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Special Issue – Remembering Erik Lindhult

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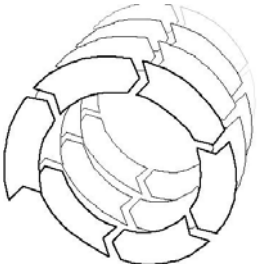

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Editorial

Life and Work of Erik Lindhult

A Eulogy [1]

It's difficult to transcribe in words the life and work of Erik Lindhult, a truly outstanding human being and colleague. He was unique in many special ways. It is not often that one meets people who incarnate the human side of human beings: openness, warmth, curiosity, joy to communicate, friendship, and a deep commitment to dialogue and democracy. A good friend summarized his remembrance of Erik as follows: "those who met Erik won't ever forget him." These few words convey the deep sense of personal loss felt by his wife, children, grandchildren, and close friends. Having read many of the condolences written by neighbours, friends, colleagues, and students, there emerges the enormous human stature of this dearest of friends and colleagues. He was also very much appreciated by his colleagues at ALARA, as conveyed in the obituary written by Colin Bradley for his burial ceremony. I personally feel the passing away of Erik with an unabashed sense of deep grief. Our friendship and collaborative academic journey spans over four decades, and is traced in time to the Salzburg Seminar dealing with the Consequences of Technical Innovations on Social Relations. We benefitted at this encounter from the lessons and inspiration received from Einar Thorsrud, in the realms of socio-techniques and organizational development from a participatory democratic

1 This eulogy borrows from and elaborates the notes Azril Bacal wrote for the last issue of the RC-10 Newsletter of ISA.

perspective, as well as from Berth Jönsson and his innovative approach to human relations and the social dimension of the Swedish enterprise, concerned with the quality of working life. With the passage of time, we befriended some of the most important thinkers associated with the construction of the Nordic Model of Democratic Organization and Social Welfare. Colleagues like Hans van Beinum and Rudolf Meidner, one of the key architects of the Swedish Popular Model, at the Swedish Center for the Study of Working Life (Arbetslivscentrum). The most important international research center for the study of working life, along with Instituto di Lavoro, both of them closed by the Swedish and Italian governments, respectively, in the early stages of neo-liberalism dominance in Europe.

In terms of our collegial participation in scientific and academic organizations, Erik introduced me as a member to the Swedish Participatory Action-Research Community (SPARC), the Scandinavian Interactive Research Association (SIRA), and ALARA, while I introduced him to the International Sociological Association (ISA), RC10 and RC26.

Erik invited me to teach part-time on the Latin American Contribution (mainly Orlando Fals-Borda and Paulo Freire) at the joint graduate program Mälardalen University-Eskilstuna and the Swedish Participatory Action-Research Community (SPARC) on Participatory Action-Research, from about 2016 until 2022, one of the best experiences I had as a teacher-researcher, interrupted by his illness and eventual sad passing away last year. Our experience as thesis supervisors at the master's and doctoral programs was very enriching, because the subjects of research were extremely varied, well-beyond the conventional focus on education. It included themes such as health, theater, study-circles, innovations, organizational development, and so on. Based on this rich empirical experience, I decided to explore the application of PAR to shed light and hopefully help find solutions to the balkanized conflict and war triggered by the

Hamas terrorist attack in Israel on 7 October 2023, regarded by the Guardia (29/9/2024) as the day that changed the world in our time.

Erik Lindhult was born in Sala, 23 November 1956, and died 28 November 2023 in a hospital in Stockholm, at the young age of 67 years of age, the same age as my father when he died in Lima, Perú, my home country. In the evening prior to his death, Monica Gidmark, his widow, told me by WhatsApp, that Erik wanted to wave his hand at me. We both knew that it was his way to bid farewell. He published several books and numerous articles and papers, was revered by his students, while remaining an "academic activist." In his doctoral thesis on industrial economy and management at KTH, the Royal Institute of Technology, was presented in 2005, on "Management by Freedom," with his "essays in moving from Machiavellian manipulative approach - to Rousseauian democratic and dialogic approach to innovation and inquiry. He wrote in the abstract of his doctoral dissertation: "In managing innovation and development, a crucial issue is the participation of concerned people in order to attain efficiency, as well as consideration of the interests of those affected."

By way of closure, I just finished writing the article we had been working together for some years on "Dialogue as a Social Research Orientation, Method and Social Practice: Looking at Participatory Action-Research and Beyond," presented at as PowerPoint at a joined session of RC-10 and RC-26 at the XX ISA World Congress of Sociology in Melbourne 2023. This article is to be published in a special issue of ALARA to honour the valuable contributions made by Erik to various disciplines, fields of study, Participatory Action-Research, Participatory Democracy, Social Innovations, Co-production of Scientific and Practitioner's knowledge, and Knowledge-Democracy, one of his latest academic interests and research focus. I suggest for readers

interested in Erik's narrative of his own fascinating intellectual and academic journey, from the time he was a child in Rural Sweden, endowed with an enormous intellectual and human curiosity in rural Swede, who became an internationally known and respected scholar, to read the preface of this doctoral collected works (2005).

It is also recommended to read his work on knowledge democracy in the book "Transformative Research and Higher Education," (2022 pp. 107-128, Emerald).

From the Action Learning, Action Research Association Board

The Board and Editorial Board of Action Learning, Action Research Association (ALARA) were greatly shocked and saddened by the passing of Erik Lindhult, who has been connected to, and a supporter of, ALARA for many years.

Erik's first involvement in ALARA was the 2015 World Congress in South Africa, where he presented *Participatory Democracy as Philosophy of Science Orientation for Action Research Participatory Democracy as Philosophy of Science Orientation for Action Research*. Subsequent conversations with Erik demonstrated his passion for action research, and particularly democratization in action research – a topic on which he presented at the CARN-ALARA conference in Croatia in 2019. He also wanted to help ALARA grow in size and breadth.

This passion and enthusiasm for action research and related areas were reasons that made him an obvious choice to be an inaugural member of ALARA's Global Strategic Publications Editorial Board in 2018. He was still an active member of that Editorial Board when he suffered a serious stroke early in 2023.

The ALARA community will miss his challenges to the conventional thinking and his considered views on a variety of matters, as well as his input to the Editorial Board. His life was far too short, but his contributions were great.

About this special issue

We have assembled a variety of contributions to honour Erik Lindhult who we had the privilege of knowing and working together. The articles are by a group of Lindhult's friends, colleagues and researchers who worked together with him.

The article by Aytar, Nygren and Strömberg is a memorial piece from his close colleagues at Mälardalen University in Sweden where Erik served as an Associate Professor in a core team at the university supporting development of an innovation program and a key research area in innovation. The authors explain how Erik inspired and challenged student to come forth with new ideas and encouraged them to explore their own knowledge. The article also describes Erik's's passion about action research and action learning and the two courses he established for doctoral students and practitioners along with SPARC (Swedish Participatory Action Research Committee). Erik's innovative spirit also resulted in a new complete course structure that replaced traditional lectures with interactive workshops and seminars.

The next article is a preface written by Erik Lindhult to his doctoral thesis titled 'Management by Freedom'. It is unlike any preface you will read in a doctoral dissertation or thesis. Erik compares researchers to the legendary Baron von Münchhausen and suggests that we as researchers are 'not neutral spectators outside the social scene, but also part of the dynamic fields of interests, hopes and despair' which should resonate with many of us who are engaged in participatory research approaches. Recalling his experience with the Swedish Leadership Organization and Participation (LOM) programme, he explains what led him to 'participatory innovation and inquiry'. You will enjoy reading how Erik weaves his story through the works of famous philosophers to differentiate between 'rational' and 'reasonable' views of research based on Toulmin (1990). He ends with some 'pragmatic' advice to all those who write dissertations.

Our third article is a thoughtlet by Sankaran as a tribute to Erik exploring his work on systemic innovation, action research and collaborative inquiry. Sankaran explains how until he met Erik Lindhult, he did not make a connection between innovation, systems thinking collaborative research. Sankaran's thoughtlet takes us through five strands of 'systemic innovation research' based on Lindhult's's writings and the model developed by Lindhult, and his colleagues called 'rich business framing' using

ideas from soft systems thinking (Checkland & Poulter 2006), systemic intervention (Midgley 2000) and service dominant logic (Lindhult & Nygren 2018). Sankaran then compares Erik's work to his own use of systems thinking tools to teach systems thinking to managers at his university. He discusses the ideas of collaborative inquiry where Erik has contributed to the need for quality which is also important when carrying out action research with rigor. Sankaran lists five tactics developed by Erik to achieving quality in collaborative inquiry and then and compares it with the work carried with a team of action researchers carrying out an evaluative study of action research (Piggot-Irvine et al. 2021) to ensure rigour while conducting action research.

We have included the last unpublished article written by Erik Lindhult on systemic innovation and industry transformation. Erik passed away when this article had not been sent out for review. We would like to thank the editor, Amanda Gregory, of *Systems Research and Behavioral Science* and Wiley who allowed us to include this article in this special issue with permission from Erik's wife Monika. In this article, Erik explores leading approaches for managing innovations such as open innovation, triple helix and innovation ecosystem to develop a model for systemic innovation that supports industry transformation. Lindhult explains that the term 'systemic innovation' addresses the need for an integrated collaborative innovation processes to develop business models to create systems that create and capture value. Erik's article focuses on industry transformation triggered by digital technologies in Industry 4.0 and the human aspects added on to work with technology in Industry 5.0. The article includes a study of three industrial innovation centres in Sweden where Erik had reflective conversations with representatives from the three technology centres. Based on the data analysed from the reflective conversations with people from these centres the article presents a process-oriented model of systemic innovation considering Industry 4.0 and 5.0 developments. The article concludes that industry transformation occurs in a cyclic process as an emergent practice in actor-network constellations and dynamics.

The next article by Bacal and Lindhult explains how dialogue can result in valid and legitimate scientific knowledge through participatory action research by using a critical research orientation. The article grew out of 40 years of co-learning experience between Bacal and Erik. The authors argue that PAR is well equipped to study some of the key ecological, social and technical problems facing humanity. The authors believe that dialogue can help build trust between warring parties through mediation and negotiation. While Erik's views on dialogue grew out of adaptive change suggested by Dewey (1916, 1966), Bacal's views were influenced by the Latin American University Reform movement and the critical pedagogy of Paulo Freire (1993) and engaged academic approach of Orlando Fals Borda (Fals Borda, 1987).

The authors argue that the current global crises caused by climate change, deforestation, extinction of species and others that impact on the whole world will not abate due nationalism, discrimination, hatred and neoliberal attitudes toward the market rendering it impossible to have a civilized debate and dialogue. The article then explores the two views and models of dialogue by Lindhult and Bacal to study the recent tensions resulting in several deaths in the Middle East and suggests that using a dialogue with PAR as a research orientation could help to find a solution. The authors cite that such solutions have been achieved elsewhere in examples such as the 'truth and reconciliation process' in post-apartheid South Africa. The authors believe that PAR process could help build trust among all actors who are trapped in a protracted conflict that we are seeing today.

Prominent action researchers Mary Brydon-Miller and David Coghlan reflect in the next article on the theory and practice of doctoral education in PAR that they were engaged with Lindhult. Both Mary and David delivered modules in a doctoral course for graduate students and professionals in higher education and working in change and development conceived by Erik and taught at Mälardalen University. The article goes on to explain how the course addressed the need for a core set of skills, knowledge and

dispositions that are critical to educate future action researchers. The article also discusses the differences between courses in doctoral programs in Europe and the US and citing a recent program being run by academics at the University of Technology Sydney in Australia. The article concludes with two key questions raised by Erik that led to his vision for the doctoral program in which Mary and David participated.

The article by Smith et al., titled *Wicked theorising: Theory building to address complex problems*, explores the challenges faced by researchers to address 'wicked problems' and proposes a method called 'wicked theorising' that uses an approach based on theory-based action research and engaged scholarship to address complex problems that we face. After addressing methodological, practical and efficacy challenges in theorising, the authors suggest a process including problem structuring, theory building, theory evaluation and refinement, data collection and finishing the research that could help researchers to theorise from their work. They hope that their approach will also result in helping to give voice to the voiceless to address our society's most wicked problems. It points to an emancipatory view of action research.

The editors hope that you find this special issue useful in your own work as action researchers, innovation scholars and systems thinkers.

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Erik Lindhult Memorial Rune

Osman Aytar, Christer Nygren and Anette Strömberg

Received June 2024 *Reviewed July 2024* *Published October 2024*

Although Erik Lindhult was approaching retirement age, he did not seem to have any plans to reduce his involvement in teaching, research or writing projects! We remember Erik as an enthusiastic colleague, always having many irons in the fire.

For most of us at Mälardalen University (MDU) Erik has always been there. Erik was a central part in the core team around the development of the Innovation Programme as well as the research area of innovation at MDU. During the development of the programme, the working names were circulating around the Human (Människa), Technology and Organisation (acronym MTO) that had been the perspectives when discussing the early stages of the programme. Erik was one of the persons that came up with the concept of innovation as a suggestion of taking the work forward and bridging the human, the technology and the organisation. Innovation had started to be discussed more and more in conferences and papers and was later shown to be a concept important for the future. Erik, of course, had noticed it and took it into the working group. The goal was to understand and lead innovation, and the means to do that was the multi-disciplinary knowledge of MTO. Eventually the programme and later a whole research area developed its focus around the concept of innovation.

Being a teacher was always an important part of Erik's professional roles. It was not the formalities that was the most important thing, but that the students tested their thoughts and ideas in a co-creative spirit. According to Erik, all ideas were possible. Many are the testimonies of how Erik inspired and challenged the students

and encouraged them to explore their own knowledge. Knowledge was at the centre, as one of the doctoral students describes this unusual characteristic:

> Why would someone who has so much knowledge, a position of power, be interested, invested in my thoughts? Not only as novel ideas, or peculiarities or oddities. But as knowledge, not just new, but established, or, equal? Erik was unique in his respect and hunger for knowledge.

In his research, Erik was able to lean on his enormous ability to assimilate a lot of literature. His knowledge and interest had a wide range. Particularly distinctive was his knowledge of philosophy of knowledge and systems theory linked to innovation, as well as his foundation in democratic values. In dialogues, conversations and arguments, he always opened a new door by referring to another source of knowledge, making connection one had never thought about. Leaving you speechless, annoyed, thoughtful and inspired.

Eric was very passionate about action research and action learning, and had a true collaborative spirit. He was one of the cofounders of two courses for doctoral students and practitioners, *Participatory Research 1* and 2. Both courses were given in collaboration with SPARC (Swedish Participatory Action Research Community). The purpose of the course *Participatory Research 1* was to enable students to achieve a deeper understanding of participatory research as part of development efforts in organization and communities and its scientific and ethical basis. Through a field study or project, development efforts were investigated in a scientific manner in which the focus is on the connection between the theoretical basis and practices that were developed. As a continuation of the first course, the purpose of the *Participatory Research 2* was to clarify how different paradigms and traditions view the role of science in society, knowledge, research methods, ethical considerations, and research information. The aim was also to clarify the advantages and limitations of different paradigm in relation to participation. Participants were expected to reflect on a practice of research and change, and analyze its paradigmatic content and implications

Except from being course responsible, Erik was also contact person for a group of scholars with great interest and commitment to participatory action research in general. There were always several new ideas and plans for participatory action research both at MDU, and in collaboration with regional partners and national networks such as SPARC. Also, Erik always shared information about regional, national, and international conferences, workshops, and seminars, as well as calls for theme issues of various journals with a focus on participatory action research or similar.

Erik participated and lectured on mixed methods within participatory action research in the course *Knowledge Production in Social Work*, in which he and colleagues tested a completely new course structure with a focus on interactive workshops instead of traditional lectures and seminars. Erik was always passionate about such practical investments in education.

We have learned a lot from Erik and his continuous lively interest and commitment to innovation and participatory action research. We send our thanks to our good colleague Erik for all the good cooperation and companionship in an instructive participatory action research spirit. Erik sowed the seeds of a many great things to come. He will live on through the actions of his peers and pupils.

From all colleagues and friends at Mälardalen University, through Osman Aytar, Christer Nygren, Anette Strömberg

Biography

Osman Aytar, associate professor in social work at the School of Health and welfare at Mälardalen University. In his research, Osman addresses health and welfare in relation to integration and interculturality, young peoples' situations and their possibilities to participate in the democratic society. His close collaboration with Erik Lindhult began with the participatory action courses teachers' team in 2016.

Christer Nygren, lecturer, PhD Student in innovation, and international coordinator at MDU. Christer's research interest lies within service logic, servitization processes, and complex systems theories. Christer Nygren has also worked as head of the department for innovation management at MDU. Christer and Erik's long collegial relation started during the late 90s, as both were part of the development team for the bachelor program in innovation.

Anette Strömberg, senior lecturer in innovation at MDU. Anette has her main research interest within Responsible innovation and Responsible Research and Innovation and is currently carrying out commissioned research for the Swedish Armed Forces Center for Veterans. Anette has been Erik's colleague at the department for innovation since 2008. For many years Erik, Christer and Anette were part of the core team in the research group Values Driven Innovation and Foresight.

Preface to doctoral thesis *Management by Freedom*

Erik Lindhult

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> The speech I love is a simple, natural speech, the same on paper as in the mouth...succulent and sinewy ...vehement and brusque...rather difficult than boring, remote from affectation, irregular, disconnected and bold; each bit making a body in itself; not pedantic... but rather soldierly
>
> Montaigne (1986, p. 218)

A dissertation seldom reaches a wider audience since their style is usually highly specialized. This work touches a broad problematic concerning Western modernity, which both neglects, yet strives towards, democratic and efficient management of innovation and change. I nonetheless hope that this dissertation can reach a somewhat wider audience. I am pleased you have found the way here and are hopefully curious about this work. I would like to offer you an initial guide to start you on your journey into, and exploration of, this rather voluminous and complex text - providing some clarifying notes to its organization and style. This work has been successively developed in the course of the research and writing process. It reflects a certain view on social scientific inquiry and writing which I believe is somewhat unorthodox, perhaps particularly so in dissertation format.

