health issues and, loneliness, as reflected in suicide rates. Society has stigmatised the sharing of emotions, particularly by men. I am currently working on a project created and performed by six teenage boys and six adult men called *Wee Man*.[5] One of the themes that came up repeatedly is that that men feel trapped in

[5] https://barrowlandballet.co.uk/wee-man

male spaces where they are judged by other men and have to behave in a certain way that does not allow them to express their vulnerability. I am currently researching how I might be able to involve a local community cast at each venue by inviting them to perform in the work. I think there would be something very joyous about the invitation for men to dance across generations, creating a danced male solidarity. Dance is often deemed to be a 'girls' activity'. I would like to develop a structure and material to share with the wider community of men that enable them to explore dynamic physicality but also tenderness of touch by dancing together. I would seek to explore an appropriate structured improvisation that would enable local men to join us as dancers and creatives to allow them to express themselves. Creative expression, and particularly dance, even though it is a beautiful form of expression, have sadly been marginalised in a society that values logic and verbal communication more highly.

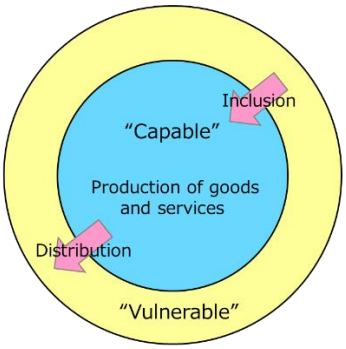
Perspective 6
Inochi

Takuo Dome

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

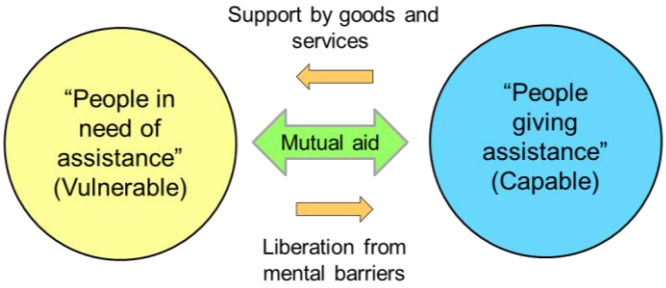
Modern society operates under a framework where those capable of contributing to the production of goods and services are placed at the center, while those who are perceived as being unable to contribute (Figure 1) are referred to as the 'vulnerable.' This framework is centered on increasing and distributing material means of life, rather than helping people find meaning and flourish. This conflation of means with ends is at the root of many societal issues, including environmental destruction, growing inequality, war, and conflict.

Figure 1: The Essential Framework of Modern Society



It is time to change this way of thinking and return to the original relationship between ends and means by asking two crucial questions: Do the 'capable' unilaterally provide goods and services to the 'vulnerable'? Do the 'vulnerable' receive goods and services solely from the 'capable'? The 'capable' or 'people giving assistance' do not unilaterally provide the 'vulnerable' or 'people in need of assistance' with goods and services, but rather, by facing them and empathizing with them, they touch the true meaning of life and receive 'liberation from mental barriers'. From the opposite perspective, it can be said that 'people in need of assistance' are not unilaterally helped by 'people giving assistance,' but have something precious to give because they are living in difficult circumstances. In this way, there is a mutual-aid relationship between 'people in need of assistance' and 'people giving assistance' (Figure 2). What is important is whether the members of society realize this relationship.

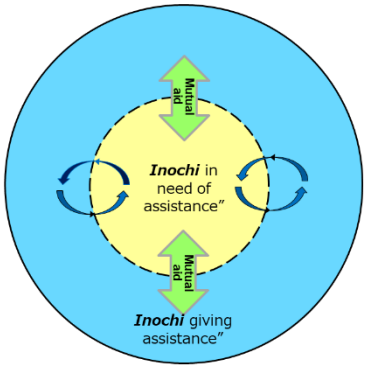
Figure 2: Mutual-Aid Relationships between 'People in Need of Assistance' and 'People Giving Assistance'



Based on this insight, I envision a society where 'Inochi in need of assistance' is at the core, surrounded by 'Inochi giving assistance' (Figure 3). *Inochi* is a Japanese term that signifies the sanctity of life. It goes beyond human existence to embrace all forms of life, emphasizing respect, individuality, and the celebration of potential. While *Inochi* is commonly believed to come from *iki no uchi*—meaning 'within the breath'—some also believe it refers to a sacred life bestowed by the divine. What is essential is the mutual-aid relationship between these groups. Moreover, the distinction between who is 'in need of assistance' and who is 'giving

assistance' is fluid. The COVID-19 pandemic has revealed that anyone can find themselves in need of assistance at any time. The chance for individuals living ordinary lives to become 'people in need of assistance' exists not only in the context of the pandemic, but also in response to natural disasters such as earthquakes and typhoons, climate change, energy shortages, wars, and other social issues. Furthermore, those who have previously received help may become the ones providing assistance. For instance, in Japan, individuals who were supported after the 1995 earthquake in western Japan later volunteered to assist victims of the earthquake that struck eastern Japan in 2011. While this vision of society might seem utopian, there are already initiatives aimed at making it a reality. One example is the declaration 'Leave No One Behind' outlined in the United Nation's Sustainable Development Goals (SDGs);[1] another is the 2025 Osaka-Kansai Expo, whose theme is 'Designing Future Society for Our Lives.'

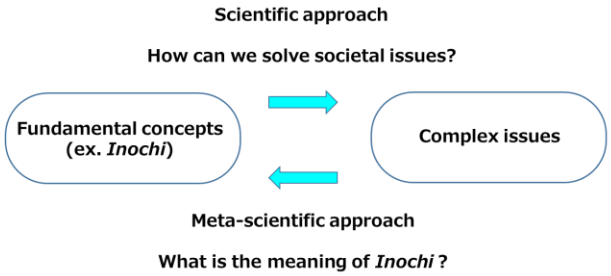
Figure 3: Mutual-Aid Society in the New Coronavirus Era



2. How do the arts and culture shape, reflect and interrogate ideas about a. being human in the world and b. the roles of technologies and AI (as well as vice versa)?

To tackle complex societal issues, we must first return to fundamental concepts like Inochi and begin our inquiry from that foundation. With this groundwork in place, we can approach the resolution of complex issues using scientific methods. However, as we work towards these solutions, it is easy to lose sight of our original objectives. When this occurs, it becomes essential to re-evaluate the true essence of concepts like Inochi. In such cases, a meta-scientific approach may prove more effective than a purely scientific one. This approach involves exploring the meaning of human existence and Inochi, drawing on insights from philosophy, the humanities, and the arts (Figure 4).

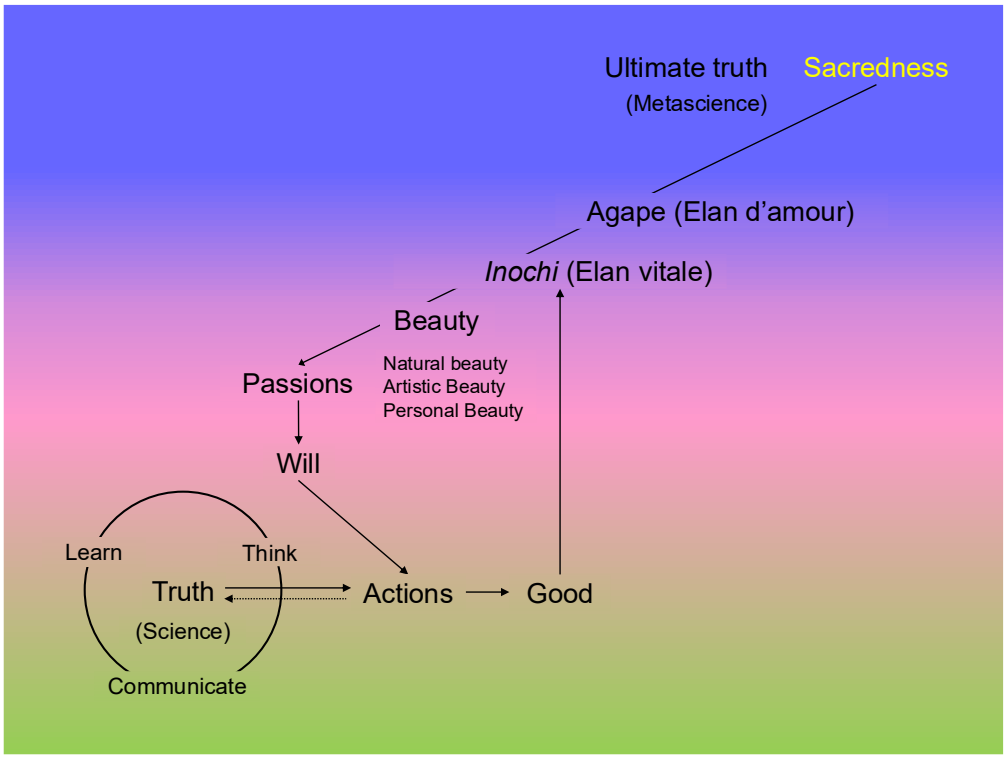
Figure 4: The Roles of Scientific and Meta-scientific Approaches



Scientific truth is achieved through learning, thinking, and communication, as shown in Figure 5. Scientific truth is essential for the discovery of natural laws and to address social issues. However, acquiring knowledge alone is not enough to inspire positive actions; we also need the will to do good. One significant factor that influences our will is our passions. Specifically, when we are moved by something beautiful, we are motivated to act in order to preserve it.

[1] https://unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind

Figure 5: The relationship between truth, good, beauty, and sacredness



The beauty that stirs our passions encompasses natural beauty, artistic beauty, and personal beauty. We feel a deep response when we encounter the wonders of nature, admire human-created art, or recognize the beauty of character in individuals. All of these forms of beauty stem from 'Inochi'. By experiencing the beauty of Inochi, we can cultivate the will to engage in actions that enhance its vitality. This notion encapsulates what we mean by doing good. Thus, there exists a cyclical relationship between Inochi, beauty, will, actions, and goodness. When we receive the beauty of Inochi, we feel compelled to take actions that amplify its dynamism. It is a scientific truth that informs us about which actions are most effective in this regard.

The story does not end here. We must explore what lies behind Inochi and what makes it possible. Somewhere in our hearts, we are always seeking it. It is often referred to as 'agape.' So, where does 'agape' come from? What is the source of agape? This question has been raised by many religious leaders, theologians, and philosophers. The answers vary and include concepts such as 'God,' 'gods,' 'Buddha,' 'nothingness,' and 'emptiness.' I refer to it as 'sacredness.' The ultimate truth is connected to this sacredness. Metascience aims to reach this ultimate truth, or sacredness, by exploring the meaning of Inochi while addressing various societal issues. Art and culture encourage us to take positive actions that enhance the vibrancy of Inochi, while also giving us opportunities to explore its origins.

3. How can we transform modes of engagement a. with each other and b. with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?

In 2018, Osaka University established the Social Solution Initiative (SSI), a think tank designed to change how researchers in the humanities and social sciences engage with complex issues. The core concept of the SSI is Inochi. We believe that we should strive to create a 'sustainable and harmonious society' by 2050. Our efforts focus on addressing social challenges from three perspectives: 'protect,' 'nurture,' and 'bond' Inochi.

With its core in the humanities and social science institutions, the SSI also seeks partnerships with researchers from the natural sciences, including engineering, medicine, dentistry, and pharmaceutical sciences. The SSI also collaborates with the public sector, private firms, and various other stakeholders in broader society, to identify and solve social issues and plan for a future society.