I start from an episode in the adventures of Baron von Münchhausen, in his participation in the battles against the Turks. He ventured to take a leap over a marsh with his horse, but he misjudged the size of it and fell down completely, with his throat

covered in the marsh. "I would", as he says, "undoubtedly have died, if not the strength in my own arm had pulled me up again in my own pigtail, together with the horse, which I held fast between my knees" (von Münchhausen, 1927, p. 48). This vivid story imaginatively illustrated caught my imagination when I was a child. The Münchhausen fable also illustrates core elements of my own journey in the dissertation.

The world of the honourable baron was one of great military and noble deeds, showing wisdom and bravery. Researchers also sometimes play Münchhausen roles. We are not neutral spectators outside the social scene, but also part of the dynamic field of interests, hopes and despair. We do our professional work in allegiance to certain "princes", human interests and ideals. Truths, particularly in the social field, are not only given but are to a significant extent made. Here scientists can show wisdom, perseverance and bravery in performing intellectual deeds in order to construct the truths that help us come closer to our ideals.

A point of departure for my own intellectual endeavour was a classic statement of a Japanese industrialist; "We [the Japanese] are going to win and the industrial West is going to lose out; there's not much you can do about it because the reasons for your failure are within yourself. Your firms are built on the Taylor-model...We are beyond the Taylor-model". As a work action researcher in the Swedish LOM programme, described as utilizing a radically anti-Taylorist and anti-positivist strategy based on the egalitarian and democratic mobilization of the resource potentials, the approach and my experience from the LOM programme took the role of the horse. A horse which to take the leap over the Taylorist marsh. Since "participatory democracy" was said to be the theoretical basis of this "democratic dialogue"-approach and, at the same time, expressing the ideals to be fought for, I decided to serve my professional commitment by using this type of theory to make further construction of this approach. This was a point of departure for turning to Rousseau, and it successively conceptualizing the character of a Rousseauian approach to participatory innovation and inquiry. My actions in this

dissertation are of a more "literary" kind. It is not my strong arm, but my rich experience and capacity for conceptualization and imaginative judgment, which provides the intellectual strength. Also, our words and expressions are actions in public that show who we are, our honour, our allegiances and, our virtues as well as vices.

The marsh is also my own rich and confusing fund of experience from my work as an action researcher in the LOM programme. How to develop scientifically valuable and trustworthy knowledge from it is relevant for the mission of overcoming Taylorism and positivism and, instead, attain participatory democracy? I consulted Toulmin (1990), one of the leading scholars on the character of Western modernity, as a methodological guide to constructing the meaning of what's "within ourselves", as well as of "overcoming" Taylorism. Toulmin reminds us that it is very difficult to free ourselves from cultural practices in terms of language and work forms. Conceptions are deeply buried in our culture, our praxis's as well as ourselves and our identity. It is part of what we are. Liberating ourselves from buried conceptualizations of how things self-evidently "are" has been a difficult task in this research endeavour. This is another expression of the marsh requiring Münchhausen deeds of lifting both myself and my horse from the swamp by my own hair. There is, Toulmin continues, something we can do about it since a culture is seldom homogeneous but involves different elements and is open to change. Our inevitable cultural and institutional embeddedness is both potential and pathology. We can humanize our tradition by a reflective and liberating understanding of the tradition we are imbued with. We can try to improve our cultural practices by drawing on alternative elements, using them as our armory, in analogy to Münchausen's physical strength, in the battle against the Taylorism in ourselves.

Toulmin sees the problem of Western modernity as the overemphasis of the rational, and urges us to recover the reasonableness of Renaissance humanism. Much like the scepticism of Montaigne as well as Aristotelian *phronesis,* he is

either a complement or an alternative to the strict rationalism and positivism of the seventeenth century. He sees a drift towards, and recovery of the reasonable, instead of the rational side of the heritage of modernity (see figure below adapted from Toulmin, 1990). This can help us humanize our heritage.

The rational	**The reasonable**
Written, formal logic, proof	Oral, rhetoric, argumentation
Certainty	Scepticism
Universal principles	Particular cases
General abstract axioms	Local knowledge, concrete diversity
Formal, exact, clear	Tacit, vague, symbolic
Timeless, permanent	Timely, transitory
Theoretical, certainty (episteme)	Practical wisdom (phronesis)
Objective, neutral	Anthropomorphic, value based

Table 1. Rational towards reasonable (adapted from Toulmin, 1990)

The reasonable is to a greater extent embodied in the judgement and opinion of men, while the rational is embodied in formal procedures and principles. The dissertation represents a constructive attempt at moving towards the reasonable. What I would like to emphasize in this preface is the way this movement is reflected in the character of the text and its organization.

Münchausen's fable is clearly a fantasy story, maybe one of the first one of its genre. He was known as a great liar, who could amuse his circle of friends with his tall tales. My aim is not primarily to amuse my friends and conversation partners, but

more to challenge them and their judgement. Instead of fantasy, it is a matter of intellectual and literary deeds that can be judged as true. That is, having a degree of trustworthiness as basis for action and praxis. Here I turn to the pre-modern, or emergently modern, writer Michel de Montaigne - a "humanist on horse" as Bredal (1993) says. The horse serves not only as transportation vehicle but also symbolizes certain military, citizen and noble virtues and ideals that also are evident in his view of writing.

Montaigne is the inventor of the essay as a form of writing, not primarily as a literary style as it has come to be understood, but as a method of seeking truths. I find great affinity to this view of my inquiry process leading to this dissertation. This is therefore a reason for the subtitle, and calling the table of content the structure of essays.

Essays are attempts, which can somewhat tentatively be a feeler reaching joint opinion. It is experiments, trials and developments of one's own judgement on a topic or issue, with little hope of reaching a final answer. "If my mind could gain a firm footing, I would not make essays, I would make decisions; it is always in apprenticeship and on trial" (Montaigne, 1992, p. 40). It is not only one's own judgment that is wavering, moving and developing. Also human existence as the object of study is changing, as well as the author himself. Montaigne admits that he may contradict himself "because I myself is another I or because I am approaching the topics from other conditions or considerations" (ibid, p. 40). Also, the assumptions and models of science are not more than the most probable and elegant it has been able to invent (Montaigne, 1990, p. 278). Writing itself, as a process of imaginative invention and judgement, is also on the move as Montaigne's successive revision of his essays show. Writing is about inventing texts, with words, expressions, troops, metaphors, and rhetoric that can convey meaning. Not primarily picturing something given. But despite these movements and scepticism, there is still a basis in our personal judgment that can be tried, "essayed" and developed. In this sense writing as a judgemental invention and developmental process of the author is an expression of truth. Essay has also a

connection to personal experience elevated through reflection, an important aspect of this dissertation. It furthermore has a meaning of practice. I believe you must practice the words and expressions of your thinking, writing as well as an imagined praxis in order to explore their meaning and significance, as well as to see whether they can carry your experience and ideas. Praxis gives words their meaning as Wittgenstein (1984) says.

This confusing and fluctuating variety of meanings of "essay" may seem appalling if one wants certainty, exactitude, clear definitions and conclusive answers. But Montaigne prefers a varied treatment of a topic rather than a unified one because it is more rich and useful as reality is manifold and cannot be perceived in a unified way. I believe it provides a useful repertoire of words, conceptualizations, phrases, expressions, images that have to be tasted in their different possibilities and nuances. It helps to set personal judgement into play, is developed and refined in order to find particular uses that can carry experience, articulate praxis as well as be used as tools in its performance.

Another dilemma is that the text is linear while thinking, as well as judgement, is associative. This was noted by Montaigne. Writing involves imaginative acts of tacit integration (Polanyi & Prosch, 1975), and finding a network of truth allies (Latour, 1993) through making connections. I make connections through footnoting. I also work with reoccurrences where conceptualizations, expressions and conceptual resources are used as tools for inquiry on different interconnected topics in the text. They reappear to the extent that they have proven their useful- ness as "glimpses of truth".

I recognize Montaigne's ideals of writing expressed in the citation above also in my own text as tendencies, although as the format is a dissertation I still restrain myself to retain some of the traditional ideals, at least as a cover up. I believe the greatest difficulty has been, from my "rational" engineering background of education, to re-educate, re-habituate and accustom myself to this type of writing. The shift towards the reasonable is accompanied with a sense of failure and insufficiency, in not being able to live up to higher rational ideals of certainty, formal theory, generally valid

truths. An uncomfortable feeling of the always unfinished state of my writing, a writing in a state of movement, without ever reaching the safe harbour of truth. I am only producing attempts, personal judgements based on the limited fund of experience and conceptual resources one can make available in the actual situation of writing and textual invention, which at best arrives at some potentially useful distinctions, considerations and imagery. The difficulty is to find comfort in my own limited, but still quite workable, judgement which has a capacity to continuously be developed and refined through new perspectives, distinctions, nuances, associations, experiences.

There are different dimensions of essaying exposed in the text. The chapters focused on conceptualizing, that is, chapter five to seven, is essay-ic, in the sense of a more exploratory, searching style of writing, which work towards an aphoristic condensation of judgement through distinctions, enriched conceptual understanding, illuminating expressions and imagery. I particularly use what Montaigne saw as his most general principles of judgement (Montaigne, 1990, p. 22). That is, making distinctions.

I do it particularly by generating conceptualizations dialectically through conceptual tables. But I am less Montaignian, in initially framing the issues I develop my judgement on. These have more of argumentative structure, and less of intellectual strolling, and so try to arrive at some broader encompassing views, as well as specify some particular conceptual understanding that I find useful and trustworthy. The first and last chapter particularly have a more rhetorical and personal style. It is essay-ic, in the form of personally-oriented dialogue and personal expression coming closer to the oral, talking more directly to the reader. An essay is in this sense a dialogue, or half a dialogue. As Montaigne says, "the speech belongs in half to the speaker, in half to the listener". This

"makes the reader a co-writer to the text, which continuously raises more questions than it answers" (Bredal, 1993, p. 37)[1].

In my view, language is always rhetorical in its attempt to express itself to be convincing and persuasive. I believe Friedrich's assessment of the rhetorical style of Montaigne comes close to an ideal for me. Montaigne's skill is in elevating "what is unsophisticated" to the level of intellectual grace. He is not using rhetoric for persuasive tricks as he "do not go beyond the bounds that much be reached to allow thought to attain its linguistic maturity" (Friedrich, 1991, p. 368).

I believe my text definitely is more difficult than boring. Difficult, yes, with its emphasis of conceptualizing and textual invention. But hopefully less boring. I have tried to give it a rhetorical shape that, hopefully, at least at some points, touches on Montaigne's ideals: as a brave form of expressions, sinewy and solid, showing sprightliness of imagination that elevates and swells the words. As something that one can say, not "this is well said", but instead "this is well thought". Well, this is up to the reader to judge. The point is to challenge your judgement and imagination and, hopefully, validate my judgements against yours, and eventually some reader may join in the cause of producing more humanizing truths of the kind I am trying to construct. I believe my writing is not particularly pedantic in the sense of showing off "book" learning, through making commentaries on and critiques of the literature. This is a common feature of dissertations that some reviewers may miss. As with Montaigne, I want to construct something from my experience with the help of available conceptual resources, something useful and trustworthy as a basis for fuller participative innovation praxis.

1 I have got comments that this is improper (maybe not tactical?) in a dissertation. **I t** should answer the questions posed, maybe to avoid too much confusion, maybe in order to avoid the impression that the expertise of the writer is too weak to provide answers. Montaigne would without hesitance admit that this is the case.

I do refer to a somewhat extensive body of literature, but in the end, my own judgement must be able to stand candidly on its own legs and face the challenge of the judgement of the reader.

The military aspect of writing shows itself in that an essay also is a challenge for Montaigne. It is similar to noble deeds, as soldierly deeds on horse. It is a tough and dangerous attempt or trial (Montaigne, 1992, p. 426). A trial of one's strength of judgement in discursive duels with others, or in the face of the powers that be. The soldierly in Montaigne's writing is his fearless and honest exposition of himself and his judgements, including their weaknesses. Also, a dissertation faces the finishing trial on the "judgement day". The essay-ic style requires here a certain bravery as it may seem rather weak in showing some expertise and conclusive answers in the subject matter. Furthermore, the more I moved in the direction of participatory democracy, towards a pragmatic view on inquiry and towards elements of the reasonable particularly the rhetorical and value based the perceived radicalism of my position made my courage waver on whether to pursue my visions. Is this really a format possible for a dissertation? Maybe it is better to do something more conventional? For example, it took some time to shift to, and achieve confidence in, the use of first person form, as well as a conscious rhetorical style. A difficult task was also to re- hearse and develop my judgement and praxis in thinking and writing in a pragmatic vein by going back to John Dewey. It took a long time to accustom myself with his uses of the concepts of experience and inquiry, and to use them more fully in my own judgment and writing. Here the three seminars on the work that was held in the finishing phase was an important test on my judgement that showed that the form was indeed possible.

Finally I would like to acknowledge those that have supported my dissertation endeavour during the years. First, I would like to thank my supervisor Thomas Sandberg for friendly sup- port and encouragement during the long process of writing. Not only I, but also Thomas, have showed the virtue of perseverance during the long dissertation period. My commentators at the three seminars at

the end of the dissertation process, particularly Oyvind Pålshaugen, Rune Wigblad and Svante Brunäker, was also very helpful as an orientation for the finishing work. I also would like to thank my colleagues at Mälardalen University for support, particularly Ole Liljefors and Anders W. Johansson who has been long time discussion partner.

Writing dissertations is a solo project, where you are on your own, like Montaigne in his tower library creating his essays. But in another sense I have not at all felt alone. I am very grateful to having had the opportunity to develop a rewarding and rich companionship with people like Rousseau, Habermas, Lewin, Dewey, Follett, Barnard, Toulmin, Aristotle, and Rorty. They are all in different ways good Rousseuanians which have helped me through by providing ideas and conceptual resources. As Lewin has reminded me, no matter how extensive your first-hand experience is, it will not produce a rich and adequate conceptual repertoire. Furthermore, inquiry and knowledge creation is not just a rational process of thinking and analysis, but also an agonic process of re-education, where your stereotypes, habits and values are at stake. But when I was in the dark on certain issues I could consult my friends for illumination; e.g. what have, or would, Dewey or Rousseau have thought, written or done on this matter?

I would also like to thank the network of LOM colleagues, dispersed but still personally related through sharing a common experience that unite us. Particularly Bjorn Gustavsen, who I believe have lifted the Scandinavian tradition of workplace reform to a new intellectual level. He has been the conceptual force behind not only the LOM programme but also a number of pro-grammatic endeavours in Norway and Sweden during the last decades. The dissertation can be seen as a working through of some of his intuitions, and I would also say visions, concerning the important role that participatory democracy plays, or could play, both in efficient organizing and innovation strategy as well as good scientific inquiry. I wanted to use the dissertation as an opportunity to go to the bottom with these ideas and see how far they can be taken in a constructive attempt at conceptualizing. I

hope I also in the end will challenge him on some issues that also have practical consequences - the important pragmatic criteria of what is real.

Last but not least I would like to thank my family. Dissertation writing is a quite awkward occupation, particularly the kind of reflective journey I have chosen. They have (most of the time) shown patience with me and the innumerable hours I spent in front of a computer screen hidden behind a staggering heap of books and papers, while producing incomprehensible texts in foreign language. I understand that it looks like a pathological streak. It reminds me of Rous-seau's critique of the enlightenment's call to human reason as leading to idle contemplative life of philosophers and fruitless disputations, instead of developing skills in a more useful trade and just enjoying the normal pleasures and culturally practices of life. In my movement towards pragma-tism, I have more and more got the nagging feeling that they may be partly right. So I believe in the future I will listen to the advice a pragmatist gives to people who are into idle speculation -*get a life!*

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Biography

Erik Lindhult was senior lecturer in innovation management, Academy of Innovation, Design and Technology at Mälardalen University, Eskilstuna. Erik was engaged in the participatory and action research community and movement in Sweden, Scandinavia and internationally. He focused in research and teaching on participation and democratization of research, innovation and change processes, especially theory of science and research quality in participant- based research, co-production and interactive research. Other research and work areas were value-driven innovation, service innovation and social innovation, as well as social and societal entrepreneurship.

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Thoughlet:
Systemic innovation, action research and collaborative inquiry:
A tribute to Erik Lindhult - friend, collaborator and co-researcher

Shankar Sankaran

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In memory of Erik Lindhult

I met Erik Lindhult for the first time in Washington at the International Society for the Systems Sciences Conference in 2011 when he presented at a session organized by the Action Research Special Interest Group (SIG) that I was chairing. A few years later, Erik invited me to Målardalen University at Eskilstuna near Stockholm where I met a vibrant community of participatory action researchers and exchanged our involvement in action research. We had some good exchanges of our different perspective on action research – mine in organizations and theirs in communities. Erik and I then started meeting regularly at the European Academy of Management (EURAM) conferences where we sponsored two tracks at the Project Organizing SIG focusing on action research and participatory research along with Per Svejvig of Aarhus University. Our purpose was to encourage project management and innovation researchers to develop and present

papers that used action research. These tracks showed an emerging interest in participatory approaches. We then invited project management and innovation researchers to submit papers to a special issue on action research for the *International Journal of Managing Projects in Business* which received much attention and we had to do a second special issue. Erik, Per and I were planning to write a paper on the difficulties we faced on getting these issues together due to the difficulties faced by the authors to address comments from reviewers who could not appreciate participatory approaches. This motivated us to interview editors of journals in project management and associated disciplines and this task remains unfulfilled. The last time I met Erik was when we stayed in the same hotel in Hotel & Café Rubus at Effretikon, to attend a EURAM conference in Winterthur. During the evening, we developed a proposal to write a book on collaborative research but this dream has also not been fulfilled as Erik passed away while we were trying to work on it with Natalie Smith as a third author. Erik also led efforts to publish a special issue on systemic innovation along with Gerald Midgley and I for the *Systemic Research and Behavioral Science,* but he did not live to see it being published either. Our eleven years of working together involved several online conferences and meetings that including those for the ALARA Editorial Board where we served together as board members. I am delighted that ALARA decided to publish a special issue to honour Erik's memory and contributions.