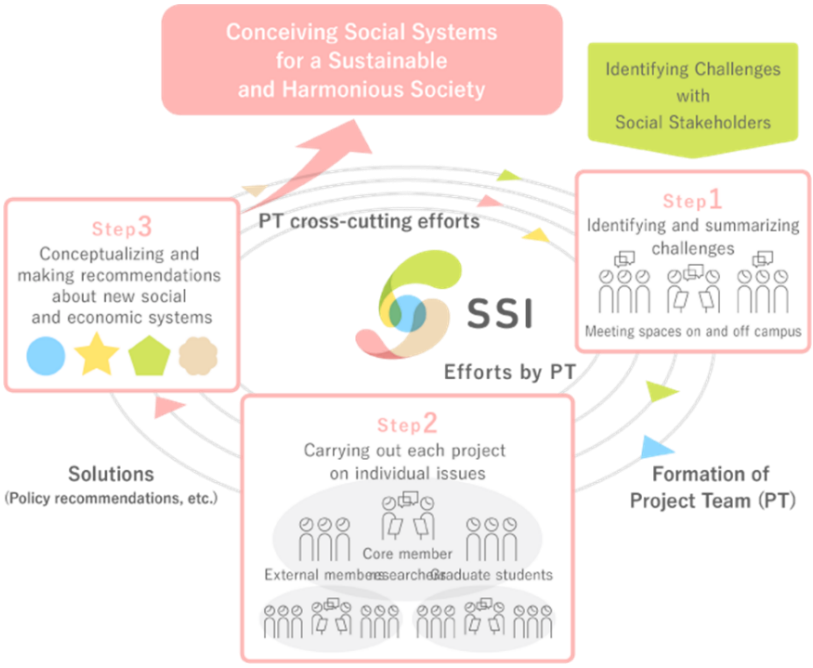


Figure 6: the Social Solution Initiative's (SSI) three spiral steps for complex issues

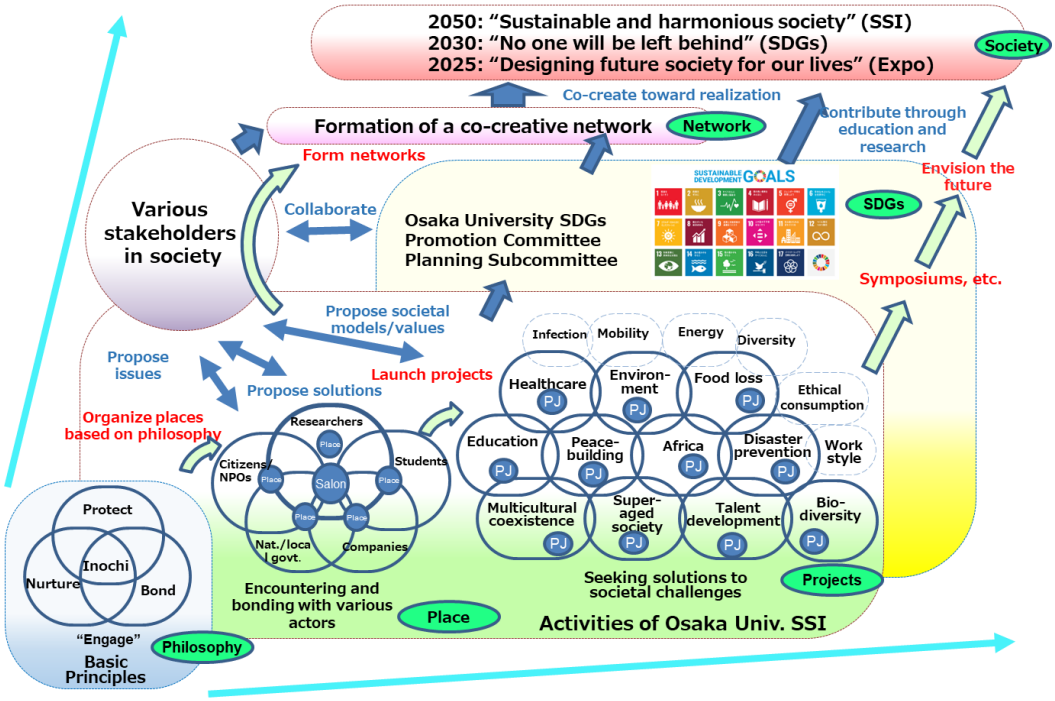
The way the SSI goes about its activities is through a spiraling cycle involving three steps (Figure 6).

- Step 1 is to organize places to discover the challenges that must be solved when considering the future of a sustainable and harmonious society. For example, we host 'Salons' that bring together around 30 people from inside and outside the university to discuss and share their opinions on specific topics relating to the society of the future. Besides this, we also create unique places for the gathering together of students, researchers, and people involved in companies and public sector institutions.
- Step 2 is to create a project for each challenge identified. Each project is pursued by a team of around 10 people, including researchers from Osaka University and elsewhere, practitioners, and graduate students. Each project runs for between three and five years, and some policy recommendations are released at the end of it.
- Step 3 is to hold symposiums and other forums around the project theme to envision the type of society we should aim for. Then, based on this updated vision, we identify further challenges that need to be solved. In other words, we return to Step 1 and begin a new round. We incorporate the SDGs into these activities, and formulate visions of the future. We will continue this cycle up to 2050, as we expand our partnerships with other universities and a range of other institutions.

Through this iterative process of providing places, developing projects, and formulating future visions, we propose issues, solutions, societal models, and values interactively with various stakeholders in broader society. By expanding these interactive relationships, we have formed a 'co-creative network' that will define and realize the concrete form that society should take in the future (Figure 7). Based on this 'co-creative network,' we are contributing to the 2025 Osaka-Kansai Expo, and to the SDGs of reaching a 'sustainable and harmonious society' in 2050.[2]

[2] See: https://www.ssi.osaka-u.ac.jp/en/

Figure 7: Social Solution Initiative (SSI): Philosophy and Activities

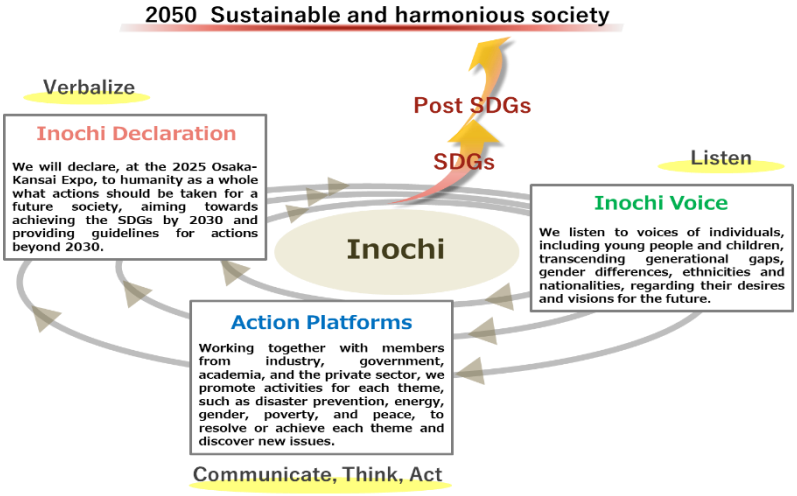


4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

In March 2023, Osaka University, in collaboration with three economic organizations from the Osaka-Kansai area, established the Inochi Forum based on SSI's philosophy and activities. The Inochi Forum focuses on three types of activities. First, we accumulate and analyze 'Inochi Voice.' We listen to the voices of individuals, including young people and children, transcending generational gaps, gender differences, ethnicities, and nationalities, regarding their desires and visions for the future society and collect them expressed not only in written form but also through various forms of artwork such as drawings, videos, and other mediums. Second, in the Action Platforms, working together with members from industry, government, academia, and the private sector, as well as young people and children, we promote activities for each theme, such as disaster prevention, energy, gender, poverty, and peace, to resolve or achieve each theme and discover new issues. Third, we will disseminate the Inochi Declaration. Through the activities of the action platforms and the Inochi voices, we will declare at the 2025 Osaka-Kansai Expo to humanity as a whole what actions we have gathered that should be taken for a future society, aiming towards achieving the SDGs by 2030, as well as providing guidelines for actions beyond 2030 (Figure 8).

In the current Action Platform a diverse group of individuals has been collaborating to discuss various themes. Based on these discussions, proposals will be categorized into five themes: feeling, protecting, nurturing, bonding, and understanding Inochi. These proposals will be released as the 'Inochi Declaration.' In the Inochi Declaration, 'Protect' means to protect Inochi from various threats. Particularly, facing and offering support to wounded Inochi and weakened Inochi, extending a helping hand and embracing them. 'Nurture' means discovering the hidden power of Inochi and harnessing it to live well. Structuring societal systems, extending the potential of each individual. Receiving the blessings of nature in a sustainable manner. 'Bond' means to overcome discrimination, prejudice, and division, and realize a world without hostility. To coexist with nature and recognize that all form a single, large Inochi. Connecting Inochi from the past, through the present, into the future, and sustaining this collective Inochi.

Figure 8: Three Types of Activities by the Inochi Forum



Protecting, nurturing and bonding are actions that do good and can be said to be 'change or motion'. However, for human beings to take action, they must feel something. Thus, the Declaration includes 'Feel', which means encountering people and nature, feeling the essence of each Inochi. Sensing the transience and vulnerability of Inochi, and, precisely because of that, appreciating the preciousness, joy, hidden brilliance, and value of Inochi. Furthermore, while taking action, we have to understand the essence of Inochi, what constitutes Inochi, and the direction Inochi is heading—not only through science, philosophy, and religion but also through various experiences—and realize the meaning of being alive.

The Inochi Declaration will include action plans organized into these five categories, each comprising a 750-word summary and a 40-word message. We aim to gather a total of 100 plans by the time we release the Inochi Declaration on October 10, 2025. All contributions will also be published on the English website.[3] The Inochi Declaration of 2025 is not an endpoint but a starting point for spreading our ideas and actions globally. As the United Nations prepares to discuss the next set of goals in 2025, the Inochi Forum will strive to impact the decision-making surrounding those goals, guided by the principles of the Inochi Declaration. Osaka University, particularly the SSI, will continue to play a critical role within the Inochi Forum as we pave the way for the future.

[3] https://inochi-forum.org/en

Perspective 7
Fission-Fusion and a Union of Spirits

Jimmy Turner

What is my field? If it is a space in a landscape in which I might locate myself, and from which I might feel able to speak, then I am faced with many options. I flit to-and-fro between and across fields as curiosity, convenience, exigency, and luck dictate, and think less frequently than I might (should?) about where I stand at any given moment. Academically I stand in a rather peripheral field named *anthropology*, and can mostly be found in a still-more-peripheral corner of it which I know as *feminist anthropology*. But I also stand in other fields which might be named *art*, and *woodworking*, and *curation*. These fields are more peripheral still in the Academy, but this peripherality, I suggest, can facilitate the inviting of fields together into a union through concept-work such as that undertaken in the fission-fusion concept.

The field I feel myself settle into as I consider the questions posed by this project is that called *woodworking*, a field I have been called into by the late Japanese-American furniture maker George Nakashima. He lived in a fission-fusion location in the world (at least if we follow my simplistic reaction to the concept)—simultaneously woodworker, artist, designer, architect, peace activist, and bearer of a syncretic spirituality. It is wood, and human collaboration with it, that defines my relationship with him, most particularly as expressed through his 1981 book *The Soul of a Tree: A Woodworker's Reflections*.

This classic woodworking text is a work of philosophy, non-academic, and much the better for being so. In it he charts his journey through a merging of furniture making and spirituality, particularly Zen Buddhism and Sri Aurobindo's *Integral Yoga*. He did not view wood as a material to be worked on, but as an agent to be worked with. He viewed trees as having souls, souls which abide in the boards and slabs of wood with which he worked. He described the challenge for the woodworker as being 'to catch this moment, to identify with this presence, to find this fleeting relationship, to capture its spirit' (Nakashima 1981: 112-113). We must, I would argue, read his use of the word 'capture' here as not connoting a sense of acquisition or dominance, but rather as conveying a sense of an opening of the human to the other-than-human, and allowing a part of it to merge and fuse and reside within us. As he put it: 'There must be a union between the spirit in wood and the spirit in man ... There must be harmony, grace, and rhythm' (Ibid: 128).

This concept of the union between spirits of the human and Other is, I think, Nakashima's version of a fission-fusion concept, and it is one where the anthropocentrism of liberal modernity cannot reside. The particular ontology which dominates here, and the system of capitalism which operationalises it, is one 'within which nature is seen as an inert object for humans to appropriate' (Escobar 2010: 39) – nature cannot be a coequal collaborator with humans. Captured by this spirit-free ontology, most woodworkers I have encountered in Europe and anglophone North America, amongst whom his book is hugely influential, read only metaphor into Nakashima's talk of souls and spirits, and not the imperative that I read in him. This imperative demands that we seek union with a fellow soul, following 'ontological assumptions in which all beings exist always in relation and never as "objects" or individuals' (Escobar 2010: 39).

Nakashima, a man driven by art and spirituality, prefigured in his philosophy 'turns' which would come to prominence in anthropology and other academic fields decades later. In his fission-fusion understanding of working with nature and trees he establishes understandings which 'do not distinguish between society and nature. For others this understanding might be, following de la Cadena (2015), via understanding of mountains with souls. Nature is society, the animals that inhabit it persons endowed with will and intentions like human beings. This is an ontology far removed from the Western rationalist paradigm' (Argyrou 2015: 343).