Reflections on Erik's important contributions

I have been involved in action research since I enrolled in a PhD in 1996 that required me to use action research. I also developed a keen interest in systems thinking – first as a systems engineer in practice and then teaching systems thinking to managers at my university from 2010. My involvement in the International Society for the Systems Sciences (ISSS) from 2006 also contributed to my knowledge of various systems approaches. Despite this work, I had not made the connection between innovation, systems thinking and collaborative research until I met Erik in 2011 at an ISSS conference. While I had been interested in innovation, it was

not a primary area of my research until Erik inspired me to appreciate the link between action research, systems approaches and innovation.

I want to reflect on two important works of Erik and explain how it resonates with my own work and thinking. I hope these reflections are valuable to action researchers and system thinkers who read this article.

Systemic innovation

Erik (Lindhult, 2023) observes that the research on 'systemic innovation' has progressed through five strands of research since the term originated in the 1980s as a product-oriented and business-focused model using a sequential process. He traces the five strands of research as shown in Table 1.

Table 1. Five Strands of Systemic Innovation Research (from Lindhult, 2023)

Strand	Type	Focus	Aspects (Ref.)
One	Innovations were predominantly technological to add to or modify a larger product system.	Technological interdependencies influencing innovation	Object of innovation and its environment (Teece, 1986)
Two	Policy measures through government interventions came into play. Innovation expanded to geographically separated business units. It also led to new policies, frameworks and methods.	Move from economic to institutional innovation with an impact on infrastructure and rules guiding economic innovations. Triple and quadruple helix models were proposed.	Governance of innovation and supportive infrastructure (Johannessen, 2013; Carayannis, Campbell & Grigoroudis, 2022)

Strand	Type	Focus	Aspects (Ref.)
Three	The need for sustainability created a need for eco-innovation leading to sustainability transitions.	Radical or disruptive innovation with multiple innovations resulting in a transition point	Institutional innovation system (Geels, 2005)
Four	Firms evolved from developing and releasing new products to organizers or designers of complex business systems	Multi-actor constellations and networks working together to co-create value	Innovation agency and dynamics (Vargo, Wieland & Akaka, 2015)
Five	Innovation processes advance to think systemically supported by systems modelling and dialogue methods to engage with stakeholders.	Systems thinking and systemic action empowered innovation.	Innovation design and processes to co-create value such as creation of systemic innovation labs Midgley & Lindhult, 2000)

Four systems thinking skills became prominent in the fifth strand – drawing boundaries, exploring interactions, considering multiple perspectives and adopting a whole systems view.

Erik and his colleagues proposed a systemic innovation process using a model called rich business framing. The model covered five processes - engaging, mapping, discovering, modelling and co-creating while keeping in focus an appreciation for enhanced synergistic value. The model was inspired by soft systems methodology (Checkland & Scholes, 2005), systemic intervention (Midgley, 2000) and service dominant logic (Lindhult & Nygren, 2018). Figure 1 shows components of the model.

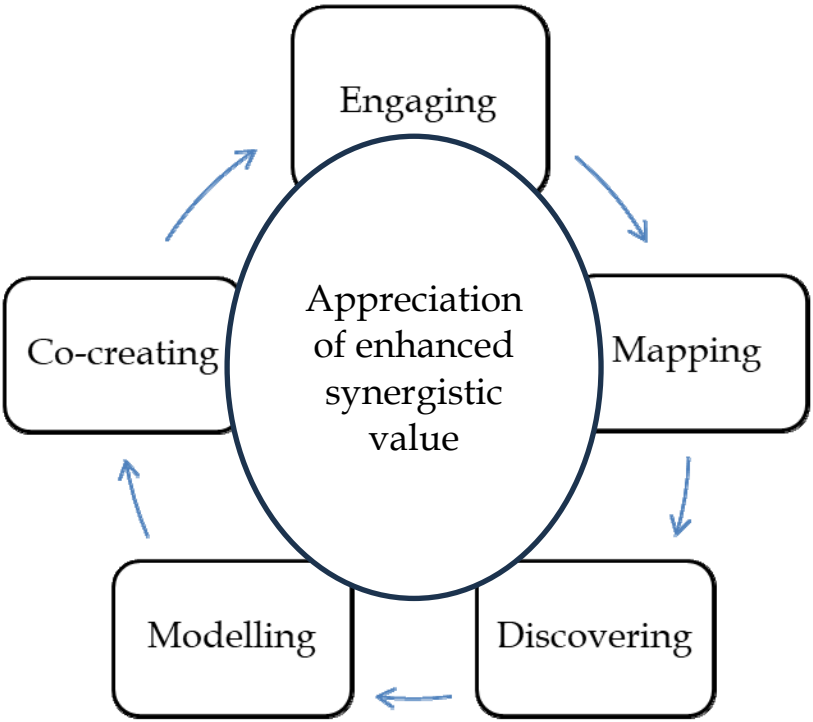

Figure 1. Rich business framing
(adapted from Checkland & Poulter, 2006)

I have been teaching systems thinking to managers at my university to help them think more holistically about complex situations they have to deal with. In my course, I use the following steps which resemble the rich business framing process shown in Figure 1, but I use some more systems thinking tools than what was discussed by Erik. I draw a comparison of Erik's work and mine.

Engaging: Students in my class are presented with a real-life complex situation, often a wicked problem, by someone who is concerned with it and wants to find innovative ways to deal with it. Examples of such situations I have used recently are the barriers

faced by people with disability to find work in the construction sector and the issues facing informal settlements or slums around the world which are on the increase due to the increasing disparity between the rich and poor.

Mapping: The students, representing stakeholders in the situation, use rich pictures (Cavana & Mares, 2004) used in soft systems methodology to represent their own worldview of the situation so that the stakeholder groups' roles played by students can reach a common understanding.

Discovering: We use system dynamics approaches such as causal loop diagrams (Cavana & Mares, 2004) to discover interrelationships among issues captured in the rich pictures.

Modelling: Students use a CATWOE analysis and develop a root definition to develop. Human activity systems or conceptual models in their own stakeholder group to transform the situation after understanding the stakes of each stakeholder. Students also use the critical questions used in critical system heuristics (Ulrich, 1983) to address any issues due to 'boundary critique'.

Co-creating: The students then co-create innovative ideas as a whole class using a collaborative process (forgetting the stakeholder groups they role-played) to collaboratively 'desirable' and 'achievable' solutions. In addition, they also use a viable systems model (Beer, 1989) to establish a viable organization to carry out selected co-created solutions.

Although we do not call this process as systemic innovation, it has all the hallmarks of such an innovation process.

Collaborative inquiry

In another paper published by Erik, he has discussed extensively about research quality in collaborative context. I think this is a very worthwhile effort. I would like to reflect on his ideas in this paper as it could help action researchers to pursue a collaborative process that can contribute to participatory innovation (Lindhult, 2018). After summarising his thoughts, I will reflect on how my own

research with co-researchers that contributed to providing action researchers indicators increase the rigour of action research. The research that led to these indicators was established to carry out an evaluative study of action research. With researchers from Canada, New Zealand and Australia, the team studied several action research projects from around the world to develop a criterion to evaluate an action research project through its lifecycle. Let me start first with a summary of Erik's thoughts.

According to Erik, collaborative approaches such as action research need to respect and take advantage of the learning and knowledge of actors involved in the inquiry for participatory innovation to occur. Such projects typically involve collaborators between a scientific community, such as a university or an R&D organization along with group outside the context such as a business or community organisation who have a stake in the knowledge that is generated in collaboration.

Traditional research uses internal and external validity to contribute to its quality. However, the traditional view of truth is very narrow when the research requires human action with a focus on praxis. Erik believes that knowledge created together relies on competent inquiry as explained by Dewey (1929) which needs to be considered.

Erik discusses five tactics to develop criteria for achieving quality in collaborative inquiry.

1. Use traditional concept but adapt them.

   This has the advantage as it is in line with discourses about quality that have existed for a long time based on validity, reliability and objectivity. However, these discourses are being questioned, especially due to the quantitative and qualitative research debates.

2. Introduce new criteria.

   An example of such criteria was introduced by Lincoln & Guba (1985) with trustworthiness and authenticity as key indicators. While researchers do use these criteria, some

questions have been raised on whether they are suitable to approaches like action research. For example, authenticity which does look at usefulness of the investigators by different participants does not seem to include the knowledge of the researchers and their capacity for inquiry.

3. Start with an established definition of research such as Action Research.

   Erik pointes to the criteria developed by prominent action researchers Reason (2006). These criteria pose a set of questions based on the participatory worldview and characteristics of action research. While he agrees that this is a good framework, it could pose challenges to assess quality of a research project that would be more widely accepted. However, these are helpful as a starting point to find other ways to assess quality.

4. Look for basic ideas in common research models in a field.

   These models are based on what logic is used to inquire – deductive, inductive or abductive. However, collaborative inquiry needs additional features to adapt these standard models based on the position of the researcher in the research domain. Erik then looks at the features of a dialogic model of collaborative inquiry that incorporates some of the desired features such as the interests of the participants working from a common ground, for example, academic researchers and practitioners. A democratic dialogue needs to occur between groups of researchers (knowledge workers or institutions) and network of practitioners (enterprise, communities) to ensure collaboration quality. He suggests that by using this model, one can look for gaps in quality that can occur in practice and address them. For example, asking questions like: Does the democratic dialogue encourage shared leadership?

5. Consider the specific features of collaborative research.

   Here, Erik poses some specific questions about the nature of collaborative inquiry:

a) The research effectiveness of the methodology used (data/knowledge/utility).

b) The research design (participatory/action-interaction-oriented).

c) Ideals and values (participatory worldview/research ideology/paradigm)

Erik also asks us to consider the context of the research and positionality of the researcher (interpreter acting from the research domain into the context or as a reflective practitioner working interactively and collaboratively with the researcher). The former could be an instance of a university/industry collaboration while the latter could be research carried out with a community. Using these criteria Erik proposes a constructive-pragmatic research model (Lindhult, 2005) that can be used to map different combinations insiders and outsiders to pose questions that can contribute to better understanding and quality. He concludes that a broader understanding of research quality could help to expand the space for collaborative inquiry and contribute to its legitimacy resulting in a viable path to achieve participatory innovation.

Let me now reflect on our collaborative work on contributions to rigorous findings on the process and impact of action research carried out by a team of international researchers in which I was involved during an evaluative study of action research over seven years (Piggot-Irvine *et al*, 2021). Action research is a collaborative form of inquiry and some of their findings resonate with Erik's work on research quality. Members of the research team involved in this work developed and used a set of indicators to evaluate action research projects (Piggot-Irvine, Rowe & Ferkins, 2015).

Their work showed that in order to establish rigour in action research you need to consider a more holistic view from precursors and foundational aspects, to key process activities, leading to AR outcomes and impacts summarised in Table 2.

Table 2. Rigour in AR – Relationship between key aspects/ activities
[Adapted from Piggot-Irvine, Rowe & Ferkins (2015)]

Precursors / Foundational	**Key Processes / Activities**	**AR Outcomes / AR Impacts**
An AR team formed	A structure of coherent and scaffolding of processes	Project embedded in sustainable system of financial, technical & people.
AR approach and overview	Activities and interventions undertaken to effect change	Changes in perspective and knowledge of participants and boundary partners
Available financial and other resources	Assessing progress and rethinking mandate/goals and objectives	High performing AR team
Identifies boundary partners and representative groups	Processes of collaboration and engagement decision making	Changes in community/organizationa l conditions
Processes for reaching out/inviting participants	Processes of ongoing management of differences/diversity	New programs, plans and policies
AR approach and overview	Processes to acquire financial, technical and people resources	New partnerships developed
Espoused goals and objectives/impacts		Knowledge mobilization/information, reports on project processes, outcomes and impact.
Processes for working together democratically and respectfully		

Precursors / Foundational	Key Processes / Activities	AR Outcomes / AR Impacts
Identified enabling and constraining factors		

Note: Interrelationships between aspects and activities are not shown. Please refer to the original reference (Piggot-Irvine, Rowe & Ferkins, 2015) for such information.

Afterthought

I hope that by summarising and reflecting on Erik's work I have given the readers of this journal a glimpse of what he has achieved in the various fields he was working in and tried to connect them together. I hope that this summary will inspire you to look more into his works and use them to advance your research and practice. Adieu my friend, thanks for being in my life and I will cherish your memories even though I will sadly miss you.

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Biography

Shankar Sankaran is a Professor of Organizational Project Management at the University of Technology Sydney, Australia. He used action research in his PhD while implementing a large-scale change in an engineering operation in Singapore. He has published books, book chapters and journal articles on action research and supervised six doctoral students who have used action research. Along with Professor Per Svejvig of Aarhus University, Denmark and the late Erik Professor Lindhult of Målardalen University, Sweden, he promoted action research to innovation and project management researchers using special tracks on action research at the European

Academy of Management and put together two special issues on action research in the International Journal of Managing Projects in Business.

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Systemic innovation and industry transformation. Exploring ways to innovate systemically

Erik Lindhult

Abstract

Systemic innovation as a concept and theory is still undeveloped for understanding and managing innovation. By a focus on processes where actors innovate systemically, where systems are seen as something constructed by innovators rather than given in reality, systemic innovation adds to leading approaches to managing innovation, like open innovation, triple helix, as well as innovation system and ecosystem, with potentials to be developed into a new paradigm in innovation studies and innovation management. Through conceptual development, literature review and empirical study at three industrial innovation centers focused on industry transformation, a model for systemic innovation is developed. The model aims to contribute to theory of systemic innovation as well as be potential guide for practitioners in innovating systemically.

Key words: Systemic; innovation; systems thinking; industry transformation; innovation center; systemic innovation; industry 4.0; industry 5.0

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Introduction

Systemic perspectives and theories of innovation are becoming increasingly common in the innovation field. In an ever more interconnected and interdependent world, systemic dimensions of

innovation become critical in understanding and managing innovation, e.g. dynamics and processes of innovation initiated from more complex, messy problems, involving interconnected entities and done by interrelated actors, i.e. more transformative change. Systemic innovation as a concept and theory is still undeveloped for understanding and managing innovation. There is limited use of system research and systems thinking knowledge base (Midgley & Lindhult, 2021). By a focus on processes where actors innovate systemically, where systems are seen as something constructed by innovators rather than given in reality, systemic innovation adds to leading approaches to managing innovation, like open innovation, triple helix, as well as innovation system and ecosystem, with potentials to be developed into a new paradigm in innovation studies and innovation management. Systemic innovation can support wider appreciation and a more balanced, responsive approach in situated development and management of innovation, for example in boundary critique of inclusion and exclusion of issues and actors affecting processes, results and consequences of innovation activity (Córdoba & Midgley, 2008). The ongoing industry transformation is a focus point of research in this paper starting from the discourse on and tension between industry 4.0 and 5.0, where systemic aspects of innovation have an important role.

Current understanding

The term 'systemic innovation' has been developed to clarify the need for more integrated and collaborative innovation processes, more complex business models and value co-creating systems to create and capture value (Teece, 1986; Takey & Carvalho, 2016). Several understandings of the term can be identified. In this paper we build on more recent uses of the term 'systemic innovation' as the ways people engage in a process to support systemic thinking and action, and it is this process and the thinking and action it gives rise to in interaction with the situation including innovation systems that they exist within or are trying to create (Midgley & Lindhult, 2021). Research focus is on innovating systemic dimensions of framing and reconstructing situations having

transformative implications, e.g. characteristics and making of agency (i.e. knowledge, purpose, positions and roles as well as systemic framing), boundary setting (i.e. inclusion and exclusion of issues, actors and objects as well as degrees of openness to environment), establishing and reconstructing of relations, interaction and networking among actors including complexity dynamics, and organizing of resources, activities and actors in systemic constellations (Lindhult, 2022). In this paper a focus is on the context of ongoing industry transformation envisioned by industry 4.0 and industry 5.0. The transformation of earlier systems of industrial production was driven by innovation of forceful technologies that when realized in new industrial systems significantly enhance both capacity and efficiencies in production. Also, the now ongoing transformation into industry 4.0 system is predominantly envisioned and described in technological terms based on industrial technologies as carrier of digitalization of production systems. In recently envisioned 5th industry transformation, the power of transformation is less seen as forceful technologies coming together but as innovation purpose and inclusivity focused on deep, multilevel cooperation between people and non-human artifacts in highly intelligent systems. In the conceptual grasp of emergent industrial transformation, the former concept is more technology driven while the latter is more value driven, i.e. human centeredness and sustainability (Xu, et al, 2021; Breque, et al, 2021), both indicating a tension as well a potential integration. The systemic aspects are indicated, e.g. in interdependent, digitalized technologies coming together, in data driven coordination, and in integrating values as well as in the understanding of managing transformation in more integrated, inclusive ways.

Research question

The overall research aim is to take a step in the development of theory and practice of systemic innovation approach and management as an emergent strategic paradigm in innovation research and practice, as a continuation and progression from prevailing paradigms like open innovation, triple helix and

ecosystem approaches. The contextual focus is the ongoing industry transformation depicted as movement towards industry 4.0 and industry 5.0. The specific research question is: what are the systemic innovation dimensions in industry transformation of industry 4.0 and industry 5.0?

Research design

A constructive-pragmatic research approach is chosen, inspired by critical systems studies (Jackson, 2006) and actor-network theory (Latour, 2005). A focus point in the study is three industrial innovation centers; Automation Region, Mälardalen Industrial Technology Center and Borås Science Park Textile Center; and their partners located in the middle of Sweden. Research combines critical literature review on industry 4.0 and 5.0 publication, reflective conversations with leading representatives and members of the three technology centers, and conceptual and theoretical work to develop a systemic innovation model in relation to literature and empirical material. The empirical and reflective work is done through reflective conversation where both experience from practice and emergent visualization of models are discussed with a coproduction and interactive research approach (Lindhult & Axelsson, 2021; Svensson et al, 2007). It is a way to link theory and practice dynamically in an evolving way that both enrich and validate the former and clarify linguistically the latter.

Systemic innovation as innovating systemically - conceptual development

Our focus in this article is on systemic innovation, what it means to innovate systemically. In order to theoretically clarify systemic innovation, we need to specify systemic features or focus in innovation activity. But what is meant by “systems” and “systemic” in thinking, action or in depicting some domain is debated. There is no consensus on core characteristics of ”systems” and ”systemic”. The Teece tradition of use (1986) is rather superficial in defining “systemic”, with limited use of the conceptual resources from the system science field. The defining

feature of systemic innovation for Teece is when different innovations are interconnected, implying that the processes of innovating have to be coordinated by innovating agents. The conceptual resources of the systems field are here only used superficially. There is a need for further conceptualizing what it means to innovate systemically. In order to clarify systemic innovation, we employ conceptual resources from the systems science tradition, acknowledging that there are multiple (sometimes conflicting) understandings and uses of terms like 'systems science', 'systems thinking', 'management systems' and 'systems methodology' (Midgley, 2003). In order to clarify systemicity we use a recent synthetic attempt to consolidate the field into four 'systems thinking skills' (Cabrera, 2006, Cabrera & Colosi, 2008, Cabrera et al, 2008). Cabrera (2006) has made an attempt to synthesize "systems thinking" in four cognitive patterns or emergent properties which specifies basic systemic dimensions. This DSRP framework for systems thinking can be used to clarify core dimensions of systemic innovation.

The four skills are said to be 'making distinctions' (i.e., drawing boundaries); 'exploring interactions'; 'appreciating multiple perspectives'; and 'understanding phenomena as whole systems'. Each of these systems thinking skills, when exercised in practice, may change people's understandings and hence their actions. The skills are based on universal rules of conceptualization comprising the DSRP framework for systems thinking: Distinction (identity ←→ other), System (part ←→ whole), Relationship (cause ←→ effect), Perspective (subject ←→ object), and the interaction between the four in complex adaptive conceptual system. In classical formal logic originating in Aristotle the distinction between A and ⌐A is fundamental. In the logic of systems thinking, this is too restrictive. A more systemic logic also involves relationships between A and ⌐A, considering the whole (system) in which A and ⌐A are parts, and perspectives, e.g. A may instead be seen as B.

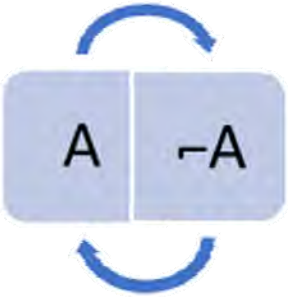

Figure 1 Conceptual logic in systems thinking.

Thus, the compact formulation in figure 1 contains the four universal rules of conceptualization. According to Cabrera, the existence and nature of concepts necessitates these dynamical rules, rules which are sufficient to describe conceptual dynamics. Concepts constantly co-evolve and co-adapt in response to one another where the four processing rules are the simple rules, the DNA, of this conceptual dynamics as complex adaptive systems. The human mind can be recognized, as Cabrera does, as a cognitive system, where the systemic logic is more or less manifested in thinking depending on how far the skills of systems thinking is developed.

On a less abstract level, the four rules of conceptualization can be linked to existing plurality of systems approaches and methodologies providing ways to realize them in practice. We embrace theoretical and methodological pluralism on the grounds that no one systems approach can make a credible claim to comprehensive understanding (Flood and Jackson, 1991; Gregory, 1992; Midgley, 2000). However, while Cabrera et al (2008) have methods to support the teaching of systems thinking skills, they stay largely silent on the various systems methodologies and methods that have been developed for intervening in organizations (Midgley, 2008). We observe that each of the latter tend to be pivoted around just one of these four systems thinking skills, with the other three harnessed in a subsidiary role. Thus, different systems methodologies and methods can be used to

support the practice of different systems thinking skills, and Cabrera's framework can help organise our understanding of systems methodologies and their associated methods.

By the challenging claim to have discovered the DNA of system thinking, Cabrera is making an interesting contribution to the systems community. How can we appreciate this claim, and how can it be fruitful for clarifying systemic innovation? We take a point of departure in interactionism and emergentism which is quite common in the systems research field. It assumes that novelty with increased complexity and capacity can arise from interaction and combination of existing elements/agency. Emergence is not only a natural process. We see it also as constructive processes from the perspective of a participatory world view (Heron, 1996, Heron & Reason, 1997) where people in interaction construct paradigms, worlds, situations as well as themselves and their relations with others. These constructive learning processes are based on an extended epistemology of experiential, presentational, propositional and practical ways of knowing (ibid). Thus, there are elements and potentials of creativity and systemic innovation already in world construction in day-to-day reconstruction of situations.

In focusing on practice, we are also turning toward traditions of sceptical and pragmatic epistemology (Toulmin, 1990, Dewey, 1929). "Systems" is a kind of practice that people are involved in to make sense of and deal with situations they find themselves in. Pragmatic philosophy takes a point of departure in agents (or "organisms") interacting with their surroundings, where experience and learning is generated from undergoing the consequences of their doings. Through such feedback as well as transformative loops information, knowledge and intelligence (reasonableness, Toulmin, 1990) is generated as well as successively more workable and successful forms of practices. This is the basis of Dewey´s pragmatic logic or theory of inquiry where undetermined or problematic situations are transformed into determined or "resolved" ones. Systems, often seen as "systems thinking" with a kind of subjectivist and sometimes

rationalist/Kantian leaning, can thus be seen as a form of action or practice (with thinking as an element of doing), where people inquire into and try to deal with situations in order to find ways to better pursue their businesses.

Systemic practice is also about and involves people. According to Luhmann (1982: p. 70) a phenomena can be considered a social system "whenever the actions of several persons are meaningfully interrelated". Systemicity in a social context means that more than one, and normally a plurality, of actors are involved in the situation where systems thinking and thus systemic action is to be carried out. This is also in line with considering innovation as a practice pursued in certain contexts enacted by particular actors normally involving other concerned people. Systemicity is also about grasping and dealing with wholes. The quest for comprehensiveness is always confined by the capacities and shortcomings of the actors in a certain situation involved in the systemic efforts. Boundary making can be recognized as a core feature in systemic practice originating in the human potentials and limitations in the systemic quest for comprehensiveness. The regulative ideal of comprehensiveness can never be fully reached. As acting and thinking systemically is always done by specific actors in certain situation, they will draw boundaries between "the system" focused on and its environment in certain ways, they will inevitably use certain system understanding, certain understanding of relations internally and externally as well using certain perspectives.

Understanding as well as agency is generated from situated processes of inquiry/learning/coping by people in particular contexts. There is a never-ending process of achieving comprehensive grasps, understandings of or dealing with whatever is focused in practice. In face of plurality of contexts, situations to apply systems approaches and constellation of people, as well as the historical development and creative elements in it, we believe that any framework needs to be validated in practice as well as be assessed as suitable in each situation by people involved. In line with a sceptical and pragmatic

philosophy, people always act with limited capacities and knowledge, and actions are situated in certain contexts. We cannot know in advance which of all different systems approaches is the best one to use. By implication there is always a need for enacting processes in each situation to select suitable systems approaches. On the other hand, we believe DSRP is a useful shorthand framework for initial learning and guiding of systems thinking and systemic practice. As it is a synthesis based on the systems field it is already proven itself in practice to a considerable extent. The author has also varied experience of its use in different situation indicating its pedagogic value and usefulness.

To sum up, what does it mean to innovate systemically? We adapt the Cabrera framework for systems thinking for clarifying systemicness of innovation. We see the general cognitive patterns/emergent properties in systems thinking in the framework as core dimensions of the character of ”systemic”. DSRP is not only rules of conceptualization and cognitive patterns of thinking but also practical patterns in systemic action and ways to innovate systemically. We would not go as far as saying that we are mentally confined by necessary conceptual structures through which we perceive the world. This would lean too much towards a Kantian-like transcendentalism asserting a kind of a priori of systems logic. It is quite true that we are conditioned by available conceptual resources, often institutionalized as self-evident and “true”. But in line with a participatory world view we assume that there are creative, collective and partly cumulative learning processes which may improve on our ways of understanding and dealing with issues. E.g. logic has developed since Aristotle, and the Cabrera framework may be an additional contribution in the learning processes of mankind. It could be an advancement in our evolutionary developed collective intelligence which can improve the workability and validity of systemic practice and systemic innovation. By recognizing the patterns as ways of acting, and not only conceptual and cognitive which might be seen as somewhat detached from social context, it is evidently not neutral. Values and interests are always involved. Innovation implies that novelties are put to use for the advantage of some, but also may affect others

negatively, and excluding others from access to benefits of innovation.

The four different dimensions of systems thinking in the Cabrera framework can firstly be related to different focuses in systemic innovation. The distinction dimension implies a focus on making new boundaries between A and not A ("environment"), which also implies creating new identities for A. The system dimension implies new whole-part organizing, including different kinds of hierarchical and lateral relations structured by information, power and resources configurations and flows. The relationship dimension points to the systemic innovation opportunities of new relations, interaction dynamics and network structures where connections are introduced, modified or terminated. Relationship innovation can involve the emergence of coarse-grained structures from fine grained human interaction dynamics based on simple rules, which is at the same time contained by the coarse-grained structures. The perspective dimension may involve innovation through new actor expression or through paradigm innovation in the way the system is perceived. In addition, as Cabrera is pointing out, these dimensions are analytical distinctions which both conceptually and in reality interconnect and interact so there is many forms of hybrids between the dimensions.

The different focuses in systemic innovation can be pursued through different forms of systemic action which when carried through may implicate and lead to different and novel practices, that is, systemic innovations which also can be enabling for innovating artifacts like products, services or processes. In the focus on innovating systemically we are pinpointing five core systems thinking categories and how innovation is pursued in relation to them: agency, boundaries, relations/interaction, organization, perspectives/framing.

Boundaries refers to prioritization, inclusion and exclusion of issues and actors in innovation efforts. It includes boundary setting, e.g. mechanisms, moving of boundaries, spanning and lowering boundaries, and establishing (new) boundaries.

Agency includes the actors (e.g. individual, collective, different levels) and active forces driving or influencing innovation. It includes positions and roles in relation to innovation, norms and goals (values and purposes propelling different agency, and systemic innovation activity). Goals are more explicit formulations of agents, norms are wider values/rules influencing agency. Further dimensions are presence – absence (incl. strong-weak agency in relation to innovation activity), capacities (competencies, competencies for innovation, resources - weak/deficient/strong), and innovation activity of different agency.

Relations, interactions focus on the way agency and parts are interacting/relating, e.g. based on power differences or on equal ground, as well as cocreation and degree of synergies.

Organization of innovation includes, e.g. whole -part, hierarchy – network/heterarchy, social – technological, structure of responsibilities, organizational patterns of innovation processes on organizational and interorganizational levels, and how organizational patterns influence innovation – enhancing or restricting.

Perspectives/framing in relation to innovation, e.g. linear – agile/interactive – systemic, stage-gate, triple helix, cluster, ecosystem, open innovation. Issues include agency related – who are using what framing? Dominant framings of innovation activity? Analyst and policy related framing of innovation? Effects on focusing, inclusion, exclusion of issues/agency? How are different systemic categories represented in different framings? How are different actors acting based on their framing? Advantage and disadvantage for innovation activity?

In case of technology and innovation centers, like Automation Region, MITC or Borås textile center, it can be recognized as having a meta systemic role supporting, enabling, "infrastructuring" innovation activity of their members. The centers can be seen as building a generative context for innovation: A generative context is one in which respectful dialogue can deal with tensions, conflicts and limited framings, enhanced by visual modelling techniques, can unfold so the participants can better

reflect upon, critique and innovate their thinking, their relationships and their actions in order to achieve synergistic value cocreation. (Midgely & Lindhult, 2021).

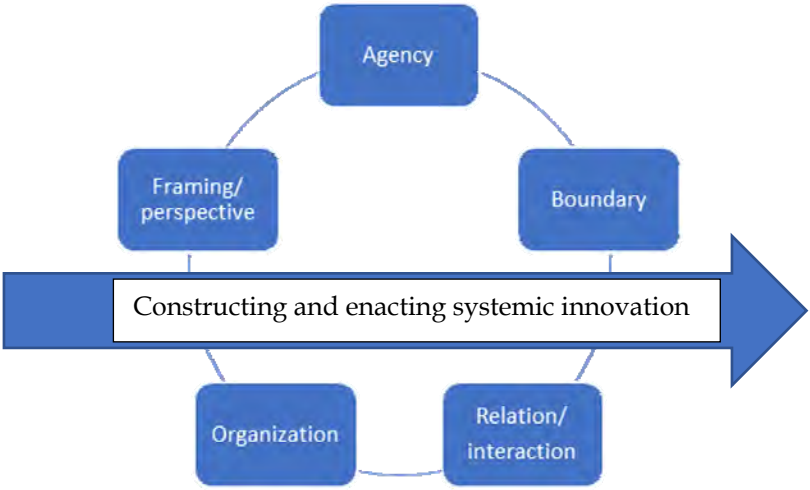

Figure 2 Model of systemic innovation.

Empirical study – first step

The empirical study has focused on three technology and innovation centers or hubs involved in efforts at industrial transformation, Automation Region, Mälardalen Industrial Technology Center, and Borås Science Park Textile Center. The focus is on exploring issues, opportunities and challenges in innovating systemically. The Systems language is attractive and seen as relevant and important, but is at the same time also undeveloped in understanding and modelling, and its usefulness in enabling and guiding innovation efforts. But central funding agencies like Vinnova is using and furthering systems thinking today, acting as enabling support and inspiration for "system

innovation". The norms and demands for sustainable innovation focus and efforts are recognizable building core links between more technology driven industry 4.0 and more value driven industry 5.0.

BSP has a strong focus on sustainability, an important innovation challenge in the global textile industry. It widens perspectives and boundaries to fuller and more inclusive innovation focus on production and value chains as a whole including human elements like work conditions. A challenge in widening of boundaries in industrial innovation in textiles is the uneven development of key performance parameters in different parts of value chains, and the lack of reliable information concerning them. The effect is that innovation focus tends to be bounded to what is or can be measured. E.g., cotton value chain is better analyzed than alternative fabrics. It is here important to develop guidelines also for less developed sustainability KPI´s, like using the four principles developed by The Natural Step to include also more uncertain dimensions.

At the same time widening boundaries of innovation is difficult beyond the felt needs of company and other actors in the innovation hubs, e.g. to include socially important issues like unemployment. It is important to keep focus on experienced industrially oriented needs. Another example is that MITC company network has a production orientation where technological capacity is central. This must be recognized also in university production research that often tend to have a production process and management focus, not directly a technology focus.

An issue for the innovation centers is to understand and innovate their own agency. MITC see its role as glue or cement in building more collaborative agency constellation through communicative support that builds trust and lower the boundaries between academia and industry. MITC has a strong coproduction focus in line with university policy and important funding agencies like Swedish Knowledge Foundation. Like AR MITC provide spaces where actors can creatively discuss and combine interests and

develop common projects. AR sees itself as an intermediary agency that also develops strategic, future oriented issues of common interests requiring continuous environmental scanning and intelligence. It is also important in growing, attracting or linking to additional agency that is weak or missing in the innovation ecosystem. AR and BSP in their collaboration widen and deepen understanding of automation in innovative textile development, building local capacity, e.g. through a digital seamstress project. BSP is also focused on leading sustainability innovation together with industry partners developing test cases of new textile production also with sales test that can show the concrete value through actual sales and thus function as business cases that industry can take further.

A core trend in industry transformation is digitalization, building IT and thus intelligence through production innovation. It is here crucial to integrate more of IT agency as well as competencies in industrial innovation. It means that automation, traditionally focused on low-cost mass production, becomes more flexible both in production that both can enhance resource efficiency in production as well as closer adaptation to particular customer requirements.

Virtualization of innovation through e.g. cloud service etc. also is a movement towards digital servitization in production, where also production becomes more of a service, ultimately moving towards mass customization. A virtual value logic in industrial innovation also opens up opportunities for data driven automation that can enhance resource efficiency and effectiveness, sustainability as well digital service innovation, e.g. through self-driving trucks that can optimize fuel consumption and innovating new transportation services. It also opens up potentials of systemic innovation through reorganizing ecosystem of actors involved achieving more efficient and effective coordination. All in all, the trends in innovation 4.0 and 5.0 is providing forceful opportunities for more inclusive innovation, something which also is a requirement because of increased interconnectedness in both virtual and physical value chains interconnecting in many different ways (e.g. like in digital

twin technology). Still this development requires building trustful relations and coordination between actors and need to develop agreement on data rights and access as well as strong cyber security. The trends in industrial transformation also supports stronger focus on localized production in order to increase understanding of customer needs, very important in textile fashion, and faster produce customized products and service. This also supports sustainability through avoiding overproduction, decreasing transportation needs, and having a more forceful sustainability management.

How are these trends in innovation activity framed by different actors? What are dominant perspectives? Triple helix and cluster type of framing is common at the innovation center level. Because of the IT driven development to integrate intelligence in production, innovation models from IT industry are an inspiration, like platform innovation. Also, collaborative dimensions of innovation, including open innovation, as trends means that organizations often need to include more actors in the innovation activities, and becoming more value driven in including more of benefits, e.g. for customers or for sustainability, besides cost/resource efficiency.