In straddling the fields named *woodworker, artist,* and *anthropologist* I can therefore arrive at a relationship with fission-fusion as a concept, albeit related only somewhat tangentially to Anderson's (2023) instigating concept. Only as an artist and woodworker am I able to get there. Only through a manual embodied artistic engagement with nature and a spiritual/soulful union with nature does the concept (as I interpret it) become reachable to me. My engagement is mediated through technology for sure, but a technology of tools guided by the hand. Where digital technology might come into play I do not know, but I do wonder how, if ever, an AI – something neither human nor nature – could enter into a 'union with the spirit in wood'? This is not to argue that it should need to, but I take seriously the soul of a tree as actually

being a soul with which I might enter into a union. Structuring this understanding through (my appropriated) fission-fusion concept allows me, to borrow from Holbraad (2020: 516), to undertake an act 'of expression – a matter not of abstracting away from life, if you like, but of moving toward it'. With this concept the spirits of my art and my anthropology enter into a union together, and by 'transfiguring' this union through 'the language of concepts' and 'molding it into the shapes of (its) relations' (Ibid.: 519) I might breathe life into this co-emergence through the fission-fusion concept.

Perspective 8
Fission-Fusion International Digital Education

Keiko Ikeda

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

The most important theoretical, educational, and societal trends in higher education and international education include: the digital transformation of learning; the growing emphasis on intercultural competence and global citizenship; and the integration of sustainability and social responsibility into curricula. These trends profoundly reshape how higher education institutions prepare students to understand human nature and tackle complex global issues.

Digital technologies are revolutionizing international education, particularly through hybrid models like *Collaborative Online International Learning* (*COIL*) and *Virtual Exchange* (*VE*). Initiatives like *Japan's JV-Campus*[1] and global micro-credentialing systems enable students to access global learning experiences without geographic limitations. Universities are adopting EdTech tools to provide personalized, scalable, and inclusive learning environments. These platforms enhance collaboration among international students and faculty.

International education increasingly emphasizes the development of intercultural competence as a core learning outcome. Universities are moving beyond traditional exchange programs to design globally networked classrooms that promote cross-cultural dialogue and collaboration. These approaches prepare students to work in multicultural teams and address global challenges such as climate change and inequality. Intercultural education taps into humanity's capacity for empathy and cooperation. It reflects the recognition that diverse perspectives lead to richer problem-solving and innovation.

Integrating STEAM (Science, Technology, Engineering, Arts, and Mathematics) into the discussion enhances the multidimensional perspective on how higher education institutions contribute to the evolving relationship between arts, culture, human-robot interaction (HRI), and the vision of *Society 5.0*.[2] STEAM inherently bridges technological innovation with humanistic inquiry, making it a critical framework for addressing questions about human nature, creativity, and ethics in a rapidly advancing technological landscape. STEAM education (Science, Technology, Engineering, Arts, and Mathematics) is critically important at the higher education level today for several reasons.

The world faces interconnected challenges, such as climate change, public health crises, and socio-economic inequality. These problems require solutions that go beyond technical expertise, incorporating ethical reasoning, cultural understanding, and creative problem-solving. The rapid advancement of technology and automation is transforming job markets, creating demand for skills that combine technical knowledge with creativity, adaptability, and emotional intelligence. As artificial intelligence and robotics become central to society, there is a growing need to ensure these technologies align with human values, ethics, and cultural contexts.

Universities are embedding the United Nations' Sustainable Development Goals (SDGs) into curricula, with a focus on problem-based learning and interdisciplinary approaches. Institutions are leveraging their role as hubs of knowledge to foster global leaders who can balance economic, environmental, and social priorities. Programs like the *Osaka Social Impact Project* and sustainability-focused Project Based Learning (PBL) initiatives are prime examples.[3]

Society 5.0, a vision developed in Japan, represents a human-centered, super-smart society where advanced technologies like AI, Internet of Things (IoT), robotics, and big data are integrated seamlessly into daily life. It emphasizes balancing technological innovation with societal well-being, sustainability, and inclusivity. This concept is deeply intertwined with the discussion on arts, culture, and human-robot interaction (HRI) as it reimagines the roles of technology and creativity in shaping human experience.

[1] https://www.jv-campus.org/en/

[2] https://www8.cao.go.jp/cstp/english/society5_0/index.html

[3] https://www.kansai-u.ac.jp/ja/about/pr/news/2024/11/post_80576.html

2. How do the arts and culture shape, reflect and interrogate ideas about a) being human in the world and b) the roles of technologies and AI (as well as vice versa)?

The arts and culture play a profound role in shaping, reflecting, and interrogating ideas about what it means to be human and how we interact with technologies and AI. They illuminate universal aspects of the human condition (including emotions and experiences, such as love, loss, hope) while also highlighting specific cultural or historical experiences, enriching global perspectives. Cultural productions often mirror societal challenges, such as inequality, migration, and environmental crises, enabling a broader understanding of their human impact. Arts often reflect the interconnectedness of humanity and nature, questioning the boundaries between individuals and collective experiences. They challenge traditional notions of being human, exploring themes like post-humanism, transhumanism, and the boundaries between humans and machines.

HRI (human-robot interaction) scholarship interrogates the boundaries between humans and machines, asking what makes us uniquely human. This resonates with artistic and cultural explorations of post-humanism, autonomy, and consciousness. HRI research examines how robots are perceived in different cultural contexts, reflecting societal values, fears, and hopes. Robots in healthcare, education, and public spaces highlight issues of inclusion, equity, and accessibility, which overlap with the arts' role in advocating for diverse voices and experiences. An excellent example would be HRI on stage. Oriza Hirata, a prominent Japanese playwright and director, has pioneered the integration of robots into theatrical performances, creating a unique genre known as Robot-Human Theatre. Collaborating with roboticist Hiroshi Ishiguro from Osaka University, Hirata explores the dynamics of human-robot interaction (HRI) on stage, delving into themes of coexistence, communication, and the essence of humanity. Hirata not only expands the possibilities of theater but also contributes to broader discussions around technology's role in society and the future of human-technology coexistence.

Technology and AI are not just subjects but also active participants in shaping arts and culture. Technologies like streaming, virtual museums, and digital art platforms democratize access to cultural experiences, breaking down geographic and economic barriers. HRI research plays a critical role in realizing *Society 5.0*, where robots are envisioned not only as tools but as collaborators in healthcare, education, and the arts. *Society 5.0*'s vision emphasizes technology as a tool to enhance human capabilities and quality of life, rather than as a replacement for humans. The arts and culture contribute to envisioning and critiquing this vision by questioning what it means to live a meaningful, enriched life in a tech-integrated society. They act as mediators, ensuring that technological advances prioritize humanity's emotional, ethical, and cultural needs. The vision encourages merging human creativity with technological capabilities to solve global issues and expand human potential. Arts and cultural initiatives are integral to this synergy, offering a lens through which technological solutions are evaluated not only for functionality but for their contribution to human flourishing. By integrating humans and machines in a collaborative ecosystem, it challenges traditional boundaries of what it means to be human.

3. How can we transform modes of engagement a) with each other and b) with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?

Transforming modes of engagement with each other and with complex issues through technology and art involves leveraging their capacity to reimagine communication, collaboration, and problem-solving. This can occur through the following means:

- Using virtual reality (VR) and augmented reality (AR) to create spaces for deep, empathetic interaction. For instance, VR experiences can simulate living through another person's perspective, fostering empathy and understanding across cultures and identities.
- Creating interactive installations where participants contribute to a shared piece, either physically or digitally, breaking traditional roles of artist and audience. This can encourage collective creativity and mutual respect.
- Deploying AI tools like natural language processing (NLP) chat systems or real-time translation to overcome language barriers, creating inclusive dialogue platforms.

- Using platforms such as AI-generated art collaborations or multimedia storytelling apps where individuals co-create and share personal experiences, allowing others to engage with their narratives.

Data Visualization through art can also be impactful. Transforming complex data into aesthetic and interactive art installations, for example, turning environmental data into real-time digital art that evolves based on real-world inputs, which makes abstract issues more tangible.

Participatory Art Installations provide an engaging medium for collective problem-solving. These projects encourage audience interaction, making individuals co-creators in the artistic process. For example, a digital mural can evolve as participants contribute their ideas, with each input visually representing a unique perspective or solution to a shared issue. Such installations not only foster a sense of ownership and collaboration but also demonstrate the power of collective action in addressing complex challenges.

Storytelling Through Multimedia allows for the amplification of unconventional narratives that challenge stereotypes and mainstream thinking. Using tools such as video, animation, and augmented reality (AR), artists and creators can craft immersive experiences that highlight marginalized voices and untold stories. These digital storytelling methods encourage audiences to explore different perspectives, breaking down barriers of understanding and cultivating empathy through engaging, visually compelling formats.

Finally, Collaborative Digital Spaces, including platforms like the metaverse can create simulated environments for stakeholders to engage with complex issues collaboratively, using avatars and virtual tools to experiment and propose solutions.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

The responsibilities of higher education in preparing graduates in the context of today's humanity and rapid technological advancement are profound. Universities must go beyond traditional knowledge transmission to cultivate adaptive, ethical, and socially responsible individuals who can navigate and shape a complex, tech-driven world. With technology evolving rapidly, the ability to learn continuously and adapt to new tools and environments is critical. Universities should offer flexible learning pathways, including digital badges and modular certifications, to help graduates stay competitive. Programs should focus on fostering a growth mindset, preparing students for roles that may not yet exist. Universities must ensure that graduates understand the human dimensions of technology, maintaining empathy and ethics in its application.

Collaborative Online International Learning (*COIL*) and virtual exchange pedagogical approaches leverage digital tools to connect students and educators across geographical and cultural boundaries, fostering essential skills and competencies for navigating complex global and technological landscapes. *COIL* brings together students from different cultural backgrounds to collaborate on academic projects, fostering intercultural understanding, empathy, and communication skills. Virtual exchange eliminates physical and financial barriers, enabling more students to participate in international education and connect with global peers. By integrating digital tools into collaborative projects, *COIL* equips students with hands-on experience in using technology for meaningful global engagement. Virtual exchange projects often explore ethical and cultural dimensions of technology, encouraging students to critically examine its role in society.

5. Final Reflections

A human-centered super-smart society emphasizes using technology for ethical and inclusive purposes, underscoring humanity's role as stewards of a sustainable and equitable future. Humans are uniquely positioned to interpret, create, and assign meaning to experiences, objects, and relationships. In navigating the evolving relationship between humanity and technology, it becomes increasingly clear that education, culture, and innovation must work in concert to ensure a sustainable and inclusive future.

As universities respond to the challenges of Society 5.0 and beyond, they must embrace new paradigms of learning—ones that prioritize ethical awareness, intercultural engagement, and creative collaboration. Digital transformation is not merely a technological shift; it is a human-centred opportunity to redefine how we learn, connect, and act within a global community. Whether through COIL, virtual

exchange, or interdisciplinary initiatives, higher education plays a critical role in shaping future-ready individuals equipped with both technical fluency and social empathy.

Ultimately, the pursuit of a super-smart society should not be driven by efficiency or innovation alone, but by a deep commitment to human dignity, equity, and shared responsibility. The integration of arts, technology, and education provides powerful tools for reimagining how we relate to one another and address complex global challenges. By grounding technological advancement in cultural reflection and ethical inquiry, we foster a more resilient and compassionate world—one in which digital tools enhance, rather than diminish, our collective humanity.

Perspective 9
Health and Mental Health

Stephen Lawrie

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

There is a noticeably increased acceptance, or even desirability, of mental health issues all over the world, or at least in the so-called 'global North'. Celebrity and everyday accounts of mental difficulties and problems in the media have apparently reduced the need for the stoical British 'stiff upper lip' (and I presume a Japanese equivalent) but there seems to be an unfortunate flip-side for many to search for the 'trauma' that explains their problems and the apparent rise of a 'victim culture'. The vicissitudes, stresses and strains of life can be very demanding, but are not the same as mental illness and do not need or merit a psychiatric or even any health system response.