Exploring processes of systemic innovation – a second conceptual consideration

The initial model does not clarify the processes of constructing and enacting systemic innovation. A further step is to explore the processes of systemic innovation, figure 3 is a visualization of this attempt. The added processual dimensions are inspired by process-oriented works on business and value model innovation and design (Amit & Zott, 2021; Zott & Amit, 2010; Lindhult & Nygren, 2018; den Ouden, 2012; Takey & Carvalho, 2016) and systems thinking, particularly soft system methodology (Checkland, 1981; Checkland & Scholes, 1990; Checkland & Poulter, 2006). The model aims to grasp systemic dimensions, components, language, way of thinking as a basis for systemic

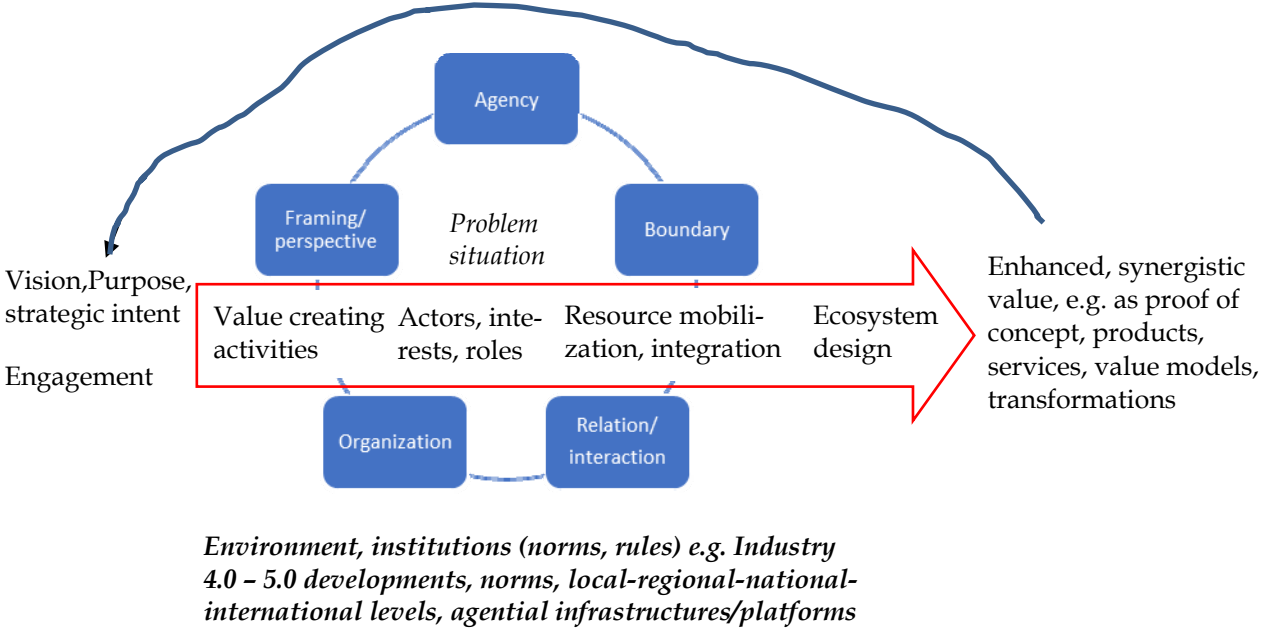

Figure 3: Process oriented model of systemic innovation.

innovation description, understanding, action, strategizing and design of systemic constellations.

An initial activity is engaging, i.e. different actors coming together to explore the situation they are embedded in. A point of departure in systemic innovative inquiry is the situated problems and opportunities perceived by involved actors in a certain context. They are the background of challenges, important issues, that the parties see as central for their survival and growth. It is important to stay in the exploration mode in investigating different experiences and perspectives and issues in the situation, and not to fast jump to preconceived solutions. The mapping of the situation can be done through open ended rich picturing, or more structured visualization of processes, actors and influencing factors and issues (e.g. through foresight and environmental scanning). In the mapping an initial focus and purpose need also to be formed, e.g. on problems, opportunities and challenges to be explored and dealt with, sometimes clarified as visions, purpose and strategic intent. It is also a basis for discovering of value potentials that can be points of departure for different organized initiatives.

The systemic innovation effort is moving further to modeling and prototyping which focuses first on what is aimed at and offered as outcomes, value to be created for beneficiaries offered in a value proposition. This requires agreement and choice of value focus of the parties involved. A second issue is How is the value proposed to be realized, often done through coproduction/cocreation among involved actors. Third issue is Why; guiding values or value captured by focal actors in building the value or business model. With these questions a purposeful system is envisioned in the form; Purpose → Activities → Outcome. In systemic innovation, the outcome is enhanced or new synergistic value, e.g. as proof of concept, products, services, but also value for involved constellation of actors contributing in different ways in the value cocreation, and transformations of the systemic constellation to reach new level of value creation.

After initial specification of the three basic value modelling dimensions What, Why and How, modelling work goes further

with specification of the How with attention to how it affects What and Why. It means identifying activities that needs to be done to realize purpose in outcomes. It can point to different strategic orientations and emphases, and combinations of them. Core value creating activities need to be specified, initially listing of them and then how they are related to each other (Amit & Zott, 2021; Lindhult & Nygren, 2018). This provides the basic activity system for producing value, and is at the same time core activities in building a reformed or new systemic constellation. This is followed by consideration of agency in performing different activities. Who are doing what in enabling and performing activities to realize outcomes? What are their roles, interests and motivation to contribute? It is important to also consider actors that may hinder and obstruct required changes to the emergent systemic constellation. An additional issue is consideration of resources needed to get activities and activities sequences done, often linked to actors that like in service systems work to integrate resources of different kind. Finally, the design of the ecosystem embedded in contexts and institutions is pursued in order to realize projected, mutual and systemic value (Den Ouden, 2012). In investigating systemic constellations an important dimension is the yin and yang of emergent constellation through the systemic innovation efforts and recognized constellations in prevailing contexts to be understood, but also finding action potentials in the work for its improvement, transformation and sometimes transition to a new systemic constellation. To think and work systemically the systemic parameters – agency, boundary, interaction, organization, framing - are spanning systemic dimensions and pointing to directions to consider and explore. They are focal orientations that at the same time flow into each other.

Consideration of the model from practice

The model when discussed in reflective conversations with leading actors in the three industrial innovation centers uncovered rich meanings and uses of different dimensions of the model, also stretching and exploding its visual structure. E.g. the linearity of

the process arrow is often in reality messy back and forth movements with several iterations and feedback loops.

The systemic strategic orientation is predominantly interactive as a point of departure, bringing actors together exploring issues, finding common grounds, developing common initiatives and dealing with them in often open ended projects. Meetings and projects are basic activities of the three centers, enacted, constructed, and stretched in different ways. The character and meaning of projects as controlled, goal-directed plans implemented to reach specific outcomes in specified time span is stretched to goal seeking projects and to explorations into the emerging opportunities, e.g. of powerful industry 4.0 technologies like collaborative robots, AI, digital twins etc. Maybe explorations is a more appropriate word than projects in working collaboratively to investigate and learn through experimentation with solutions, interaction among people with diverse competencies and positions, and successive transformations of solutions and assumptions embedded in them. Systemic effects and transformations are often emergent from the changing relations, learning and organizational constellations of people involved in the explorations.

BSP is explicitly differentiating out "movements" from projects, a kind of change oriented activity directly focused on scaling to reach more transformative effects. E.g. a movement initiative focuses in engaging textile fashion influencers to learn and work with sustainable textile consumption and thus inspire a broad range of people to change their behavior as part of a movement. In systemic terms it means openness to widening engagement of people and thus innovating agency as basis for a movement. Also AR is working with IndTech seen as a movement, understood as furthering technologies that are implemented to make the Swedish industry smart.

The bringing together of people with diverse competencies and positionalities is a way to drive innovation but can also lead to tensions and clashes between different framing and perspectives on "projects". The exploratory, open-ended and interactive

learning focus may cause tensions between more engineering, optimization and solution focused and controlled ways of working, requiring mediation and effective facilitation of the processes. This may also be linked to the tension between industry 4.0 and 5.0 perspectives, where the former may go for technical visions of automation with too limited consideration of human element and the need for robustness, security and human adaption and flexibility in practical applications. At the same time there are convergences in the sense that more intelligent technologies are made more intuitive, easy to use, and more integrating with humans, e.g. like collaborative robots. In MITC it is evident that industry more and more recognize the need to work with human centered design, something generally linked to industry 5.0.

It is also important to make the opportunities of the future visible, tactile, explorable and experimentable in the present, e.g. through prototyping technological (or sociotechnical) solutions and system demonstrators. The establishment of the tech center initiated in 2019 at MITC has been an important way to get development groups of industry people, engineers from Robot Valley as partner, university researchers and students, and MITC personnel (e.g. competent at simulation) coming together to explore and experiment with cyberphysical solutions with rich learning processes working to develop proof of concepts as a result. BSP is at the moment working on development of a system demonstrator for sustainable Swedish textile production mobilizing a broad range of relevant actors in the process, with funding support from Vinnova – The Swedish Authority for Innovation System. It is a way to work systemically with the sustainability challenge in a national context, with ambitions to reindustrialize Swedish textile production.

An important development at AR was made in 2016 shifting in role from industry cluster focused on enhancing automation competencies, to a platform as agential infrastructures that are able to organize broader explorations in collaboration with other platforms and driving agencies, successively connecting to national and international levels. It is a way to increase capacity to

take on national challenges and organize systems to deal with them, e.g. through the national collaboration platform iHubs Sweden. In moving from the local to broader collaboration an issue is specifying the role properly in order not spreading out too thin and not being able to create sufficient value to members. It is a systemic issue of boundary and identity to work on at present.

Concluding reflection

The findings from the literature and empirical study shows that the industry transformation is under construction and reconstruction conceptually, systemically and as emergent practice in actor-network constellations and dynamics. Although "systems talk" is as yet undeveloped, it is possible to recognize elements of systems logic in the ways of working with innovation efforts. There is an interactive, collaborative orientation and rationality in the focus on bringing actors together in meetings, workshops and initiatives (Ackoff, 1983). Instead of rationality through clear goals and structured plans interactive logic enables moving in the right direction based on common views and common ground. The mediating and intersecting role in leading innovation creates connectedness through bridging boundaries and lowering barriers to enabling "edge effects" where boundary exchanges allows for greater "innodiversity". Initiatives and projects as collaborative exploration, learning and goal seeking releases dynamics of interactive learning in the innovation centers as systems of innovation (Lundvall. 2010). As industry networks at the local and regional level geographic proximity provides linkages through common identity, cultural ties and trust that enables open interaction where knowledge exchange and spillovers as well as co-creation of new learning contribute to foster innovation. There are attempts at expanding the network into platforms for broader engagement nationally and internationally searching for additional synergies. It means moving upwards in the nested systems in order to overcome limitations of resources, lock-ins and enhance the capacity of the centers to create benefits for its partners and members.

The mapping of the landscape of systemic characteristics of innovation related to situated actors in the assemblage of industrial transformation show a variety of engaged actors, issues and concerns, and systemic innovation initiatives. There is a wide spectrum of issues and concerns from technology to sustainability and human centeredness. Furthermore, repositioning of actors in response to changing market structures, new relations between actors, as well as new actors contributing IT competencies, and stronger integration of these competencies in "smart factory" design. There is generally tendencies and movement towards more integrated, data driven, inclusive and collaborative innovation which in different ways is implicating systemic innovation. Based on this mapping as well as the conceptual work and literature review, a model of systemic innovation is developed showing how such approach can be conceptualized and used to achieve a wider, and more balanced and responsive management of innovation issues and opportunities, that can be seen as an advance in relation to prevailing paradigms.

Contribution

The paper develops a novel model of systemic innovation as an understanding and approach to managing innovation that we argue is an advance in relation to established approaches, based on theoretical argument from synthetic systems thinking theory (Cabrera & Colosi, 2008), and contextual study of ongoing industrial transformation. Compared to open innovation, preoccupied with one system parameter, open – closed system, the systemic innovation model advances understanding and practice by incorporating five systemic categories – agencies, boundaries, interaction/relation, system organization, perspectives – and ways to innovate systemically. Compared to different (eco-)innovation system approaches that tend to have an objectivist leaning in studying preexisting systems, the focus in the model is constructivist and processual on how people think and act systemically in framing and effecting innovation, e.g. setting or spanning boundaries, establishing and strengthening/power of

agency in innovation activity, or enacting interactions and establishing relations.

Practical implications

Based on our research, we find that the language of systemic innovation is useful in practice to clarify complex, interactive innovation issues and transformative trends, and can support actors to sort out strategic issues of innovation. This is particularly evident in our research with technology centers in understanding their role and strategies as innovation intermediary, at the same time that the perspectives and language of systemic innovation is new requiring further reflection on how to apply and mould it effectively. This is suggestive of a potential that calls for further research.

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Biography

Erik Lindhult was senior lecturer in innovation management, Academy of Innovation, Design and Technology at Mälardalen University, Eskilstuna. Erik was engaged in the participatory and action research community and movement in Sweden, Scandinavia and internationally. He focused in research and teaching on participation and democratization of research, innovation and change processes, especially theory of science and research quality in participant- based research, co-production and interactive research. Other research and work areas were value-driven innovation, service innovation and social innovation, as well as social and societal entrepreneurship.

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Dialogue as social research orientation, method, and praxis: Participatory action research and problem-solving

Azril Bacal Roij and Erik Lindhult

Abstract

The authors view dialogue as a valid, legitimate and critical research orientation and method to gain useful scientific knowledge through participatory action-research (PAR). As a research methodology, it has been successfully tested in various study fields, and in helping to find socio-technical solutions to problems. As a research orientation, it seeks to replace the elitist division of labour that divides researchers from the human "subjects of research," thereby regarded as co-researchers. Dialogue is viewed as a core value and theoretical perspective to guide participatory action-research. It creates conditions beneficial for co-learning, creativity, and human development researchers. It additionally invites researchers cum citizens to engage in the formulation of and management of public policies and social action strategies in real-life situations. It demands from co-researchers an attitude of humility and openness to enable mutual learning. It also contributes to knowledge-democracy by sharing its findings for the common good, often produced in collaborative research settings. Ontologically, it supports a paradigmatic shift from reified views of "social reality," given as granted to an intersubjective and process-oriented view of "constructed realities." Social structures are seen as socially reproduced and/or changing over time, thanks to new paradigms, insights, narratives, transformative tools of consciousness-raising, socio-

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educational intervention, PAR, critical analysis, human agency, innovations, social action, and social reforms.

Key words: Dialogue, research orientation, method, change

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Introduction

A rich academic collaboration and co-learning experience spanning over 40 years lies in the background of this article. With the sad passing away of my dear friend, colleague and co-author of this article, Erik Lindhult, my difficult task became how to complete writing the paper on dialogue, that we had been working together in the past few years. This text diverts, however, from its original focus on dialogue as a research orientation and method.[1] It diverges for example by exploring ways to use dialogic PAR beyond the realms of education, organizational development, and socio-technical innovations. The authors argue that dialogic PAR is well equipped to study some of the crucial ecological, social, and technical problems of our times.[2] The complex nature of these problems has become more difficult to be understood by the general public in recent years. This is partly due to rumors and theories denying scientific findings. This mass media phenomenon invites us to pay attention to the negative communicational effects

1 This article builds from the power-point presented at the XX ISA World Congress of Sociology last year in Melbourne. A first version of this paper was first presented in power-point format at the RC10 session on "Participatory Action-Research and Transformative Education," during the IV ISA Forum of Sociology, Porto Alegre, Brazil (23-28 February 2021). This article conveys the fruitful academic and personal dialogue held by the authors between 1982 and 2023. In its present form, it will be published this year at the special issue of the academic journal ALARA, organized to honor the valuable contributions made by Erik to different fields of scientific knowledge, philosophy, academic activism, and socio-technical innovations.

2 Such as global boiling, environmental devastation, massive extinction of species, growing poverty and world inequalities, humanitarian catastrophes, growth of the "killing industry" and war, among other problems.

on public opinion from disinformation massively spread and amplified by social media.

Serious documentary journalism and scholarly research unveil how these public relations campaigns are financed by fossil energy corporations and lobbies, authoritarian governments, and far-right parties, whose growth currently erode liberal and social democracies.[3] How to understand such costly expenditures on public relations campaigns and huge payment of enormous lawyers' fees? One explanation that stands to reason is that these costs are defrayed to defend short-term profit interests and geopolitical goals of corporations, rich countries, and the privileged ("1%") segment of the world population. Multiple "clean" and "dirty" weapons are available to pursue their interests, including the use of algorithms, marketing, subliminal publicity, ITC, propaganda, cooptation, blackmail, cultural warfare, disinformation strategies, AI, and military muscle, among many sorts of available overt and covert means of persuasion and coercion.

Monological or dialogical communication?

These features also unveil the *modus operandi* of monological communication.[4] Persuasive communication stands in contrast to dialogic communication, asserting human equality and mutual respect. From the angle of war/peace studies, the reliance by short-sighted governments, war strategists, and terrorist organizations

3 The erosion of democracy and the breakdown of communication is explained by Bacal (2021) in terms of ethno-politics, identity based - and ethno-nationalist populism, humanitarian refugee catastrophe, viral hate propaganda, growth of far-right parties, and human insecurity.

4 I discovered the use of the term "monological communication" in Freire's work, when reading his seminal book Extension or Communication (1973), where he distinguished between two main types of communication: (1) Monological (persuasive communication is exemplified by agricultural extension, commercial publicity, public relations campaigns, political propaganda, also found in the realms of conservative ("domesticating") educational and therapeutical institutions, and (2) Dialogical Communication, based in mutual respect and the acknowledgement of our equal value as human beings.

on violent "solutions" to conflicts, excludes the use of dialogue in helping to build trust between enemies, through channels of mediation, political compromise, and negotiation. The polarization of public opinion in today's multi-power world situation might be understood in terms of global geopolitical competition, which largely accounts for the spread of fear, distrust, hatred, polarization, violence, and non-dialogue in the world at large. These features occur at a critical juncture in history, when Humanity confronts the multidimensional crisis of the 21st century, and the additional threat of a nuclearized third world war. In the frame of these features, a question comes to mind: What is the meaning of proposing dialogue in a world situation characterized by competition, conflict, irrationality, absurdity, and hopelessness? Particularly, as one readily observes that this global situation is also echoed in neo-liberalized centers of research and education (Manzano-Arrondo & Bacal, 2014, pp. 15-23. Erik's initial words in our original power-point presentation seeks to answer this question in terms of a "Dialogue on Dialogue," transcribed in this article, thereby asserting a vision of academic engagement. As a point of departure, we adopted dialogue and democracy as the central values and guidelines in our theoretical orientation and research methodology. This task was approached by trying to articulate Southern and Northern academic traditions, theoretical and methodological approaches to Dialogue, Democracy and PAR. Our conversations were frequently spiced by friendly quarrels which enriched the co-learning experience of our collaborative journey. Our lively dialogue points to an open willingness to learn from each other, and looking forward to our wish to harvest fruitful differences to emulate. The aim with our "dialogue on dialogue" was to capture commonalities, differences and attain, if possibly, a hybridization of dialogue.