Regrettably, despite this there has been little or no change in the stigmatisation of mental illness. There is the very interesting example of changing the name of Schizophrenia in Japan, from *Seishin-Bunretsu-Byo* (literally translated as 'Mind-Split-Disease'), to *Togo-Shitcho-Sho* even if the literal translation of the alternative as 'Integration Disorder' is not that appealing. It also seems to have had little or no effect on attitudes. The use of the euphemism 'psychosis' in the 'global West' does not seem to have achieved much either. Changing the words for things does not change attitudes or behaviour – it is how we use the words, and above all encountering and engaging with those affected that reduces the stigmatisation of mental illness (*Lancet Commission*, 2022). One might say that social learning trumps social labelling.

The rise in youth mental health concerns in particular has not been accompanied by increased funding, but all health systems around the globe are struggling with limited budgets, ageing populations, ever increasing demands, and increasingly expensive diagnostic technologies and treatments. Obviously, one needs a healthy population to be able to educate them and have a thriving economy – and a healthy economy to pay for public services – but such a virtuous circle seems less common since the global banking crisis of 2008, austerity, the war in Ukraine and the COVID pandemic than a vicious cycle of poverty, illness and desperation. In an increasingly urbanised and never better-connected world, many are more isolated than ever. Witness the phenomenon of *kudokushi* (loneliness deaths) in Japan, and high rates of alcohol and drug deaths, and suicide, there and in Scotland. I have long thought that a key solution is to develop more healthy and supportive communities, which do not rely on governments or health and social services, but that is easier said than done.

2. How do the arts and culture shape, reflect and interrogate ideas about a) *being human in the world and* b) *the roles of technologies and AI (as well as vice versa)?*

The arts and humanities are critical to understanding human nature, to developing that understanding and even potentially enhancing our nature. I regard culture as the emergent civilising properties of human groups and communities, which can be influenced by and for the common good. For example, the increasing respect for protected characteristics, as codified in Equality, Diversity and Inclusion policies in our workplaces and institutions, has brought about greater equality of opportunity, more consideration of the language used and probably also more kindness towards disadvantaged people – even if the practice is sometimes dismissively referred to as 'woke' ideology in the 'culture wars' often conducted on social media.

Technologies generally, social media and AI in particular, are all both potential friends and foes, depending on how we handle them. Expanding access to knowledge of all kinds and with AI the ability to use it to one's advantage brings tremendous opportunities to all who can access them, which is most of humanity, but also brings dangers. The threat of bad actors –a small minority that spoil it for everybody – has always been with us, such as for example the worst excesses of capitalism in modern history; but we now also face the novel threat that the machines may decide that they do not need homo sapiens. Policing and punishing bad behaviour are necessary but likely to be less powerful than promoting civic-minded behaviour.

3. How can we transform modes of engagement a) *with each other and* b) *with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?*

A civil society is promoted by education and an appreciation that one's own truth or world view is not the only one that is valid or correct. Teaching philosophy in schools, as happens for example on the continent of Europe, facilitates the appreciation of the value of clear thinking and multiple viewpoints. I like to think that the idea that can be traced to the physician-philosophers of the Edinburgh Enlightenment, that all illness has a mental component. The mental aspect of all kinds of health issues is now widely accepted. I look forward to the principles of distributed cognition across mind-brain-body and technologies such as mobile phones attaining similar acceptance and approval. Technology facilitated social and community gatherings, for example, to access and nurture green spaces, participate in the arts, support people with similar problems, and otherwise build social capital which is highly desirable.

Note however that such practices are preferably evidence-based. We know for example that computerised psychotherapy (aided by a therapist) and even internet psychotherapy (without a therapist) help those with mental health problems in clinical trials, even if people prefer face-to-face contact. On the other hand, arts-based therapies do not do so well in such evaluations in clinical settings, as evidenced for example by systematic reviews of randomised controlled trials of art or music therapy for schizophrenia or dementia (e.g. see Cochrane Database of Systematic Reviews, 2025). All novel interventions such as psychedelics for alcohol and drug problems, post-traumatic stress disorder and depression need to be cost-effective in cash-strapped health services.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

To conclude, Japan and Scotland, as outlying parts of Asia and Europe, have strong traditions and practices that have survived centuries and bring people together. We can celebrate our global influences as cultural superpowers through science and technology; sushi, saki and anime; haggis, whisky and tartan; while also treasuring those aspects of our cultures that remain our own, like sumo wrestling and tossing the caber. Finding common ground and shared purpose, as this symposium aimed to do, whilst understanding and perhaps even celebrating differences, is as ever the way forward.

5. Final Reflections

It was I thought discernible at the symposium that the more that presenters focussed on their own fields then the more positive and enthusiastic they generally were, whereas the more they considered broader social and economic concerns then the more negative and pessimistic they tended to be. There were many positive contributions about the role of science and technology, the arts and humanities in galvanising people and communities but also many references to economic difficulties and constraints.

The arts and humanities, including reading and writing, undoubtedly have a role in promoting health and well-being at a personal, community and societal level, but it is difficult to know how to prioritise these relative to competing concerns about environmental health and social housing for example, let alone basic needs such as **water, food, shelter and security**. A recent government commissioned report (Bell et al., *Frontier Economics*, 2024) pulled together evidence for the social benefits of the arts, including the financial, but grossly over-stated the evidence for treating (and even preventing!) depression and dementia. If the arts and humanities are to receive funding for health impacts they will need to engage with the standard form of evaluation in that arena, as psychotherapy has successfully done.

Perspective 10
Until We Meet Again

James Clegg

I presented excepts from Thomas McEvilley's book *Art & Discontent*, with a focus on a chapter called ''I am' is a vain thought' (McEvilley, 1991). As an example of 'postmodern' art criticism, it provided long-term perspectives on early anxieties surrounding Artificial Intelligence and machine consciousness. McEvilley reasoned that Judeo-Christian cultures, with a tradition that centres upon the self and the platonic idea of some kind of transcendent essence – or version of the myth of the soul – have profound difficulty coming to terms with the idea that machines might ever think like people. By contrast, McEvilley reasons, Japanese people, with a tradition of Buddhism, have a different attitude to the self. Through attuned meditation processes, Buddhist texts ascribe models of consciousness made up of interstitial moments, which bears an interesting comparison to the processing speeds of computers in the 1980s when this essay was written.

This reading had some resonance with other participants in the JSPS-RSE Symposium, particularly **Prof. Osamu Sakura** who referenced broader differences in so-called 'Western' and 'Eastern' forms of representation. This included observations about how in European and American art when a human is depicted with a non-human (animal or android) they are shown looking *at each other*, implying the human holds the other in it gaze; whereas in Japanese art both tend to look *at the camara* with equal agency. He also talked about machine funerals which connects with ascriptions of consciousness to non-human forms in McEvilley's essay.

The diverse perspectives reflected in the symposium spread beyond the framework of my individual presentation, so here I spend some time sharing my summary notes related to the provocations before returning to this starting point.

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

The symposium reflected changes in the cultural sector that I am familiar with in the field of contemporary art and that I know are happening across different art forms in Scotland. They could be summarised as a consideration of how people are or have historically been excluded from cultural spaces and activities. There was a discussion about adapting practices to take into account neurodiversity, disability and age – also, considerations of race, gender, and sexuality, and socio-economic conditions that can create barriers to access. In terms of human nature this means a much more diverse conception of how and who can engage. It means pushing back against the idea of a single type of spectator or audience. Making exhibitions we have to imagine perspectives, worldviews and physiological differences that might not match our own or our expectations. This involves more planning, group discussions and strategies to empower others within the museum and galley sector.

The term decolonising was also used within the symposium – and alternatives such as 'reindigenising'. The term 'indigenising' captures the deeper acknowledgement of indigenous lands and languages in the production of art, a good example being the 2022 Venice Biennale, which saw the 'Nordic Pavilion' renamed the after Indigenous Sámi people. We learnt about the long and interesting exchanges between Scotland and Japan in engineering, architecture, and poetry. I noted that, 'as efforts are made to ensure a broader platform it means a much bigger spectrum of ideas and perspectives and disciplines that naturally change the range of possibilities for the concept of human nature'. Perhaps simpler: by foregrounding work by marginalised people, Talbot Rice Gallery aims to foreground marginalised conceptions of being human.

Artists naturally drive these changes. The last 30 years have seen ongoing experiments with participation, collaboration, embodied practice, healing practices, community projects and ceremonies. In parallel there has been a deconstruction of ideas of authorship, modes of presentation, the aura of artworks and the assumed authority of the gallery space. (On this there are a myriad of critical writings, which McEvilley's text might be seen to be an early and strong example).

Being an interdisciplinary event, it was really interesting to hear other perspectives on important developments. Quantum technology was mentioned as a key potential driver for dramatic, perhaps

terrifying changes. I found the ideas of continuity with technology and techno-animism – and the breaking down of the 'artificial' and 'nature' binary really interesting. Also, the image of 'weak robots', which is almost a term for degrowth – instead of building stronger, faster, tougher things, which seems to be an aspect of an aggressive imperial kind of materialism – it refocuses things around co-habitation and harmony.

We were introduced to the term 'Inochi', a recognition of a fundamental human connection – and a scheme for restructuring societies around those in most need of assistance. We were told that science-alone might not always provide the best solutions, something really refreshing to hear from people in the sciences. We heard about nanotechnology and bio interfaces and ways of developing technology that is less about rapid processing and repetition, and more about emotion and ambiguity.

This underpinning shift seemed to connect with developments across all fields: in philosophy, engineering, international pedagogy, critical perspectives on new technology and in psychiatry: that sense that a certain kind of 'productivity' - although not always in an efficient or improved sense - is being prioritized over funding, empathy and quality of life. The environmental crisis, greed, war and inequality lurked in the background: the technocrats and superrich warping a system to such a degree that it no longer seems fit for purpose.

So, the desire to find new ways of working, thinking and being in the world reflect the key trends for everyone in critical and creative fields. We need technologies and tools that allow us to be in harmony with each other and the world. In the face of short-sighted governments and neoliberal policies, we need to collaborate, cross disciplines and create global citizens in order to support positive social changes.

2. How do the arts and culture shape, reflect and interrogate ideas about a) *being human in the world and* b) *the roles of technologies and AI (as well as vice versa)?*

I spoke a little about ideas of the 'soul' and the 'not self', not as exact mirrors of each other, but as the difference between a platonic, abstract, fixed idea of the self in contrast to the more experiential sense of the self as a fluid, transient process. The idea of fission-fusion can allow us to think about different cognitive constellations in which both abstract and material factors can play an important role. I still see that picture sitting more firmly on the 'process' side of things.

I think that through the arts we can encourage people to recognize their own creative role in the process of making themselves and the world. There is a lovely statement from the anthropologist David Graeber (2024) who said, 'The ultimate, hidden truth of the world is that it is something that we make, and could just as easily make differently.' Miranda Anderson's work does a lot to support a complex view of the self and I welcomed her talking about the idea of predictive processing and how art – in its capacity to show us familiar things in a strange context, or make the everyday seem weird – can shake us out of rigid repetitive channels. I work with a lot of leading contemporary artists and I think the best artists I know are making artwork that involves discovery, even for the maker.

What sometimes surprises people is that an artist might not know – at least in a strictly rational way – what they are making as they are making it. Some might see this as a weakness. But really it is because what is interesting in making art is that you setup a dynamic relationship to a material or medium or process, and involve yourself in a feedback loop where you're constantly discovering what something is doing. The artwork is an agent and if it is going to be an agent of change then it is going to have to do something that is surprising.

I wonder if we are taught that questions should always have an answer. Encouraged to fear ambiguity, complexity, emptiness because it does not suit a world geared towards a certain 'rule of efficiency' to borrow a term from the end the day. There can be something transactional about simple questions and answers. If ever technology or Artificial Intelligence is going to make art, it will have to learn to ask questions that do not have simple answers.

3. How can we transform modes of engagement a) *with each other and* b) *with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?*

One answer from the symposium seemed to be education. Teaching people, particularly at a young and formative age seemed to be a repeated theme throughout the day. There were ideas of more philosophy in

schools, more art in schools and ways to create 'future ready graduates'. And of course, some technologies - like digital conferencing tools or videos - seem good at being able to create new kinds of global classroom or taking ideas out to people.

Another thing, answered through the form of the symposium as much as what was said, was that people from different disciplines, different cultures and backgrounds come together in one space to workshop ideas. There is something quite magical about what can happen in that situation, especially when the brief is quite open and participants are encouraged to dance, make art and listen to poetry as well as engaging with diverse talks.