We did not manage in the end to integrate our views in one model, while also wondering on whether it was possible or even desirable to succeed in this respect. Anecdotally, one recurrent theme in our dialogue had to do with our divergent views on democracy and social change. Erik's views on dialogue and PAR were imbued by the Swedish social democratic reform approach of consensus-

building and philosophic pragmatism; the kind of adaptive change advocated by Dewey.[5] My views on dialogue, democracy, social change and PAR, were influenced by the Latin American University Reform Movement of the early 1900s, attempting to democratize the knowledge produced in elitist university for "the common good." The latter feature was a basic goal promoted of this pioneer student movement, also incorporated in Paulo Freire's critical-pedagogy approach to transformative education and structural change, as well as in the engaged academic approach of Orlando Fals-Borda, who pioneered the development of PAR in support of peasant social movements for democracy and agrarian reform in Colombia.

Context: Global crisis and demise of dialogue, democracy and peace in the 21st century

This section describes a global crisis situation, where a majority of the world population suffers its consequences and yet lacks adequate understanding of its causes. This double problematic situation also entails the neglect of dialogue, at all levels of communication and management of world affairs. This context is framed by the critical issues and problems of the 21st century, listed in random order as follows: boiling climate, ecological devastation, deforestation, massive extinction of species, the expulsion of over 100 million refugees (accompanied by a humanitarian catastrophe), followed by a return of nationalist-populism, fascism, the rise of racism and ethnic discrimination, a disruption of civilized debate, added to growing Jew-hatred, Islamism, islamophobia, neoliberal market-ism, and patriarchalism.

The prevalence of globalized monological communication and social media casts additional confusion, which further obscures the

5 Lindhult borrowed from Dewey (1916, 1966) the approach to adaptive social and institutional changes and innovations, as well as his emphasis on liberal democracy and reformist politics. Readers can find examples of the influence of Dewey's works on Erik's thinking in the large list of references cited in his doctoral work (2005, pp. 378-379).

crucial understanding by the general public of the nature, complexity, and real gravity entailed by the current world situation.

Perspectives on dialogue as social orientation, method, and social practice

The informed reader is cognizant of the fact that perspectives, viewpoints, and values, are required as theoretical glasses to enable people to "read" (make sense of) and understand contextual facts in meaningful ways. While aiming to faithfully transcribe and sketch Erik's views and analytic models on dialogue, to the best of my capacity, the reader is informed that only my authorship is accountable for the sections on context and the second part of this article. The authors adopted dialogic PAR as a critical theoretical viewpoint to both interpret and transform this problematic context. The question is raised about the viability of dialogue as an alternative paradigm in the social sciences and other study fields such as: education for sustainable human rural development, extension, socio-technical innovations, overcoming negative consequences of internalized social, ethnic and/or racial oppression, organizational development, peace-conflict research, and finding ways to counteract hate media and the crisis of democracy in the 21st century? Being aware that "facts do not speak by themselves," we next approach our reflections on dialogue from "Southern" and "Northern" PAR perspectives. These viewpoints are reflected in the organization of this article in two parts. The first part transcribes and sketches key insights and analytic models selected from the numerous models developed by Lindhult that were presented last year at the XX World Congress of Sociology in Melbourne.[6] My views and reflections in this article are meant to be read as a complement to Erik's valuable contributions to democratic dialogue and PAR, and are presented

6 Even though my views were included first in that presentation last year, the order in this article was reversed to honor Erik's valuable contribution. He actually drafted most of the contents in the power-point previously mentioned.

in the second part of this text. Dialogue and PAR are also proposed in this article with the hope to engage our fellow researchers as concerned citizens and intellectuals in the urgent tasks to return dialogue and civilized debate to the world and academic agendas.

Part I. Dialogue as social research orientation and method according to Erik Lindhult

Based in a very rich and varied empirical research experience, Erik argued at length in his doctoral thesis (Lindhult, 2005) about why participatory democracy provides a fertile soil and solid conceptual platform for creative experience, situated inquiry in the development of theory, research and praxis of PAR. In building his theoretical framework, and being the great reader he was, he borrowed conceptual bricks from classic authors like Dewey and Follet, and from an impressive list of contemporary authors. For him, democratic dialogue was a central conceptual brick in his approach to scientific and transformative inquiry. He borrowed extensively ideas on democracy as a communicative process from Habermas. He traced much of his philosophical sources on dialogue and democracy to Aristotle. In dealing with innovation and inquiry, he contrasted ideas from Machiavelli and Rousseau. His final views were concerned with "knowledge-democracy," as conveyed at length in a recent publication (Lindhult, in Bacal (2022, pp. 107-128). Next follows his key views on dialogue as a research orientation and method, as these are transcribed from the original PowerPoint presentation.

Democratic dialogue as research orientation and method

In approaching these subjects, above, Erik identified the following key features in democratic dialogue:

1. It requires open participation of all concerned participants on equal terms.
2. It requires mobilization of expertise and engagement of concerned co-research partners.

3. It provides legitimation to the research process and its results.
4. It provides discursive validation to the research venture.
5. It bridges interactive research and learning, enhancing knowledge development and co-creation.
6. It enhances mutual interpersonal understanding (*verständigung*).
7. It facilitates practical agreements (shared consensus) as the basis for action.
8. It enhances the process of democratization of the research and development works.

Guidelines for democratic dialogue

1. Dialogue is a process of exchange: ideas and arguments move to and from between the participants.
2. It must be inclusive, possible for all concerned to participate.
3. This possibility for participation is however, not enough. The participants in dialogic research should also be actively engaged. Consequently, each and all participants have an obligation not only to put forth his or her own ideas but also to help others to contribute their ideas.
4. All participants are regarded as equals.
5. Work experience is the basis for participation. It is the only type of experience that, by definition, all participants have.
6. At least some of the experience that each participant has when entering the dialogue must be considered legitimate.
7. It must be possible for everybody to develop an understanding of the issues at stake.
8. All arguments that pertain to the issues under discussion are legitimate. No one argument should be rejected on the grounds that it emerges from an illegitimate source.

9. The points, arguments, etc. which are to enter the dialogue must be made by a participating actor. In other words, nobody is allowed to participate "on paper" only.
10. Each participant should accept that other participants may have better arguments than one´s own.
11. The work role, authority, etc. of all participants can be made subject to discussion - no participant is exempted in this respect.
12. Participants should be able to tolerate an increasing degree of difference of opinion.
13. The process of dialogue must continuously produce agreements that can provide platforms for practical action.

Ways to implement democratic dialogue in the research environment

1. Meeting forms that enable democratic dialogue, such as study/research circles. Among other similar meeting forms and open spaces, he mentioned dialogue conferences, experiential groups (included in the second section), creative spaces and workshops, reflective methods, etc.
2. Making efforts to foster democratic leadership through dialogue, illustrated by the “publican role,” rotating or shared leadership, etc.
3. Including the criteria of democratic dialogue in the organizational design and planning stages of the co-production of knowledge, providing spaces and opportunities for the flow of communication, dividing time resources equally, combining different ways and co-creation/construction of knowledge.
4. Providing the required institutional support.

Practical guidelines to organize democratic dialogue:

1. Small groups, smart (inclusive) mixing, parallel discussion groups, common presentations to all participants.

2. Facilitating the mobilization, fruitful exchange, and development of the expertise of co-researchers, representing both the academic (scientific) world and the world of practice.
3. Using dialogue to bridge departmental, hierarchical and organizational boundaries.
4. Preparing a democratic spatial distribution (study/research circles).
5. Enabling the distribution of space and time of the contributions – by providing norms of active listening with respect and attention.
6. Fostering a democratic and dialogic spirit of integration and co-creation of participants.

Erik was fond of summarizing his views in diagrams and conceptual matrices that were almost self-explanatory for didactic purposes. He addressed the following dimensions of dialogue, democracy and PAR in the alluded power-point.

Figure 1 presents a model of research in collaborative settings, looking at the added benefits from including the results from scientific research and from practical knowledge from practitioners in different fields of learning and/or production.

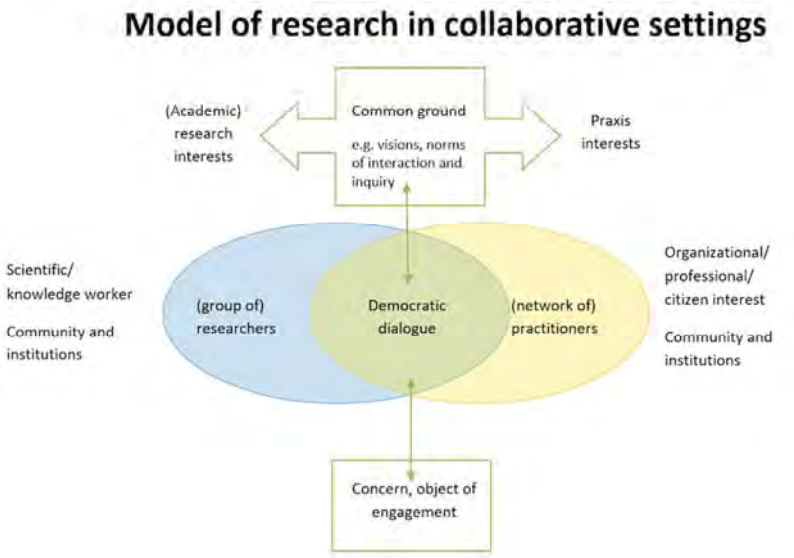


Figure 1. Modified model (Florin and Lindhult, 2015) elaborated out of the relational model of collaborative inquiry of coproduction (Lindhult, 2005; Greenwood & Levin, 1999)

Figure 2 presents a model of democratic dialogue processes – in an aphoristic condensation format, thereby organizing his thoughts in the following categories: organizing of dialogue, dialogue forums, resulting products and effects.

Figure 3 contrasts Southern and Northern approaches and guidelines to democratic dialogue looking at various differences, tendencies and variations.

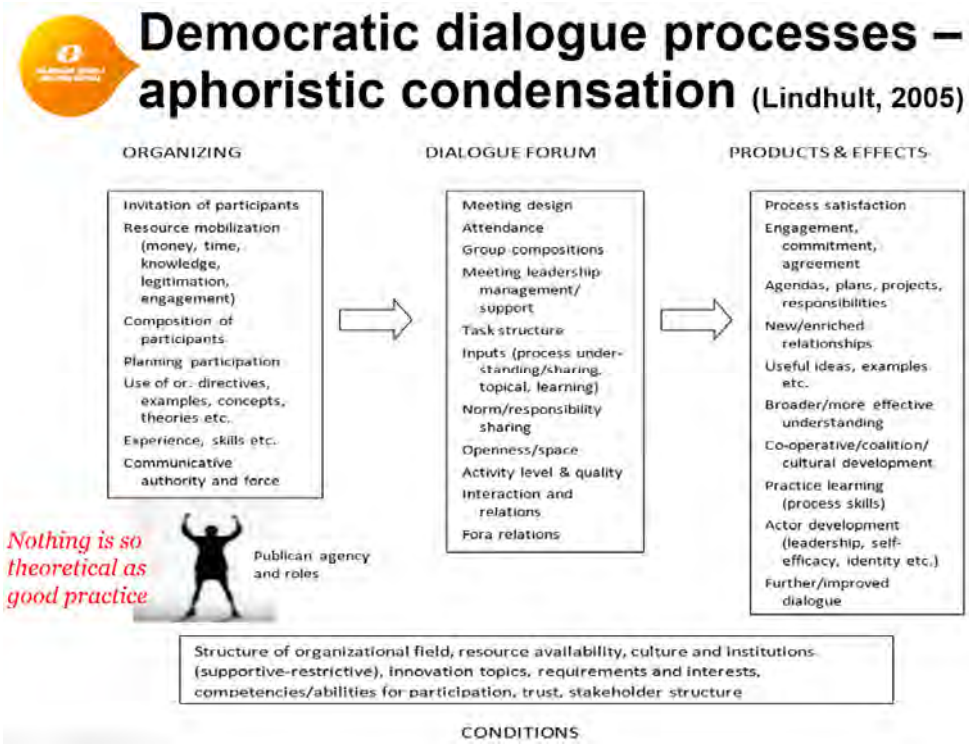
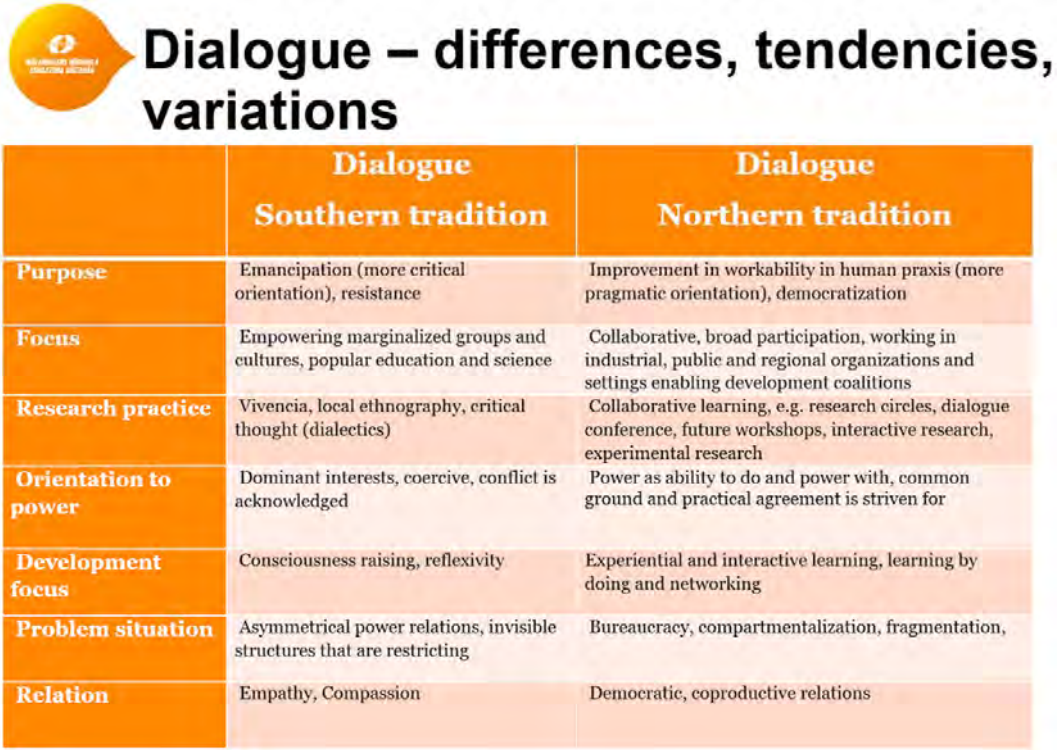


Figure 2. A model of democratic dialogue processes



Dialogue – differences, tendencies, variations

	Dialogue Southern tradition	Dialogue Northern tradition
Purpose	Emancipation (more critical orientation), resistance	Improvement in workability in human praxis (more pragmatic orientation), democratization
Focus	Empowering marginalized groups and cultures, popular education and science	Collaborative, broad participation, working in industrial, public and regional organizations and settings enabling development coalitions
Research practice	Vivencia, local ethnography, critical thought (dialectics)	Collaborative learning, e.g. research circles, dialogue conference, future workshops, interactive research, experimental research
Orientation to power	Dominant interests, coercive, conflict is acknowledged	Power as ability to do and power with, common ground and practical agreement is striven for
Development focus	Consciousness raising, reflexivity	Experiential and interactive learning, learning by doing and networking
Problem situation	Asymmetrical power relations, invisible structures that are restricting	Bureaucracy, compartmentalization, fragmentation,
Relation	Empathy, Compassion	Democratic, coproductive relations

Figure 3. Southern and Northern approaches to democratic dialogue

> "Every man sharing in the creative process is democracy;
> this is our politics and religion"
>
> Mary Parker Follett, 1918

Part II. My views on dialogue, democracy, and participatory action research

As earlier mentioned, my views on dialogue and democracy in active learning, PAR orientation and method, transformative education, and intercultural dialogue, owe much to the inspiration drawn from Paulo Freire (1973), Orlando Fals-Borda (1987), and Dorothy Lee (1986; 1987). In addition to a rough outline of my views on dialogue presented below, a brief "reading" of the complex, multi-level, pluri-factorial of the Middle-East Conflict is sketched later in this section, to explore the potential of using dialogic PAR in building trust in possible processes of Conflict Resolution and Post-Conflict Reconciliation. In this respect, it is hoped that the ongoing war in Gaza since October 7, 2023 will not escalate out of control into a regional or global conflagration. One of my first thoughts on dialogue had to do with clarifying the distinction between dialogue and dialectics (Bacal, 2018a).

Dialogue and dialectics

Both terms are drawn from classical Greek philosophy and were used by Paulo Freire, albeit in a different way.[7] For Freire, valid communication entailed dialogue, a view in turn inspired by the work of Martin Buber about two different modes of human interaction and relations: "I-Thou" (mutual value and respect as equal human beings) and I-It (viewed as alienated, exploitive oppressive, and instrumental mode of human relationship).

7 Freire remains the most influential source concerning dialogic PAR in my ongoing research on agricultural extension and rural development (Bacal, 2023).

While aware that there was much more to discuss in the literature on the complex relationship between dialogue and dialectics,[8] in dealing with the difference between dialogue and dialectics, I understand dialogue, on the one hand, as being based on human empathy to attain valid interpersonal communication and dialogue, on the other hand, as a critical theoretical window useful for understanding and analyzing social contradictions, class interests, and social change, in society at large.