As we reflected on the day there was also a sense that **everyone *kind of knew the answers*** – and here I do not mean in a simple rational way. But in the sense of it being obvious where the problems lay in the world, that things need to be reconfigured to serve people and make genuine improvements to the quality of life. Yet, despite knowing this it still feels impossible to do something about it given the concentration of power. It made me think of Michel de Certeau's distinction between 'strategies' and 'tactics' (1984): strategies are the methods used by institutions and structures of power to define a place as 'proper' and establish relationships with and between consumers, whereas 'tactics' are the actions taken by consumers to unsettle or diverge from those conventions. Tactics in de Certeau's view can only be improvised, temporary, precarious and fugitive. Like the feeling of the symposium – a day or two away from normal jobs and responsibilities.

As I write this, it feels like strategies and power echo the doctrine of the soul McEvilley was aiming to deconstruct: a kind of religious strategy to make people believe in a particular kind of humanness or moral way of being as opposed to a more meditative, tactical disruption of the self. It is hard to be a non-self or creative-self in the age of capitalism. So, I'm back at my own starting point.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

I've always liked an artistic movement (with a small 'm') called *Fluxus*. They used to make artworks by writing out a score or instruction for an artwork**.** In the spirit of George Brecht, I would like to propose an artwork that starts now and that exists in our collective experiences and imaginations, consisting of everything we think and do, until we meet again.

Perspective 11
Enacting Art

Goro Murayama

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

My areas of expertise are art, particularly drawing and painting, theories of emergent science (self-organisation, autopoiesis, artificial life) and exploration of collaborative artistic practices between AI and humans. Combining these, I am working on collaborative drawing workshops in educational programmes and attempting to understand human creativity through the back-and-forth between artistic creation and the implementation of AI systems.

At the axis of the theory of emergence on which my work is based is the concept of 'autopoiesis in living systems. It was proposed in 1970 by the Chilean neuroscientists Humberto Maturana and Francisco Varela and extended to social systems by the German sociologist Niklas Luhmann. I believe that this theory provides clues to understanding human nature and the complex problems of the world.

Varela and Luhmann have attempted to extend this theory to systems of human action-perception and social communication, respectively. I have also developed this theory through applying it in the field of artistic practice. I have proposed ways of experiencing these systems through the medium of drawing. In drawing, a unique pattern emerges and changes as a result of a chain of actions. It can also be explored through drawings in which several people collaborate to form an organism. It is neither totalitarian nor individualist, but a goal in which each individual acts autonomously and at the same time collaborates, allowing a higher self/society/creativity to emerge. This encourages us to think of the self and society as emergent, not merely in terms of semantic backgrounds such as identity or roots, but through a continuity of action and communicative interaction.

2. How do the arts and culture shape, reflect and interrogate ideas about a. being human in the world and b. the roles of technologies and AI (as well as vice versa)?

With the technological development of AI, the question of what it means to be human has once again been actualized, both through comparison with and in contrast to AI. That is why I have embarked on an AI-related artistic practice since early 2015. I have presented four AI-related works between 2015 and the present. They can be broadly classified into systems that deal with individual specific data such as face, gait and protein structures, and systems called generative AI, such as image generation and ChatGPT. My artistic practice on AI is diverse. This is because new technologies can be both poison and medicine. Themes include getting to know humans better by contrasting them with AI, creative responses to the threats AI technology poses to people, and gaining new creativity by working with AI. AI is critical for art as well, therefore I want to explore its potential through my artistic practice.

My latest piece on AI is called *For millennial future drawings – Human, Artificial Intelligence and Artificial Life* (2024). It consists of 620 drawings and an image-based time series of about 20,000 images of the entire drawing process. By adding further prompts to an AI trained to learn 'Murayama drawing style', the AI was implemented to generate a different kind of figurative nuance, while still maintaining the original style. This shows the capacity for the learning of time-series image data by the latest video generation AI.

Expanding on this project, at this stage I am embarking on a research plan to implement and compound the functions of human poiesis in each type of AI I mentioned above. Through its counter-reflection with the advent of AI, we are now able to understand aspects of humans at a finer resolution. In the future, we would like to create a system that combines these various functions by linking its training on Murayama's drawing data with multiple AIs able to develop patterns in an autonomous manner.

3. How can we transform modes of engagement a. with each other and b. with complex issues? For instance, how can we create more awareness and scope for inclusion of nonconventional modes of interaction and engagement that move us beyond habitual routines and practices?

I develop drawing workshops using cellular automata to learn through practice about communication and to explore new ways of relating. Cellular automata, mathematical models developed by von Neumann, are useful for examining systems of diverse interactions. Varela's *SCL (Substrate, Catalyst and Links) model* and Wolfram's *CLASS4*, as well as Conway's *Life Game* are typical examples. These give local rules for how each cell interacts and examine the patterns. Recent work has also developed smoother, more life-like algorithms, such as Bert Chan's *Lenia*. I also use cellular automata in my drawing workshops. What I practice in my drawing workshops with participants is the development of rules of interaction that enable rich patterns to emerge through the process of creation, including opportunities for participants to fully engage in and reflect on their experiences of creating the works. Workshops for art school students can help them to understand the aesthetics of collaboration and interaction beyond individual creativity.

In terms of the components of the cellular automaton, the design of the neighbourhood, the change of state of the cell and the interaction rules of the cell are important. If we translate this into human society, designing just these three requirements may yield interesting results: how many neighbours to trust and refer to, the constant flickering of the state of the human being himself (he is both A and B), and what messages change his own state when he receives them from his neighbours. However, our society is too complex to be immediately imagined in reality. This is why it is useful to define and explore dynamics through the medium and field of drawing.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

Based on the results of the latest AI, especially ChatGPT, it would be interesting to contrast human poetry composition with AI text generation. Japan has an ancient art form called renga, which dates back about 700 years, and has a culture of collaborative poetry reading. Analyzing this system would allow us to refer to poetry writing not merely as a form of personal expression, but as an interesting model of social communication. If I were to preface my personal observations on the differences between Chat GPT's sentence structure and human poetry with reference to the analysis of the drawing data here, the following two are important. Characteristics of human poetry composition include:

1. Emergence of new words and word combinations and their metacognition
2. Anticipation of its own process, omissions and leaps

If we try to implement these functions in poetry and poiesis in AI, what kind of generation would we get? I speculate that this function of human anticipation may be different in principle from systems such as ChatGPT, which generate probabilistically the next word to come. I believe, as an artist's realization, that autonomous transformation of patterns rarely occurs in such poetry. Could such a system of human poetry writing be incorporated into an algorithm such as ChatGPT? Or can we train an AI to write poetry in a system like renga? The insights gained will help us explore richer ways of communicating and interacting with each other that make us more human.

Perspective 12

Konstantinos Kontis

The symposium reflected on a profound question raised by Martha Nussbaum: What does it mean for thought to open out of the soul and connect us to the world in a rich, subtle, and complicated manner? This inquiry invites reflection on interconnectedness—not just among individuals – but also with broader ecosystems of thought, culture, and action that define our shared humanity.

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

Theoretical and Educational Trends

In the fields of engineering and education, there is a growing emphasis on interdisciplinary and systems thinking. Global challenges such as climate change, artificial intelligence, and social inequality demand the transcendence of narrow specialisations. However, while technologies are being developed to address these issues, there is a risk of losing sight of the human purposes they are intended to serve, echoing Nussbaum's caution against focusing on practicality at the expense of deeper humanity.

For instance, Scotland's education system is shaped by the philosophy of broad-based learning rooted in Enlightenment ideals, aiming to cultivate well-rounded individuals. Similarly, Japan's emphasis on harmony and collective responsibility informs its educational and societal structures. Both traditions highlight the importance of nurturing the soul and expanding the mind to foster deeper connections with others and the world.

Initiatives like the *Glasgow Green* strategy and the University of Glasgow's *Glasgow Changing Futures* framework exemplify the integration of sustainability and social responsibility in education.[1] These efforts prioritise interdisciplinary collaboration and innovation to tackle complex societal challenges, focusing on sustainable, healthy, and equitable futures. For example, the *Glasgow Living Laboratory* (*GALLANT*) initiative combines nature-based solutions, low-carbon energy systems, and community-driven approaches to address urban sustainability.[2] Additionally, the *Big Retrofit Challenge* has reduced energy consumption in campus buildings by 30%, showcasing how technical innovation aligns with community health and environmental stewardship.[3]

The University's Climate Change Strategy complements these efforts with its commitment to carbon neutrality by 2035 through energy efficiency, renewable energy adoption, and systemic governance changes. Community engagement initiatives such as *Green Impact Teams* further emphasise the role of collective action in addressing climate challenges.[4] Meanwhile, theoretical advancements in fields like neuroscience and behavioural studies highlight the interconnectedness of cognition, emotion, and environment. These insights challenge conventional understandings of humanity, emphasising dynamic participation in a shared, evolving world.

2. How do the arts and culture shape, reflect and interrogate ideas about a. being human in the world and b. the roles of technologies and AI (as well as vice versa)?

Arts, Culture, and Technology

Arts and culture serve as both mirrors and creators of meaning in life, enabling individuals to grapple with questions of humanity while interrogating the roles of technology and artificial intelligence. Scottish literature often explores themes of belonging and exile, reflecting the tensions of identity in a globalised world. Japanese arts, with their wabi-sabi aesthetic, highlight the beauty in imperfection and transience.

In engineering, the design of systems that mimic and enhance human capabilities often intersects with the arts' emphasis on connection and meaning. For instance, AI-generated art raises questions about

[1] https://www.glasgow.gov.uk/glasgowgreen; https://www.gla.ac.uk/explore/glasgowchangingfutures/
[2] https://www.gla.ac.uk/colleges/mvls/livinglab/
[3] https://www.futurebuild.co.uk/exhibit/the-big-retrofit-challenge/
[4] https://greenimpact.nus.org.uk/programmes/

the nature of creativity and whether it is exclusively human. Initiatives like *Glasgow Changing Futures* illustrate the interplay of technological innovation and cultural inquiry, while Japan's integration of robotics into daily life sparks questions about how technology complements rather than replaces humanity. Projects like *GALLANT* further demonstrate the power of interdisciplinary efforts to unite engineering, community engagement, and environmental stewardship.

3. How can we transform modes of engagement a. with each other and b. with complex issues? For instance, how can we create more awareness and scope for inclusion of nonconventional modes of interaction and engagement that move us beyond habitual routines and practices?

Transforming Modes of Engagement

Addressing complex global issues requires shifting from transactional to transformative modes of engagement. Collaborative design involving engineers, artists, and communities creates spaces for innovative solutions that transcend single disciplines. Inclusion is critical in these efforts, as diversity enriches the collective capacity to address challenges. Scotland's community-driven policymaking and Japan's respect for intergenerational wisdom offer complementary models for fostering inclusive dialogue.

Emerging technologies such as virtual and augmented realities hold the potential to bridge understanding gaps by immersing individuals in the experiences of others, fostering empathy and new ways of engaging with global challenges.

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

A Further Reflection

The Japanese concept of '**ma', or the space between,** represents a fertile pause filled with potential and connection. In today's fast-paced world, such spaces—whether in thought, relationships, or work—are often overlooked. Nussbaum's question challenges individuals to inhabit these spaces of connection, allowing thoughts to deepen and draw nourishment from our shared humanity.

As an educator and engineering leader, the greatest achievements arise not only from technical advancements but also from the ability to connect and inspire. Initiatives such as Glasgow's interdisciplinary sustainability projects and Japan's cultural integration of technology highlight the importance of weaving together diverse perspectives and traditions. Drawing from the 'Thriving Glasgow Portrait' and its alignment with the United Nations' Sustainable Development Goals, systemic approaches to environmental, social, and economic challenges create replicable blueprints for thriving cities.[5] By integrating values-based indicators, community aspirations, and innovative urban solutions, these models align with Nussbaum's vision of deeply connected thought and action.

True progress lies in the pursuit of connection and understanding, alongside action and innovation. Through these efforts, humanity can embrace the rich, subtle, and complicated beauty of existence.

[5] https://www.gla.ac.uk/research/az/sustainablesolutions/ourprojects/gallant/city-portrait/

Perspective 13
What Do We Ask from Technology?

Shannon Vallor

1. What do you view as the most important theoretical, educational or other trends in your field and in society? How do these relate to understandings of human nature and/or complex issues in the world?

This question is so broad as to be impossible to answer comprehensively, but I am happy to discuss the trends that occupy my attention as a scholar and advocate for more responsible development of AI and other emerging technologies. Unfortunately, the most important trends at the moment are negatively valenced, that is, they indicate trajectories that are dangerous and in need of interruption or reversal. These include:

- A social and institutional retreat from norms of informational and value integrity, including the ideas that we have moral responsibilities to one another to evaluate evidence fairly, to communicate honestly, and to show some logical and value consistency in the social policies, ideas and outcomes we advocate for;
- A corresponding decline in public faith in institutions that serve common interests, from science and medicine to media, education and government;
- A realization of an economically corrupted form of sociologist Jacques Ellul's 1954 prediction of a future in which the diversity of norms and values is inexorably replaced by a technocratic 'rule of efficiency', in which optimization is seen as the only legitimate aesthetic, moral or political value.[1] Yet the true result has not been a world of seamless, mechanized social optimality, but a chaotic and malignant proliferation of increasingly wasteful, costly and burdensome technical systems that now deliver poorer rather than improved social, political and economic outcomes. Technology and society are undergoing a phenomenon akin to Cory Doctorow's 'enshittification' of platforms applied more broadly, yet these are widely portrayed as 'inevitable' moves toward greater efficiency and productivity *despite all evidence to the contrary*; [2]
- False narratives of various forms of defeatism and determinism, from climate defeatism to narratives of inevitable civic and regulatory impotence to enact political and economic reform, to deterministic narratives about Artificial General Intelligence (AGI)/ Artificial Super Intelligence (ASI) dominance over human a

These trajectories are tied together by a strong and growing economic and political ideology of anti-humanism that was diagnosed by 20th century thinkers from Ellul and Marcuse to Borgmann and Postman, but is now fully realized in the forms of authoritarian technocracy advocated by billionaires like Elon Musk and Peter Thiel, who have successfully converted that anti-humanist ideology into direct political power. The question is where and how the countervailing narratives, which endure in many splintered forms, can gather equivalent strength and power.

2. How do the arts and culture shape, reflect and interrogate ideas about a. being human in the world and b. the roles of technologies and AI (as well as vice versa)?

Arts and culture are ways of expressing, exploring and contesting human values and possibilities. The stories we tell through art, literature, music and other media are intrinsic sources of shared joy in and recognition of the human experience, in all its variety. But they are also powerful tools for the aesthetic, moral and political imagination, that serve to orient us toward what we want from the future, and how we might get there together. Arts and culture obviously serve therapeutic and reconstructive functions of social critique as well, bringing to light indefensible or unsustainable patterns of power and violence in human relations and our relations to the natural world. The prosocial effect of this 'bringing to light' is to sensitize us to such patterns and in some cases, to motivate us to confront them with action.

---

[1] Ellul, Jacques. (1967) *The Technological Society.* Trans. J. Wilkinson. Vintage Books. Originally published in 1954 as *La Technique: Ou, L'Enjeu du siècle.*

[2] Doctorow, Cory. (2024) 'Enshittification is Coming for Absolutely Everything.' *Financial Times.* 7 February 2024. https://www.ft.com/content/6fb1602d-a08b-4a8c-bac0-047b7d64aba5

Given that new technologies have often been a primary vector of both enlarged social possibilities and amplification of harmful social patterns, arts and culture are essential ways of governing technology. The narrative that suggests that new technologies are an inevitable force beyond the reach of human agency is repeatedly shown to be false by the power of arts and culture to steer our attitudes toward, and expectations of, new technologies. Campaigns for nuclear disarmament in the 1980s, the restriction of germline engineering and spread of GMOs, the demands for an open web, investment in solar and renewable energy, and many other twists and turns in the story of new technologies did not happen in a vacuum; they were rooted in public desires, demands, fears, hopes and anxieties shaped by arts and culture.

Today the arts and culture sector is largely being placed in antagonistic opposition to the technology sector due to the latter's craven exploitation of the former for AI training data, without respect for creators' consent or legal copyright protections. It remains to be seen how this might play out, given that the economic and political power of the arts and culture sector is being actively undermined by the AI industry, and because of their increasingly incestuous relationships with tech companies and their investors, governments are doing little to nothing to protect the arts and culture from that devastation.

There are unintended consequences of that capitulation, however, and one of them is a switch from the early fascination with AI and its possibilities to a growing tide of popular resentment and distrust of anything AI-generated or associated. Recent studies have shown that adding 'AI' to a marketing pitch or advertisement for a product increasingly diminishes rather than burnishes its consumer appeal. As a result, tech companies have turned to imposing AI features on consumers without their consent, even making it near-impossible to disable those features or use our devices without them.[3]

The result is a pyrrhic victory for tech companies; they get more people to use AI, but only at the cost of amplifying consumer resentment and disenchantment with tech companies and their products, potentially diminishing the long-term commercial value of at least this current generation of AI technologies and possibly other innovations down the road. Unfortunately, this trend is blurring the distinction between generative AI technologies whose social costs so far vastly outweigh their benefits, and narrower, more sustainable applications of AI and machine learning tools that still hold tremendous and humane promise in applications from medicine to agriculture and climate mitigation. It may even damage further the public's affection for, and trust in, wider scientific and technical endeavours.

So for me the challenge for arts and culture is to open our sense of possibility to futures beyond this grim struggle, where we feel forced to choose between withdrawing our natural human affection for technological innovations – something I believe is as essential to our human nature as our aesthetic impulses – and surrendering to its most destructive and exploitative commercial embodiment. What would a different kind of innovation ecosystem look like, one where our creative impulses in arts and technology were not pitted against one another, but aligned to a humane and sustainable vision of social flourishing?

We cannot get there without radical political reforms to the innovation economy, but we will not bring ourselves to demand those reforms unless we are motivated by compelling visions of possible futures, futures in which we can imagine ourselves or at least future generations enjoying the fruits of those costly political labours of resistance.

3. How can we transform modes of engagement a. with each other and b. with complex issues? For instance, how can we create more awareness and scope for inclusion of non-conventional modes of interaction and engagement that move us beyond habitual routines and practices?

One of the missing ingredients in contemporary life, one that does not just free us from habitual routines and practices but also allows those to be enriched, expanded and made more meaningful to us, is play, particularly unstructured physical and social play.

We have moved to a world where our children's modes of play are almost entirely confined to the possibilities enabled and encouraged by their devices: the scoring systems of a video game, the metrics boosted by a TikTok craze; even creative worldbuilding endeavours like Minecraft are rigidly confined to the

[3] Vorobeva, D., D. Costa Pinto, H. Gonzalez Jimenez, N. Antonio (2025). Bragging About Valuable Resources? The Dual Effect of Companies' AI and Human Self-Promotion. *Psychology and Marketing* 42 (6), 1680-1699. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1002/mar.22198. See also this Harvard Business Review study and associated podcast: https://hbr.org/podcast/2025/02/the-consumer-psychology-of-adopting-ai.

rules and schemas of virtual environments. And now our children are being encouraged to use generative AI tools to create drawings and paintings and videos by mere prompt engineering; figuring out how to ask the system for what you want, based on learning and activating its particular patterns of interpretation and generation of meaning, rather than indulging or choosing your own.

We have built a world for young people in which a lack of structure, a blank page, an open field, is increasingly experienced by them as frightening, or threatening, rather than inviting and empowering. I see this vividly as an educator; decades ago, my students welcomed being given essay topics or assignments that gave them *more* creative license rather than less; they felt 'boxed in' by assignments that specified step-by-step what they must do. Today it is the reverse; the more specification I provide, the less freedom I give them, the happier and more relieved they are. What does this say about our future?

Futures are made by people who are comfortable or at least capable with a blank page, an open field, who can throw themselves into unstructured spaces and find tools to build with. Instead, through our poor design of technologies, and our corresponding destruction of physical spaces and social opportunities for unstructured, open-ended play, we've created a world where our children seek to optimize their scores, minimize their uncertainty, narrow down their paths, and arrive most safely and quickly at the most probable and well-marked destination, before their peers can beat them there. *Why* have we done this to them? And what could justify it? More importantly, how do we fix it? How do we help them find their way out of the trap?

4. Having thought through these questions, do you have a further provocation or even just a reflection that you would like to offer?

A provocation I would like to offer: how did we end up asking so *little* from technology? When I look at many policy proposals around tech regulation and governance, or even my own field of Responsible AI research, I see such *meager* expectations of tech: at best, the insistence that it not make us too much *more* miserable and overworked than we already are, that it not take over our rewarding work or political agency quite *yet*, that it not make our children any more anxious and isolated than it already *has*, that its injuries to democracy's informational lifeblood be sometimes survivable rather than *fatal*, that the surveillance tide creep forward just a bit more *slowly*, that it not ravage the planet any more *widely*. Is this just a necessary kind of pragmatism; asking for the bare minimum of harm reduction, since it is as much as we hope to get? Where are the truly *positive* visions, the ones that require true reform of the existing innovation ecosystem and its incentives? Do we doom ourselves, and future generations, with the meekness of our expectations?

Final Reflection
Toward Science and Technology 'from' Society

Osamu Sakura

Drawing on the discussions from the JSPS-RSE joint symposium, I will reflect on two key forms of interaction. The first concerns the exchange between Scotland and Japan, while the second focuses on the interplay between the natural sciences and the humanities and arts.

As mentioned several times during the conference, the first significant interaction between Scotland and Japan occurred in the late 19th century, when Japan embarked on its journey of modernization and westernization. Scotland, as one of the Western powers Japan looked to as a model, played a pivotal role in this process. Notably, Scottish engineers made significant contributions in the fields of civil engineering and technology. For example, Richard Henry Brunton (1841–1901), who lived in Japan from 1868 to 1876 and is often referred to as the 'Father of Japanese Lighthouses', was instrumental in developing Japan's coastal infrastructure.[1] Similarly, Henry Dyer (1848–1918), who served as the first principal of the predecessor of the University of Tokyo's Faculty of Engineering (technically vice-principal, but effectively the principal), was a key figure in establishing modern engineering education in Japan.[2] During this period, Scotland, as a developed nation in terms of modernization, assumed a guiding role for Japan, which was still in its developmental stage.

Over time, as Japan's modernization progressed, Scotland's interest shifted from Japan's development to its culture and history, fostering mutual exchange. *Ukiyo-e* and folk crafts (*mingei*), both mentioned at the conference, are representative examples of this cultural interaction. While Japanese society still has much to learn from Scotland and other Western countries – such as in promoting gender equality – Japan also has strengths to share, such as its high levels of public safety and awareness of public health. Over time, the relationship between Scotland and Japan has evolved from an asymmetrical 'teaching-learning' dynamic to one of mutual cooperation and shared learning. This transformation can be interpreted as a sign of 'maturity'. Moreover, this shift – from an enlightening, guidance-based relationship to one of mutual maturity and diversity – may serve as a broader framework for understanding the evolving dynamics between Europe and Asia, or even between Western and non-Western civilizations.[3]

The maturation of mutual relationships can also be observed between the natural sciences and the humanities and arts, which constitutes the second point mentioned above. In the West, modern natural science, like other academic disciplines, traces its origins to philosophy. During the 19th century, natural philosophy underwent a process of methodological refinement, evolving into an independent academic discipline known as 'science' (cf. Holmes 2008, Sakura 2021). In the latter half of the 20th century, a significant fusion of science and advanced technology occurred, leading to dramatic advancements in biomedical sciences and neuroscience, fields that directly address human-related phenomena. This development enabled natural science to engage with issues traditionally considered within the domain of the humanities, such as consciousness, ethics, faith, and values. However, alongside these advancements, some voices began asserting the superiority of natural science over the humanities and arts. In recent years, this trend has been further reinforced by technological progress in artificial intelligence (AI), often accompanied by claims that AI will surpass human capabilities.

It is undeniable that the findings of the natural sciences are crucial for humanity, and I believe we should adopt a more proactive approach to incorporating scientific insights into social policy and education.

---

[1] https://www.scotsmagazine.com/articles/series/richard-henry-brunton/

[2] https://engineeringhalloffame.org/profile/henry-dyer

[3] This observation is undoubtedly overly optimistic. The postcolonial condition persists, and Orientalist cultural oppression remains deeply entrenched. However, these dynamics appear to have undergone structural changes compared to the past. Within a single nation, they manifest differently across various sectors, while across multiple nations, power dynamics and hierarchies vary depending on the domains -- for instance, one nation may hold a dominant position in politics while another excels in culture or other fields such as economics and society. Regrettably, the author lacks the capacity to conduct a detailed analysis of this complex issue and will therefore refrain from further discussion here.