Based on my experience as a PAR researcher in different places and times, I next outline a selection of my key views on dialogue and PAR as follows:

1. Dialogue presupposes the equal value and dignity of all human beings and the praxis of mutual respect.
2. Dialogue needs as a prerequisite that co-researchers acquire an attitude of openness, humility, and willingness to learn from each other.
3. Dialogue as democratic educational praxis can be approached in terms of formative citizen education in the realm of active education (Bacal, 2018a).
4. Dialogue as a research method was already tested and applied to study ethnic identity orientation (Bacal, 1994; 1997), organizational development, agricultural extension, and rural development, among other study fields.
5. Dialogue has been applied and tested as a research method and social practice in transformative socio-educational intervention, and peer-counseling, geared towards personal and social transformation.[9]

8 In searching for pertinent literature to the distinction between dialogue and dialectics, the reader finds a large number of sources. For instance, I found in my review of literature philosophical works by Bakhtin (1981), Apatow (1998), Wegerif (2008), Nikulin (2010), among many other authors

9 The use of dialogue as a research method was inspired by John Heron in terms of "experiential research." It was applied in my empirical study of ethnic identity orientation of Mexican Americans, included in the collected works in my doctoral dissertation (Bacal, 2021, pp. 67-76).

6. Inter-cultural dialogue can be applied as a pedagogical practice intended to help break ethnocentric barriers, thereby enhancing the capacity to learn from "remote cultures," an approach inspired by the pedagogical legacy of Dorothy Lee in the realm of Humanistic Cultural Anthropology (Lee, 1987; 1987).

7. Dialogic PAR can provide adequate research methods to gain useful knowledge and practical instruments to help construct conditions conducive to building trust in conflict-resolution and post-conflict reconciliation between feuding parties via PAR and socio-educational intervention.

8. Dialogue is also viewed as a practical tool of socio-cultural change that might be used to facilitate conditions for the transit from cultures of violence towards cultures of democracy, justice, peace, and post-conflict reconciliation attainable, as documented for example in the historical experience of post-Apartheid South Africa, in post-war political alliances between the United States, Germany and Japan, and between France and Germany, that previously were enemies, and whose applicability is explored in the case of the Middle-East Conflict.

Dialogue and PAR in conflict-resolution and post-conflict reconciliation studies?

Introduction

We were keen to routinely converse and comment about world events and news at the breakfast table, a habit that extended to days prior to the sad passing of Erik Lindhult. In this way, we discussed the news informing the world about the Hamas terror massacre of 7 October and its aftermath. At the same time, we were critical of Israel's negative political, violence, and oppressive treatment of the Palestinian population in the occupied territories.

We approached the complexity of this poisoned and protracted conflict through the filters of our views and values on dialogue, justice, non-violence, and democracy. Our preference for dialogue

underlies this attempt to explore if and how dialogic PAR might potentially contribute to study the possibilities for building trust, in a process of conflict-resolution in the Middle-East conflict, which is political, negotiated, and from a win/win perspective.

Context of the Middle-East conflict

This ongoing war was planned for a long time and triggered by the terror attack of Hamas on October 7, 2023, with its terrible aftermath of thousands of innocent Palestinian and Israeli civilians being killed and sacrificed for the sake of sacralized ideological and religious ("holy") motives. These equally human victims are killed and manipulated by war "strategists," coldly justifying using them as human shields, pawns in the game, and "collateral damage." The civil population in Gaza is mercilessly trapped and instrumentalized in this war.

What we observe in this prevailing inhuman situation is the operation and exacerbation of "we-them" ethnocentrism, contrast-perceptions, and "dehumanization of the other," which rules over daily circumstances in this devastated war zone. This particular war largely results from a causal chain of historical events traced to the consequences of European and Arab Antisemitism in the 1800s and 1900s, prior to the Nazi Holocaust, which in turn led to a massive refugee and migratory process of Arab and European Jews to the US, Europe, and Palestine, among other safer areas of the world. This exodus triggered in time a balkanized and territorial conflict that has lasted over 100 years. This conflict has been and continues to be fueled by politicized religious propaganda and indoctrination, which go hand in hand with the ongoing geopolitical power "games" for local, regional and global dominance, in denial of our shared humanness. These developments are nowadays also reflected in the erosion of democratic dialogue, dramatically manifested in many protests, campus unrest and the disruption of civilized debate, in universities and countries, in different corners of the world. At odds with dialogue, polarized hate communication appeals to primal emotions associated with crowd and mob behavior. Our choice of dialogue points to a vision of other possible and

imagined path of conflict-resolution and post-conflict reconciliation on the day after this war is over. The dyadic tramp of fear and aggression alludes to existential and survival threats implied by the explicit political goal to destroy the Jewish State of Israel by regional and global Islamist Califate theocratic projects carried by the Muslim Brotherhood and Ayatollah's Iran and its proxies.

A perspective on dialogic PAR in conflict and post-conflict situations: From a politically negotiated win/win perspective.[10]

This section explores the viability of applying dialogic PAR as a research orientation and methodology to study how to diminish or mitigate the spiral of brutalization and contrast-perception built-in the existential war waged between Israel and Islamist proxies of Iran (shariah law in a Chia theocratic state) and the Sunni Muslim Brotherhood in Egypt and Turkey.

This vision acknowledges our common humanity and the equal value, human and civil rights of Israeli and Palestinian Peoples, living side by side, on the bases of a just and peaceful co-existence in the same shared territory. This approach is supported by valuable empirical insights and documented lessons from the "truth and reconciliation processes" in post-Apartheid South Africa, post-genocide Rwanda, Ireland, and post-military dictatorship in Uruguay, achieved thanks to the wisdom, compassion and, today lacking world-class statesmanship provided by the likes of Nelson Mandela and Desmond Tutu in South Africa, and José Mujica in Uruguay, among others.

10 Illustrations of this approach are found for example in the proposal by former prime minister of Israel Ehud Olmert and Former Foreign Affairs Minister of the Palestinian Authority Nasser Al Kidwa on 17 July 2024, reported by Yuval Barnea, 31 August 2024. Also found in a webinar by Gersohn Baskin on "mediation, negotiation, and ultimatums – the mechanics of a Ceasefire Deal (August 21, 2024)

The argument is made that dialogue and PAR can provide orientation to research and social intervention to help create conditions conducive to conflict-resolution and post-conflict reconciliation. In this frame, an urgent task is that of preparing the Palestinian and Israeli Peoples in accepting each other, and learning how to peacefully coexist as neighbors in a future democratic society, constructed on premises of dialogue, reconciliation, democracy, justice and peace, in the same shared territory. Few analysts and social media look at the day after the ongoing war and violence stops in Gaza, West Bank, and the northern border between Israel and Lebanon. Is it possible against this background to use Dialogue and PAR in approaching the Middle-East Conflict-Resolution and Post-Conflict Reconciliation the day after? By far it is not an easy task! The propaganda war in world public debate and opinion held by a majority of protesters often forget that it was the Hamas Islamist theocratic terror massacre of innocent Israeli civilians in October 7th, 2023, coldly calculated based on strategic, geopolitical and religious considerations, which triggered this ongoing Israel-Hamas/Iran war. In this respect, the Sunni Muslim Brotherhood and Chia Iran lie in the background of this war, explicitly aiming at the destruction of Israel as a Jewish State. On the other hand, pro-Hamas' narratives blame Israeli structural and violent mistreatment of Palestinians for their 7 October attack, alluding to the Apartheid-like situation in the occupied territories (West Bank, Golan Heights). As earlier mentioned, a dialogically-oriented PAR might help to produce useful knowledge, as well as in helping to create an open space to enable and facilitate mutual listening and understanding, among all the voices and valid (albeit concurring) narratives of all parties involved in this tragic conflict, viewed as co-researchers.

This approach might hopefully help to gain a holistic understanding and a shared "reading" of this conflict, thereby facilitating the urgent search for a shared path and viable road map of alternatives for negotiated conflict-resolution, acceptable to all the voices and narratives of all concerned actors, at the local, regional and global levels. My aim with the diagram in Figure 4 is

to sketch a holistic, process-oriented approach to the complexities entailed in a post-war envisioned future Middle-East. Both Hamas and the IDF hold a similar view on the multi-layer strategic struggle between them, articulating the local national-state level, a regional Arab level, and a global Islam level of confrontation. To which I add a psychological dimension. This analytic sketch is presented as an alternative answer to prevailing views and reactions to the growing spiral of brutalization in this region of the world. An attempt is made in the following diagram (Figure 4) to sketch the main contextual elements of this balkanized regional, local and global conflict-situation.

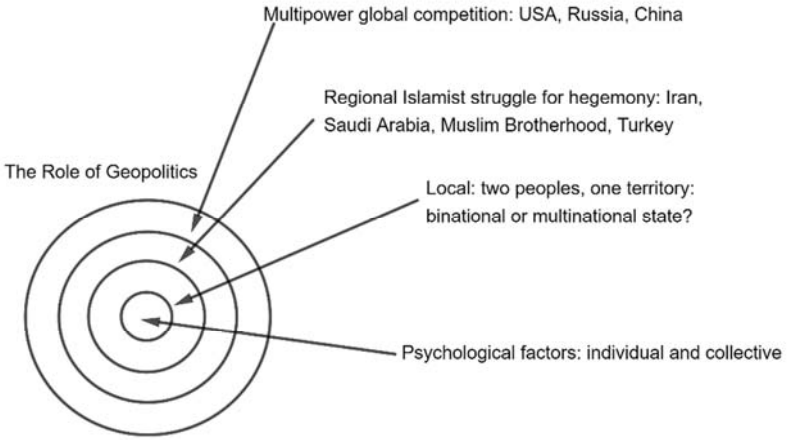


Figure 4. A Dialogic PAR approach to a Middle-East Conflict-Resolution and Post-Conflict Reconciliation, from a Multi-Level Pluri-Factorial Analytic Perspective (A Diagram)

The above diagram examines the contribution of various explanatory factors and levels of analysis, including some of psychological nature that add fuel to the growing spiral of brutalization in the Hamas-IDF war situation. In this respect, one needs to understand the effects of the psychological profile of key

actors behind the strategies of Sinwar (viewed as an Islamist fundamentalist) and Netanhayu (as a political opportunist). Their personality, personal motivations, and resulting decisions are crucial for the continuation and/or pause and stop of the war in Gaza and potential escalation, that risks triggering the escalation of war and spiral of brutalization with Hezbollah and other Iran's proxies. The intersection between cultural, religion, education, and personality factors, also plays an important role in the dynamics of - and eventual resolution of this conflict and post-conflict reconciliation, reflected as they are in two existing, valid, and competing narratives held by both Peoples trapped in this protracted conflict. The local level of analysis makes us examine the potential fate of the Palestinian and Israeli Peoples in one shared territory, in whichever form of social organization it might adopt in the future. This view assumes that the local populations won't end up annihilating each other, thereby are able to reach a negotiated political compromise solution. The regional level of analysis refers to its balkanized character. and the ongoing struggle for hegemony in the Middle-East, where the main actors are the theocratic Chia Islamist regime of the Ayatollahs in Iran, the theocratic Sunny Islamist constellation of Saudi Arabia, the Muslim Brotherhood in Egypt and other Sunni countries, Turkey, Qatar, Yemen, among other countries in the region. The macro level of geopolitical analysis points to the effects on the Palestinian-Israeli conflict and paths of conflict-resolution of the power-struggle between Western (NATO) powers and the Russia-China-Iran axis, and also to the influence of the military-industrial complex in the growing production and sale of weapons. There is no possible military and zero-sum solution to this protracted and painful conflict to all concerned, thereby leaving negotiation and political compromise as a foreseeable way to avoid apocalypse in our times. Public opinion debate is nowadays so emotionally charged, polarized, and virulent in addressing this conflict, that narratives lose track of the historical circumstances, complexity, and multi-level and pluri-factorial variables behind it. As earlier mentioned, this research approach makes use of dialogue-oriented PAR methodology in an effort to build mutual trust in a space

open to all voices and narratives, in a frame of collaborative analysis of the conditions blocking and/or facilitating a process of sustainable conflict-resolution and post-conflict reconciliation.

PAR could play an important role in this process by including and building trust among all actors and parties, currently trapped in this protracted conflict. Peace education is also regarded as a crucial instrument for the construction of sustainable structures and cultures of peace and post-conflict reconciliation in the long run, supported by a process of local, regional and global development and cooperation.

Concluding remarks

The authors were well aware when addressing dialogue as a social research orientation and methodology, of the severe challenges lying ahead in the transition from a vertical social research praxis towards a more horizontal and collaborative direction. Evidence shows that PAR has produced useful research methods and techniques, thereby enhancing the quality of scientific knowledge. The quality of results from research also gains from the incorporation of the latent curiosity and potential learning capacity of co-researchers. This work draws from Southern and Northern PAR traditions and explores ways to articulate these views within a dialogically-oriented social science paradigm. Our aim is to contribute to the development of theory, methodology and social practice in the realm of PAR, and in trying to find practical solutions to crucial social and technical problems in real-world situations. In a global context earlier characterized by conditions of non-dialogue, cultural warfare, competition, violent conflict, anomie, and hopelessness, effective participatory action research fundamentally requires willingness and readiness of stakeholders, to accept and engage in negotiation and mediation as the path of sustainable conflict-resolution, post-conflict reconciliation, and eventually supported by regional development and cooperation. The likely outcome of a continued military path is otherwise prone to be all destructive, short-lived and fruitless. It is proposed in this article, based on historical data, that there are ways in which

dialogue and PAR might contribute to produce useful knowledge, applicable in finding effective solutions to the multidimensional crisis of the 21st century, including the realm of peace-conflict research, post-conflict reconciliation, and peace education.

This article ends with an urgent call for action to our peers in academia to engage as concerned world citizens in the collective effort to inform and exert pressure on world leaders, politicians and public opinion, concerning the global consequences from climate denialism, and continuing along the zero-sum militaristic path to global competition and conflict beyond the tipping point of no return.

In addition to the original focus on dialogue in social science research orientation and method, this article conveys an attempt to "read" and effectively respond to various crucial issues and problems of our times by using dialogic PAR.

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Biography

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Erik Lindhult was senior lecturer in innovation management, Academy of Innovation, Design and Technology at Mälardalen University, Eskilstuna. Erik was engaged in the participatory and action research community and movement in Sweden, Scandinavia and internationally. He focused in research and teaching on participation and democratization of research, innovation and change processes, especially theory of science and research quality in participant-based research, co-production and interactive research. Other research and work areas were value-driven innovation, service innovation and social innovation, as well as social and societal entrepreneurship.

Educating for participation and knowledge co-creation

Mary Brydon-Miller and David Coghlan

Abstract

As a tribute to Erik Lindhult, this article reflects on the theory and practice of doctoral education in Participatory Action Research, on which the authors collaborated with Erik. It explores the underlying research philosophy and relational skills required in doctoral education, and alternative ways programs may be structured. Central to this reflection is Erik's description of his vision for his doctoral program.

Key words: Erik Lindhult, participatory action research, doctoral education

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Context

Erik Lindhult was the leader and coordinator of a doctoral course for graduate students, professionals in higher education, as well as those who work with change and organizational development and research in public sector organizations, companies or civil society organizations, from universities and colleges that did not have their own doctoral programs. His initiative was supported by SIRA (Swedish Interactive Research Association) and SPARC (Swedish Participatory Action Research Community). Individually we both

delivered modules in the course over several years. In this tribute to Erik, we pick up on his initiative in designing, setting up and coordinating the course on participatory research and offer our reflections on the design and process of doctoral courses in participatory action research. Congruent with the values of participatory action research, Erik expressed a welcoming disposition both interpersonally and in exploring ideas. Conversations with Erik in Eskilstuna, Kalmar, Dublin and online were warm and intellectually stimulating.

Participatory action research

The Encyclopedia of Action Research describes Participatory Action Research (PAR) as a research paradigm within the social sciences, which emphasizes collaborative participation of trained researchers as well as local communities in producing knowledge directly relevant to a stakeholder community (Pant, 2014). It aims to generate social change and practical knowledge in partnership with those who have direct experience of the need for change and have a stake in the outcomes. Its guiding principles are a desire to address real world issues, empowered participation, a commitment to action and social change and collaborative and equitable research (Burns, Howard & Ospina, 2021; Lindhult & Axelsson, 2021).

Participatory Action Research involves community members in the research not only as subjects but also as co-researchers. This poses challenges as to how external action researchers can engage with the community in organizing to develop the community's capacity to define its own research question and take the action it needs to take to achieve its aims. For example, time is needed for external researchers to build relationship with the community and to to understand community needs. There may be competing, contested and changing versions of community needs or values which require the researchers to be politically skilled in building relationships with diverse and often competing groups within the community. Action researchers need to work together with their community partners to develop more effective ways of sharing the

results of the research and designing strategies for action and advocacy. All of this requires a knowledge, dispositions, and skills that have not been a part of traditional doctoral training courses.

Doctoral courses

How might intending doctoral researchers learn to engage in Participatory Action Research? To answer this question we explore the theory and practice of how doctoral programs might be delivered. In his course outline Erik's vision for his doctoral program was to address

> How to manage collaborative projects that both contribute to new knowledge and innovation in organizations, municipalities and society? How to conduct research where researchers, practitioners and concerned participants contribute on equal terms in the development of knowledge and practical renewal?

There are significant learning challenges facing the education of participatory action researchers that a course typically includes developing both knowledge and skills. Examples of such challenges include the researchers learning the underlying philosophy, methodologies and methods of PAR, learning how to collect and analyze data and draw out knowledge. There are also relational challenges, such as learning how to build equitable collaborative relationships with the stakeholders of the issues, how to develop an informed and critical view of the realities facing the community, how to co-design and jointly plan the initial action and the research (which may change later) and how to manage political and ethical challenges As the research progresses, engaging in data collection and shared analysis and exploring and articulating emergent learning leading to theory contribution are core skills to be learned. There are also skills in learning how to facilitate action and reflection and to engage in self-reflection and personal learning. Accordingly doctoral courses need to be designed to support graduate students enhance their knowledge and skills for the complex research process.