However, this does not imply that we should disregard the cultural heritage and humanistic knowledge humanity has accumulated thus far, nor should we entirely replace them with scientific knowledge. In my view, natural science, which has developed methodologies that generally exclude value and context-dependent meaning, is not well-suited to addressing these aspects (Sakura 2020). While it is conceivable that, in the future, the methodologies and conceptual frameworks of natural sciences could evolve to accommodate value and context-dependent meaning, this remains unlikely in the near term. Over the next 30 to 50 years, for instance, the sheer volume of information will likely become unmanageable. Even if that hurdle is overcome, there remains a limit to the amount of information humans can process. As a result, what is (subjectively) optimal for humans will often remain indeterminate, ultimately requiring reliance on subjective human 'preferences' as a fundamental principle. Even if such subjective factors were eliminated and only 'rational' value judgments were adopted, people's well-being would not improve.

At this conference, I was reminded once again of the importance of designing a constructive division of labour and fostering cooperation between the natural sciences (including technology) and the humanities (including the arts). At the World Conference on Science, jointly organized by UNESCO and ICSU in Budapest in 1999, 'Science for Society' was highlighted as one of the essential scientific priorities for the 21st century (UNESCO 2000). Now, 25 years later, I believe that the approach of 'Science from Society', which identifies scientific challenges within the humanities, the arts, and various phenomena in everyday life, has become equally important. In recent years, various initiatives have emerged to redefine the boundaries between science and technology (SciTech) and society or everyday life. Examples include citizen science, community-based research, participatory science, and scientific citizenship. However, it may now be necessary to reorganize and systematize these efforts to ensure their coherence and effectiveness. In this process, the history of modern Japan may offer valuable lessons.

Japan succeeded, to a certain extent, in transplanting Western modern science without sharing the classical roots of Western civilization, and this experience could serve as a meaningful reference for redefining the relationship between SciTech and society today. Science education in Japan's primary and secondary schools is conducted under the subject name *rika* (理科). This term differs from *kagaku* (科学), the Japanese translation of the word 'science'. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) states that the aim of *rika* is not only to cultivate a scientific understanding of nature and scientific research techniques but also to 'nurture deep appreciation and love for nature' (MEXT 2017). Yoshida compared the views of science and nature held by junior high school teachers in South Africa and Japan and found notable differences between the two. Japanese *rika* teachers tended to have a more emotional perspective on science and nature. Some critics argue that this distinction hinders the development of a fully rational and scientific mindset among Japanese people. However, others view this characteristic positively, suggesting that it fosters a perspective that transcends the limitations of Western modern natural science, rather than simply regarding nature as an object to be exploited (e.g., Nakamura 2013). I align with the latter perspective. I believe that refining Japan's approach to science education in a way that aligns more closely with the needs of modern society will contribute to creating a more beneficial society in which people coexist with modern SciTech, including AI and robots.

Bibliography

Acemoglu, D. and S. Johnson (2023) *Power and Progress: Our Thousand-Year Struggle over Technology and Prosperity,* New York: PublicAffairs.

Anderson, M. (2026) 'A fission-fusion approach to literary immersion', *Immersion: The Power of Experiential Reading*, ed. P. Stockwell et al. Edinburgh: Edinburgh University Press, 50–64.

Anderson, M. (2023) 'Developing the Fission-Fusion Concept: A Journey through the Arts, Humanities, Social Sciences and Natural Science' *SKAPE: The Centre for Science, Knowledge and Policy*, University of Edinburgh.

Anderson, M. (2022) '4E cognition and the mind-expanding arts', *The European Journal for Philosophy in Arts Education* 7.1: 7–64.

Anderson, M. et al. (2018-20): The Edinburgh History of Distributed Cognition Series. Edinburgh: Edinburgh University Press.

Anderson, M. (2015) 'Fission-fusion cognition in Shakespearean drama: The case for Julius Caesar', *Narrative* 23.2: 154–68

Anderson, M., H. Ishiguro, and T. Fukushi (2010) 'Involving interface: An extended mind theoretical approach to roboethics', *Accountability in Research* 17.6: 316–29.

Argyrou, V. (2015) 'Cosmopolitanism, sociology and the otherness of the other' in *Cultural Dynamics* 27(3): 341-356.

Arts Council of Great Britain (1987), *Le Corbusier: Architect of the Century*, London: Arts Council of Great Britain.

Brooks, M. (2025) 'How a quantum innovation may quash the idea of a multiverse.' *New Scientist*, 6 January 2025.

Bell, M., D. Popov, and S. Karlsberg (2024) ' Culture and Heritage Capital: Monetising the Impact of Culture and Heritage on Health and Wellbeing', *Frontiers in Economics*: 1–202. https://www.frontier-economics.com/uk/en/news-and-insights/articles/article-i21161-investing-in-culture-for-a-healthier-more-productive-society/

Certeau, M. (1984) *The Practice of Everyday Life*. University of California Press, Berkeley.

Clark, A & D. Chalmers (1998) 'The Extended Mind', *Analysis* 58.1: 7–19.

Clegg, J., M. Anderson, and M. Wheeler (2019) *The Extended Mind / Walk, Hands, Eyes (Edinburgh)* Exhibition Guide, Talbot Rice Gallery, 48 pp./ 74 pp. (illustrated), https://www.trg.ed.ac.uk/exhibition/extended-mind

Cochrane Database of Systematic Reviews (2025). Cochrane Library: Wiley, England. https://www.cochranelibrary.com/cdsr/reviews

'Culture and heritage capital: monetising the impact of culture and heritage on health and wellbeing' (2024) *Frontier Economics*. Department for Culture, Media & Sport: https://assets.publishing.service.gov.uk/media/678e2ecf432c55fe2988f615/rpt_-_Frontier_Health_and_Wellbeing_Final_Report_09_12_24_accessible_final.pdf

Dawkins, R. (2006), *The God Delusion*, London: Bantam Press.

de la Cadena, Marisol (2015) *Earth-Beings: Ecologies of Practice Across Andean Worlds*, Durham, NC: Duke University Press.

Doctorow, C. (2024) 'Enshittification is Coming for Absolutely Everything.' *Financial Times*. 7 February 2024. https://www.ft.com/content/6fb1602d-a08b-4a8c-bac0-047b7d64aba5

Dunbar, R. (1996), *The Trouble with Science*, Cambridge, MA: Harvard University Press.

Eldredge, C. (1993), *Georgia O'Keeffe: American and Modern*, London: Yale University Press and the South Bank Centre.

Eliot, T. S. (1940), *The Waste Land and Other Poems*, London: Faber and Faber.

Ellul, J. (1967) *The Technological Society*. Trans. J. Wilkinson. Vintage Books. Originally published in 1954 as *La Technique: Ou, L'Enjeu du siècle*.

Escobar, A. (2010) 'Latin America at a Crossroads' *Cultural Studies* 24(1): 1-65.

Faulkner, W. [1935] (1985), *Pylon*, London: Vintage.

Giedion, S. (1967), *Space, Time and Architecture: The Growth of a New Tradition*, Cambridge, MA: Harvard University Press.

Gill, B. (1990), *Many Masks: A Life of Frank Lloyd Wright*, London: Heinemann.

Gill, J. (2023), *Modern American Poetry and the Architectural Imagination: The Harmony of Forms*, Oxford: Oxford University Press.

Gilroy, P. (2025) 'Protest, Progress and Post-Imperial Pathology', *Resistance*, by S. Mc Queen, edited by C. Wallis with S. Harrison, 118–29.

Graeber, D. (2024) *The Ultimate Hidden Truth of the World.* London: Allen Lane.

Graham, J. (2023) *To 2040*, Manchester: Carcanet Press.

Haraway, D. (1988), 'Situated knowledges: The science question in feminism and the privilege of partial perspective', *Feminist Studies* 14.3: 575-599. https://doi.org/10.2307/3178066.

Harsent, D. (2021) 'At the Window', *London Review of Books*, 23 September 2021.

Hertog, E., L. Ruppanner and B. Churchill (2022), 'Who wants a smart wife? Gender and educational differences in willingness to use technology for domestic work across Europe', 3*4th Annual Meeting of the Society for the*

Advancement of Socio-Economics, University of Amsterdam, 9–11 July 2022, <https://sase.confex.com/sase/2022/meetingapp.cgi/Paper/21293> (last accessed 30 January 2025).
Hertog, E., S. Fukuda, R. Matsukura, N. Nagase and V. Lehdonvitra (2023), 'The future of unpaid work: Estimating the effects of automation on time spent on housework and care work in Japan and the UK', *Technological Forecasting & Social Change* 191: 122443. https://doi.org/10.1016/j.techfore.2023.122443
Holbraad, Martin (2020) 'The Shapes of Relations: Anthropology as Conceptual Morphology', *Philosophy of the Social Sciences* 50(6): 495–522.
Holmes, R. (2008), *The Age of Wonder: How the Romantic Generation Discovered the Beauty and Terror of Science*, New York: HarperCollins.
Husserl, E. [1936) (1954), *Die Krisis der Europäischen Wissenschaften und die Transzendentale Phänomenologie: Eine Einleitung in die phänomenologische Philosophie*, Leiden: Martinus Nijhoff, Japanese trans. T. Hosoya and G. Kida (1974) Tokyo: Chūōkōron.
Husserl, E (1970) *The Crisis of European Sciences and Transcendental Phenomenology.* Evanston Northwestern University Press.
Hutchins, E. (1995) *Cognition in the Wild*. Cambridge, Massachusetts: MIT.
James-Chakraborty, K. (2018), 'Architecture, Its Histories and Their Audiences', *Journal of the Society of Architectural Historians*, 77.4: 397–405.
Mallgrave, H. F. (2005), *Modern Architectural Theory: A Historical Survey 1673–1968*, Cambridge: Cambridge University Press.
Matassaro, F (2019) *A Restless Art: How participation won, and why it matters*. Calouste Gulbenkian Foundation.
Mazzucato, M., Macfarlane, L. (2024). A Mission-Oriented Industrial Strategy for Scotland: Framing Paper. UCL Institute for Innovation and Public Purpose. IIPP Policy Report No.10.
McGarvey, D. (2017) *Poverty Safari: Understanding the Anger of Britain's Underclass*. London: Picador.
McGrath, A. and J. Collicutt McGrath (2007), *The Dawkins Delusion? Atheist Fundamentalism and the Denial of the Divine*, London: Society for Promoting Christian Knowledge.
McEvilley, T. (1991) *Art & Discontent: Theory at the Millenium*. NY: McPherson & Company.
MEXT (Ministry of Education, Culture, Sports, Science and Technology Japan) (2017), 'Chapter 2, Section 4: Science' The Elementary School National Curriculum Standards (Revised in 2017).
Mitchell, M. (2019), *Artificial Intelligence: A Guide for Thinking Humans*, New York: Farrar, Straus and Giroux.
Murakami, H. (2002) 海辺のカフカ(*Umibe no Kafka)*, English translation by Philip Gabriel, *Kafka on the Shore* (2005).
Nagase, N., V. Lehdonvirta, Y. Ohta, L. Shi, E. Hertog and Y. Shimada (2024), 'The future of AI technology and housework: Why do Japanese male experts predict less household automation than U.K.-based experts in a delphi survey?', *Keizai Kenkyu [The Economic Review]* 75.1: 1-20. 10.60328/keizaikenkyu.er.ar.032223 (in Japanese with English abstract).
Nakamura, K. (2013), *Kagakusha ga Ningen de Arukoto [The Humanity of Scientists: A Critical Reflection],* Tokyo: Iwanami Shoten, Publishers (in Japanese).
Nakashima, G. (1981) *The Soul of a Tree: A Woodworker's Reflections*, New York, NY: Kodansha USA Publishing, LLC.
Nussbaum, M. (2010) *Not for Profit: Why Democracy needs the Humanities*. Princeton, NJ: Princeton University Press.
Ōmori, S. (1994), *Chi no Kōchiku to Sono Jubaku [The Construction and Constraint of Knowledge]*, Tokyo: Chikumashobo (in Japanese).
Ragg, E. (2017), 'The Orient', in G. MacLeod (ed.), *Wallace Stevens in Context*, Cambridge: Cambridge University Press, pp. 55-66.
Said, E. [1978] (1991), *Orientalism*, Harmondsworth: Penguin.
Sakura, O. (2013), *'Benri' wa Hito wo Fukō ni Suru [Does 'Convenience' Erode Our Well-Being?],* Tokyo: Shinchosha Publishing (in Japanese).
Sarkar, A. (2025) 'How to stop AI from killing your critical thinking' *TED: AI*.
Sakura, O. (2020), *Kagawku towa Nanika? Atarashii Kagakuron, Ima Hituyō na Mittsu no Shiten [What Is Science? Three Key Perspectives for Modern Society]*, Tokyo: Kodansha (in Japanese).
Scottish Government Reports: http://www.artshealthandwellbeing.org.uk/appg-inquiry/ ; https://beta.gov.scot/policies/arts-culture-heritage/culture-strategy-for-scotland/; https://www.gov.uk/government/topics/arts-and-culture
Slovic, P. (1987), 'Perception of risk', *Science* 236.4799: 280–85. https://doi.org/10.1126/science.3563507
Slovic, P. (2015), 'Understanding perceived risk: 1978–2015', *Environment: Science and Policy for Sustainable Development* 58.1: 25-29. https://doi.org/10.1080/00139157.2016.1112169.
Slovic, P. (ed.)(2000), *The Perception of Risk*, New York: Earthscan.
Sparke, P. (2020), 'Japanese Design in the Twentieth Century: Tradition Encounters the Modern World', *Review of Japanese Culture and Society*, 32: 113–29.
The Global Flourishing Study: https://globalflourishingstudy.com/.

The Lancet Commission on ending stigma and discrimination in mental health. *Lancet* 2022; 400: 1438–80. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01470-2/abstract.
Thompson, R. (2020), 'The Great Eight at the Hill House': https://www.nts.org.uk/stories/the-great-eight-at-the-hill-house.
Umesao, T. (1959), 'Tsuma Muyō-ron [Wives would become unnecessary]', *Fujin Kōron [Public Discourse on Women]* 82.9 (June): 262–71.
UNESCO (2000), *World Conference on Science: Science for the Twenty-first Century; a New Commitment*, <https://unesdoc.unesco.org/ark:/48223/pf0000120706> (last accessed 21 January 2025).
University of Stirling, 'The Daily Mile': https://www.stir.ac.uk/research/research-spotlights/the-daily-mile/
Vorobeva, D., D. Costa Pinto, H. Gonzalez Jimenez, N. Antonio (2025). Bragging About Valuable Resources? The Dual Effect of Companies' AI and Human Self-Promotion. *Psychology and Marketing* 42 (6), 1680-1699. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1002/mar.22198.
Wilkinson, S. et al. (2017) 'Predictive processing and the varieties of psychological trauma'. *Frontiers in Psychology* 8.
Window on Wright's Legacy in Japan, http://www.wrightinjapan.org/eng_wij/e_buildings/dsgn04hayashi_e.html>
Woolf, V. [1925] (1996), *Mrs Dalloway*, Harmondsworth: Penguin.
Wordsworth, W. (1807), *Poems, in Two Volumes,* vol. 1, London: Longman, Hurst, Rees, and Orms https://archive.org/details/poemsintwovolume01wordrich/page/n7/mode/2up?view=theater
Wright, F. L. (1943), *An Autobiography*, New York: Duell, Sloan and Pearce.
Yamanaka, S. and S. Fujii (2023), 'Chōsen: Jōshiki no burēki wo hazuse (Challenge: Release the brakes of common sense)', *+α Online*, https://gendai.media/articles/-/117775?page=2 (in Japanese).
Yoshida, M. (2021). 'Science and nature: Science teachers' views at the international collaborative project between Japan and South Africa', in T. Isozaki and M. Sumida (eds.), *Science Education Research and Practice from Japan*, Singapore: Springer Nature Singapore, pp. 63–83.

Symposium and Contributor Profiles

Dr Miranda Anderson is an Honorary Fellow in Philosophy at the University of Edinburgh and an Associate Lecturer with the Open University. She is a philosopher of the arts and humanities, art curator, historian and literary scholar. She has published six volumes. Her research focuses on cognitive approaches to culture between antiquity and the twenty-first century and demonstrates the mind-expanding value of engagement with the arts and humanities. She is currently working on contemporary art and culture and has several works forthcoming on the 'fission-fusion' framework.

Mr James Clegg is Curator at Talbot Rice Gallery where he has worked for 15 years. He has curated large group exhibitions including The Accursed Share, Pine's Eye and co-curated The Extended Mind with Miranda Anderson and Tessa Giblin in 2018. He has also made solo exhibitions with artists including John Akomfrah, Candice Lin and Guadalupe Maravilla. The Children are Now, an ambitious group exhibition underpinned by considerations of Children's Human Rights and Childism, will open in October 2025.

Dr Takuo Dome is a Professor in the Graduate School of Economics of Osaka University. His academic specialisation is in the History of Economic Thought. In 2018, he became the Director of the Social Solutions Initiative (SSI), a think tank at Osaka University. The SSI focuses on envisioning a society that values 'Inochi' by the year 2050. In 2023, he was appointed Vice-Chairman of the Executive Committee of the Inochi Forum, which will issue the Inochi Declaration at the 2025 Osaka Expo.

Professor Jo Gill is Vice Principal and Head of the College of Arts & Humanities at the University of Glasgow. She is the author of numerous books and articles on mid-century American literature and culture including, most recently, *Modern American Poetry and the Architectural Imagination: The Harmony of Forms* (OUP 2023).

Ms Natasha Gilmore is the founder and Artistic Director of Barrowland Ballet, one of Scotland's leading contemporary dance companies. An internationally respected choreographer for dance, theatre and film, Natasha work has gained critical international acclaim and regularly tours worldwide. Her dance films are screened at numerous prestigious film festivals worldwide receiving awards from San Francisco Indie Short Festival, amongst others, and she has worked as a choreographer for theatre productions, including the National Theatre of Scotland's, *Glasgow Girl*s and Vox Motus' *Bright Black*.

Dr Masahiko Hara is Director of JSPS London and Professor Emeritus at the Tokyo Institute of Technology (recently renamed the Institute of Science Tokyo). His research interests include Nanotechnology, Self-Assembly, Chemical Origins of Life, and Natural Intelligence. He initiated new Science-Art Installation Experiments during his time as a Senior Fellow at RWTH Aachen University in Germany and as a Scientist in Residence at Central Saint Martins, University of the Arts London.

Dr Keiko Ikeda is a Professor in the Division of International Affairs and serves as the KU-COIL (Collaborative Online International Learning) Coordinator and as the Vice-Director of the Institute for Innovative Global Education (IIGE) at Kansai University in Osaka. She has a PhD from the University of Hawai'i at Mānoa and after a decade of experience living in the U.S. and Canada returned to Osaka to fulfil her commitment to meaningful global engagement through education and mobility. Her interests include 'internationalization at home' and designing active, collaborative learning programs with overseas partner universities.
Prof. Ikeda is involved in major initiatives such as JIGE (Japan hub for Innovative Global Education, 2023–2028) and the Osaka Social Impact Project (OSIP, 2024–2030).

Professor Naoto Kobayashi received his B.S. degree in Physics in 1973, M. Eng. degree in Nuclear Engineering in 1975, and Ph.D. degree in 1978 from Kyoto University in Japan. In 1978, he joined the Electrotechnical Laboratory (ETL), MITI. He was engaged in research on semiconductor materials, quantum beams and photonic devices. In 2001, he became Director of Photonics Research Institute of the National Institute of Advanced Industrial Science and Technology (AIST). From 2003 to 2009 he was Vice President of AIST. After a role as Professor and Director of the Center for Research Strategy (CRS) at Waseda University,

he became an Advisor and Professor Emeritus of Waseda University in April 2020. He was Director of the London Office of the Japan Society for the Promotion of Science (JSPS) between 2021 and 2025.

Professor Konstantinos (Kostas) Kontis (**FAIAA, FRAeS, FIMechE, FRSA, CEng)** is a world-leading authority in aerospace engineering, including air-transport systems, space access, and multi-disciplinary applications of aerodynamics and shock physics. Since 2001, external funding includes collaborative projects with industrial partners, a testament to his work's industrial applicability. He is a committed developer of people with the capacity for reinvention and the ability to build alliances. Prof. Kontis has published more than 350 articles and guided numerous PhD and postdoctoral researchers who have gone on to influential careers in academia and industry. He is the Mechan Chair of Engineering, Professor of Aerospace Engineering and Dean for Global Engagement (East Asia & China, External Relations).

Professor Stephen Lawrie is a Professor of Psychiatry and Neuroimaging at the University of Edinburgh. His research has shown that neuroimaging can predict schizophrenia before people have it, which raises many practical, ethical and financial issues. He is currently setting up and evaluating a psychosis service in Malawi, Africa which will hopefully prove to be both effective and cost-effective.

Ms Yui Miyaura was the International Programme Associate of JSPS London, who assisted with development of the symposium, while on a two-year secondment to JSPS under the JSPS Overseas Internship for University Administrative Staff. Her home university in Japan is the Institute of Science Tokyo, formerly Tokyo Institute of Technology. She has now transitioned to an appointment in the International Section of the General Affairs and Planning Department of the Institute of Science Tokyo.

Dr Goro Murayama is an artist and guest associate professor in Comparative Literature and Culture at University of Tokyo. He was awarded a PhD in Fine Art from Tokyo University of the Arts. His works explore the temporality and emergence of human acts of creation (poiesis) within the theoretical frameworks of biological systems and philosophy of science. As seen in his representative series *Woven Paintings*, Murayama expresses the processes and patterns of self-organization through his drawings and paintings. In recent years, he has extended his artistic endeavors into the digital domain by collaborating with scientists on AI pattern recognition and generation. These collaborations aim to deepen human understanding of and sensitivity towards artificial intelligence.

Dr Yumiko Myoken has served as Deputy Director of JSPS London since last October. Previously she worked at the British Embassy Tokyo as Senior Science and Innovation Officer for 16 years, where her main responsibility was to promote UK-Japan scientific collaboration by engaging with academic communities and governments to launch new funds in the areas of life science, environment and social studies. Dr Myoken started her career at the Ministry of Foreign Affairs in Japan (MOFA) as a secondment to the Consulate-General in Boston, which was followed by conducting fieldwork on the university-industry technology transfer at the Japan Science and Technology Agency (JST). She studied at the University of Warwick and the London School of Economics and Political Science, and she holds a PhD in Public Policy for Science and Technology.

Dr Osamu Sakura is a Professor at the University of Tokyo and the Principal Investigator at the RIKEN Center for Advanced Intelligence Project (AIP) in Japan. His primary research interests lie in science and technology studies, focusing on the social dynamics of artificial intelligence (AI) and robotics, as well as the cultural influences on the history of science and technology in Japan and other East Asian countries.

Professor James Njuguna is Vice-President International and a Fellow of the Royal Society of Edinburgh (FRSE). He is committed to advancing sustainable international collaboration platforms, particularly in science diplomacy, global research partnerships, and the promotion of human rights through knowledge exchange and innovation. He is Professor of Composite Materials and Director of Research and Innovation at the National Subsea Centre, Robert Gordon University. His research spans advanced composite materials, integrated energy systems, hydrogen technologies, and subsea engineering. He has led numerous internationally funded research and innovation programmes focused on sustainable energy transitions,

structural integrity, and advanced manufacturing. Through his academic leadership and international engagement, he continues to play a significant role in stimulating and strengthening UK–Japan and wider global collaborations via a multidisciplinary society needs driven agenda especially in engineering, clean energy innovation, and capacity building.

Professor Shannon Vallor is the Baillie Gifford Chair in the Ethics of Data and Artificial Intelligence at the Edinburgh Futures Institute (EFI) at the University of Edinburgh, where she directs the Centre for Technomoral Futures. She also co-directs the UKRI's BRAID (Bridging Responsible AI Divides) programme. Her most recent book is *The AI Mirror: How to Reclaim Our Humanity in an Age of Machine Thinking*.

Ms Polly Watson is the International Programme Coordinator of JSPS London. Ms Watson's background is in structural engineering and she previously worked for Mitsubishi Heavy Industries, Ltd before joining JSPS London in 2008. At JSPS London she is responsible for the running of international funding programmes, the activities of the alumni association and maintaining partnerships with counterpart funding organisations and learned societies in the UK and Ireland.

Ms Jennifer Williams is a poet and librettist and her background is in writing, art, collaboration, creative learning and project management. Recent posts have included Projects & Engagement Coordinator at the Institute for Academic Development, Programme Manager at the Scottish Poetry Library and Literature Officer at the Traverse Theatre. She currently helps the Edinburgh Futures Institute by managing Utopia Lab and other creative projects that connect the work of the Institute to communities and gather people from many different places to dream futures that inspire our experience of the present and allow us to see the world in new ways which enable change.