Incorporating the skills, knowledge, and dispositions of action research into doctoral training

Whatever model of doctoral training is adopted, the same core set of skills, knowledge, and dispositions are still critical in training future action researchers. And they are distinctly different from the traditional methodological training most students receive in their doctoral programs. Moving beyond the realm of traditional research, we need to consider how action researchers can acquire the experiences they will need to successfully negotiate the Realm of Empathetic Relators, the Realms of Dynamic Sense-making and Emergent Design, and of course, the Realm of Advocacy (Brydon-Miller & Ortiz Aragón, 2018; Brydon-Miller et al., 2021).

Action research is grounded in the creation and maintenance of strong and trusting relationships with organizational and community partners. This requires a commitment to working alongside others rather than imposing our research agendas upon them, and the development of communication skills centered around listening carefully, building common understanding, and managing conflict effectively. It also requires researchers to articulate a set of core values and an ability to engage in processes of self-reflection to consider how these values are being put into practice.

Rather than viewing research as a pre-determined process of data collection, action research understands knowledge generation as a dynamic process that requires flexibility, creativity, and an ability to deal with complex situations in nuanced and novel ways. Providing students with opportunities to consider problems from multiple perspectives through the use of methods that encourage dialogue and collaborative exploration prepares them to facilitate such processes in their own research.

Action is not an afterthought in this work. Rather we understand that action and advocacy are integral parts of the knowledge creation process—that we come to know through taking action in the world. In order to be effective as action researchers students must develop the ability to communicate with diverse audiences

through different forms of media and must be able to facilitate change processes that enhance these skills with their organizational and community partners.

Doctoral training programs in action research need to provide training and mentoring focused on developing this broad range of skills, and pedagogies need to reflect this. There are many existing models for promoting doctoral education in the theory and methods that inform action research. These tend to have been developed around different models of doctoral training more generally with some focused more on course development and others on short-term workshops and training programs.

Doctoral training in the US tends to include at least two years of course work in research methods and disciplinary content-based topics before students begin independent research toward their dissertation. The Educational and Community-based Action Research program at the University of Cincinnati that Mary started with her colleague Miriam Raider-Roth who now directs the program is one example of a doctoral training program which includes extensive coursework related to action research. Other programs tend to be based more on the laboratory model common in the natural sciences in which students work specifically with individual faculty who are conducting action research themselves, both Alfredo Ortiz Aragón at the University of the Incarnate Word in San Antonio, Texas and Nina Wallerstein at University of New Mexico, have created programs using this type of model. In either case, students have extended exposure to and opportunities to engage in action research before beginning their own projects.

In Europe, the UK, and other countries the model of doctoral training does not include coursework but expects that students will enter a program with a relatively well-developed research plan already in mind and that these students will seek out any additional training they need to successfully conduct their research. In this case it's more common to see short, workshop-style training programs offered, such as the PAR course facilitated each June by Sarah Banks at Durham University in the UK, as well as the Swedish Participatory Action Research Committee (SPARC)

series of workshops which Erik helped to coordinate. These workshops tend to be more intensive two- to three-day programs that include participants from multiple campuses and sometimes include community partners as well.

A third model are Community Engagement Academies which are non-credit bearing programs established with the goal of providing students with an overview of action research over several sessions. The University of Louisville and the University of Technology, Sydney are currently developing a partnership to design, implement, and assess this model together in a joint research project.

Whatever model of training is offered, the overall goals are much the same—to provide students with the skills, knowledge, and dispositions required to be effective and ethical action researchers.

Conclusions

In this reflection on doctoral education for participation and knowledge co-creation, with which we both collaborated with Erik, we have articulated what we understand such programs should entail: the underlying research philosophy and relational skills required and alternative ways they may be structured. Central to this reflection is Erik's description of his vision for his doctoral program. As Erik expressed in his vision for the doctoral course cited above his core values are captured by his two key questions.

1. How to manage collaborative projects that both contribute to new knowledge and innovation in organizations, municipalities and society?
2. How to conduct research where researchers, practitioners and concerned can participate and contribute on equal terms in the development of knowledge and practical renewal?

Within these two "how to" questions, the core value of researchers, practitioners and those concerned participating on equal terms to

co-create new useful knowledge underpins the practical challenges of managing collaboration and conducting research.

In our fractured world where polarizations inhibit dialogical conversations between stakeholders including the world of research, educating researchers to engage collaboratively in the co-creation of useful knowledge and effective action to address wicked problems is a pressing imperative. Erik Lindhult had a vision of how doctoral education could confront polarizations by a participative philosophy and collaborative methods to knowledge co-creation. Such is his legacy for us to continue.

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Biography

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David Coghlan is Professor Emeritus at the Trinity Business School, Trinity College Dublin. He is the author of numerous articles on OD and action research and of several books, including, *Doing Action Research in Your Own Organization* (Sage, 5th ed 2019) and *Conducting Action Research for Business and Management Students* (with A.B. Shani, Sage 2018) and is co-editor (with D. Szabla, B. Pasmore and J. Kim) of the *Handbook of Research Methods in Organizational Change* (Edward Elgar, 2023) and (with M. Brydon-Miller) of the *SAGE Encyclopedia of Action Research* (2014). His most recent book is Edgar *Schein: The Artistry of an Organizational Reflexive Scholar-Practitioner* (Edward Elgar, 2024).

Wicked theorising: Theory building to address complex problems

Natalie Smith, Shankar Sankaran and Bob Dick

Abstract

As scholars, many of us aspire to use our research to help solve wicked societal challenges, and we believe in the power of theory to do this. However there has long been criticism of the commonly used qualitative and quantitative research methods to make meaningful impact on solving complex problems. There have been a number of scholars spanning many generations of research who have been developing alternative methods, not to replace, but to expand the academic toolkit in situations where the mainstream methods reach their limits. We represent three generations of scholars who have found these methods, with some adaptations, are also well suited to help address complex or wicked problems. The aim of the paper is to outline the challenges in conducting research to address wicked problems and outline a method we term wicked theorising. The intent is to honour the legacy of the scholars who have preceded us, to outline the potential and limitations of an approach we call wicked theorising, and share the techniques and strategies we have developed to address some of the practical challenges in this approach.

Key words: Action research, engaged scholarship, theory building, wicked problems

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Introduction

An expectation of industry and society is that publicly funded research organisations should contribute to solving complex

problems. However, there are several challenges in conducting problem-solving research – epistemological, methodological, practical and efficacy. We explain each of these challenges to frame the purpose and outline of this paper.

Epistemological challenges

Problematising is vaunted in the literature for developing interesting and influential theories (Sandberg and Alvesson, 2011). However, *problem-solving,* where research is used to solve industry problems, is more contentious. At one end of the spectrum are those who claim problem-solving develops theories that are interesting, influential and impactful (Strübing, 2007). At the other end of the spectrum, it is claimed problem-solving is merely a form of consulting (Hollenbeck, 2008). In the middle are those who acknowledge that it can lead to impactful research, but at the expense of theoretical contribution (McKelvey, 2006).

Methodological challenges

The criticism associated with problem-solving research can in part be attributed to application of research methods. Across domains, engaged scholarship methods, including action research, are used to engage with industry in problem-solving (Davison et al., 2004). The challenge is that although at least ten different forms of action research have been identified, the role of theory in these different forms is ambiguous (Mathiassen et al., Chiasson et al.). Action research, for example, can build theory inductively (Westhues et al., 2008), use it deductively (Susman and Evered, 1978) or evolve into a hybrid approach (Braun and Clarke, 2022). The action research method most commonly used, Canonical Action Research, infers a deductive approach where theory is selected after problem diagnosis (Susman and Evered, 1978). This might work for solving an organizational problem, but not if there is no known theoretical solution. In addition, it runs the risk of applying known theories with little theoretical development or contribution, and can limit the potential for personal and social development (McNiff, 2013).

Another valid methodological argument is that if a problem is indeed wicked and complex, there is not a linear or clear-cut solution (Rittel and Webber, 1973). Wicked problems are described as ill-defined, malignant and unique (Crowley and Head, 2017). There is a premise in research that to solve a problem you need to understand the root cause. A better understanding of the problem is not unjustified. Research resources are scant. Funding is increasingly difficult to obtain. So efficient use of these resources in ensuring the right problem is solved appears logical, but it leads to a predominance of research on understanding the problem, rather than proposing a solution (Sankaran et al., 2017, Mingers and Rosenhead, 2001). Methods such as Soft Systems Methodology (SSM) are helpful for better understanding complex and problematic situations (Cechvala, 2024), but can fall short in knowing what to do about them (Sheffield et al., 2012, Checkland and Poulter, 2010).

Practical challenges

The research process of engaged scholarship for problem-solving is notoriously more complex and harder to control than traditional methods, engaging as it does with participants and involving large quantities of data (Van de Ven, 2007). In addition, problem-solving is inherently cross-disciplinary, typically involving large systematic literature reviews at the outset and difficulty in pinpointing a journal for publication at the completion of research (Lawrence et al., 2022). Building theory to solve problems is what Glaser describes as a "drugless trip", distilling and analysing vast quantities of data using grounded theory techniques (Glaser, 1978, p. 31).

Efficacy challenges

The final problem we present related to building theory to solve wicked problems is efficacy. Some scholars assert there is nothing as practical as good theory, that the best way to understand something is to try to change it, and that theory has power to guide practical business and individual decisions (Lewin, 1952, Christensen and Raynor, 2003). There is a counter-claim that

"nothing is as dangerous as a bad theory" (Ghoshal, 2005, p. 86). Published theories tend to be rigorously produced but are often not adequately validated (Colquitt and Zapata-Phelan, 2007). So how do we ensure that we are not creating bad theories?

Motivation and purpose for this paper

We represent three generations of engaged scholars; the third author supervising the PhD of the second author, who supervised the PhD of the first author. We all identify as *pracademics*, professionals with dual identities of practitioner and academic (Dickinson and Griffiths, 2023, Volpe and Chandler, 1999). The motivation for this paper was two-fold. First, the most junior of the three scholars felt that other pracademics and scholars could benefit from the tacit and unpublished techniques she had learnt from her supervisor and his supervisor (Polanyi, 1962). Second, we have all richly benefited from the direct support and indirect counsel of action research and engaged scholars (e.g. Lewin, 1952, Argyris, 1982, Van de Ven, 2007). We think there could be no more fitting tribute to their legacy in this special issue than to continue building on the principles they defined, and the methods they embraced, for conducting impactful research. We align with these scholars and others that have gone before us that: 1) mainstream and linear methods are limited in their ability to address the increasing complexity of our society, 2) that we don't necessarily need to have a root cause or a neat solution to provide helpful theories, and 3) that it is by engaging in a situation that we discover nuances that refine theories so that they better explain, predict or result in improved outcomes.

Our aim is to outline an approach to theorising that helps address wicked problems, leveraging the learnings of those who have preceded us. We don't profess to have *the* answer to solving wicked problems, but we do outline *an* approach we have found to be helpful. There are 4 principles that underpin this approach which we call *wicked theorising*: 1) *problem structuring*: starting with a wicked problem for which there is no adequate theoretical explanation, 2) *convergent questioning*: involving high use of comparison and abductive logic with three forms of data

(experience, field data and literature) 3) an *iterative "trial-and-error" method*, leveraging understanding of complexity and systems thinking, and research that is broader not deeper, in order to reveal new pathways through complex domains, and 4) *evaluation*: through action or other evaluative techniques.

Developing theory to address wicked problems

As a label, the word "theory" has some heavy lifting to do. Theories can be about reality, or about our methods for engaging with reality. Theories can range in scale from micro theories about the relationship between two variables to the multi-variable summaries arising from larger, multi-level data sets (Abend, 2008). Theories have been categorised as being able to explain, predict, analyse and inform action (Gregor, 2006). The recurring literature on the theory-practice gap implies that practitioners often find academic theories less than helpful (Schön, 1995, Butler, 2008). The rationale has been that academics tend to be interested in relationships between measurable or controllable variables, whereas practitioners are more likely to want to know what to do to achieve particular outcomes in particular situations (Schneberger et al., 2009, Lynch et al., 2018, Schön, 1995). As pracademics, we have found it more helpful to focus on the characteristics of the situation, rather than the differences between academics and practitioners who approach the situation. A framework we have found particularly helpful in differentiating characteristics of a situation to determine the type of method and theory is the Cynefin framework (see Figure 1). This framework differentiates between situations that are clear, complicated, complex, chaotic or confused (Snowden and Boone, 2007, Snowden and Rancati, 2021).

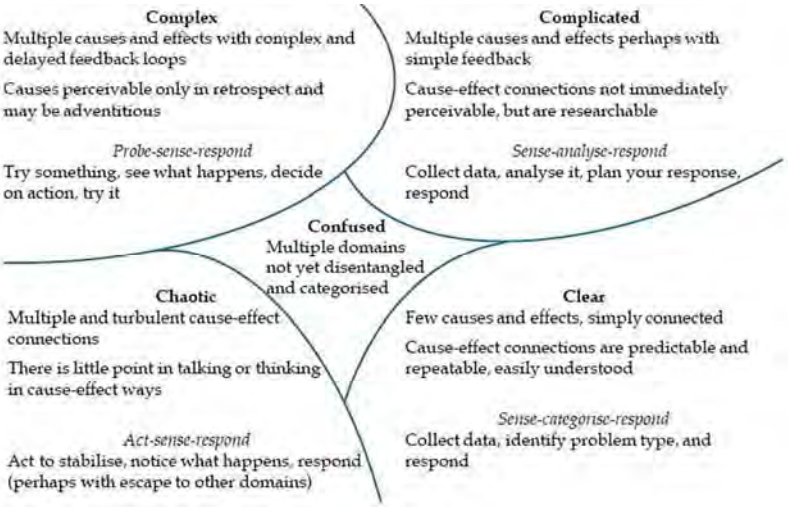

Figure 1. Adapted from the Cynefin framework categorising situations by their complexity (Snowden and Boone, 2007)

In particular, two types of situations warrant deeper consideration here. *Complicated* situations may have many different elements with limited interactions between the elements whereas *complex* situations have many elements interacting richly (Snowden and Boone, 2007). Complicated problems can be understood by people with relevant and adequate expert knowledge. Complicated problems recur. This allows past experience (including from other people) to be used with some confidence. More than one area of knowledge may be relevant; multidisciplinary approaches may be useful. Complicated problems are understandable if the relevant experts can be assembled. When they understand the problem, solutions are then usually known or can easily be devised, with some confidence. The problem solvers are in known territory. Similarly, complicated situations are well-suited to process and variant theories (Van de Ven, 2007).

Complex problems, on the other hand, cannot be understood — at least, not enough for actionable solutions or parsimonious theories to be devised. Beyond a certain level of complexity, each complex

problem is unique and multi-disciplinary (Crowley and Head, 2017). Some uncertainty in understanding is inherent because of the complexity. Edward Lorenz provocatively asked "does the flap of a butterfly's wings in Brazil set off a tornado in Texas?" as a metaphor to explain how a change of less than one thousandth of a unit of the twelve variables in his weather model had a dramatic effect (Lorenz, 1972, p. 1). In other words, trivial changes in variables rendered the eventual outcome of his model completely unpredictable

How, then, does a researcher intent on making impact manage the shift from complicated situations to complex situations? We can press into service here a metaphor from Schön (1995). He talks of the complexity of professional problem-solving. To engage with complex reality is like working in the "swampy lowlands", forsaking the high ground where more apparent rigour may be achievable (Schön, 1995, p. 28). To deepen the metaphor, imagine being lost in the swamp, in a fog. Only a step or two ahead can be seen. If there is a beacon on a distant hill, it may be visible as a glow. That can at least serve to guard against walking in circles. Imagine, then, taking a safe step in approximately a desired direction. From this new vantage point, a further step ahead can now be seen — and so on. Again quoting from Schön (1983), professionals who choose to engage with the reality of the swamp describe what they do as "experience, trial and error, intuition, and muddling through" (Schön, 1995, p. 28). For such approaches, theories of how to muddle through are then needed (Lindblom, 1959; Allison and Saint-Martin, 2011).

Defining Wicked Theorising

We have explained why, if a problem is indeed wicked and complex, there cannot be a linear or clear-cut theory or solution (Rittel and Webber, 1973). Our starting point for a methodological approach to complex problems is this notion of experience, trial and error and muddling through (Schön, 1995; Lindblom, 1959). We build on the learning, methods and experience of others to address the challenges we have outlined. Our inherited legacy

includes collaborative research methods (Van de Ven, 2007), the distinction between espoused theories and theories-in-use (Argyris, 1980), instruction on grounded theory (Glaser and Strauss, 1967) and the symbiotic relationship between theory and practice (Checkland, 1985). We consequently define *wicked theorising* to be developing theories to explain, predict or inform wicked and complex problems as *a* method (not necessarily *the* method).

The intent of wicked theorising is not so much to solve a problem as to work towards a better place. We limit this document to an exploration of the relationship between theory, broadly defined, and complex problems. The approach we outline is suited to complex situations where outcomes can't be predicted and where there may be a difference between *espoused theories*, that is, what people say, and *theories in use*, that is, what people do (Argyris, 1993). Our epistemology is that it is by engaging with a situation and the people immersed in it, and engaging with diverse data sources and by trialling potential solutions, that the actual dynamics of the specific situation can be revealed, and the step to a better place navigated.

Wicked Theorising Approach

There are six main distinguishing elements of the approach we outline for *wicked theorising*: 1) problem structuring, 2) data collection, 3) theory building, 4) theory evaluation and refinement, 5) reflection, and 6) finishing the research process. It is important to note these steps can be iterative, multi-stranded and/or simultaneous, similar to Van de Ven's engaged scholarship and Burn's Systemic Action Research (Van de Ven, 2007, Burns, 2007). The framework for wicked theorising is depicted in Figure 2, and then each component described in detail. For each component, we describe the characteristics that differentiates this method from others, and then explain techniques we have found to be useful.

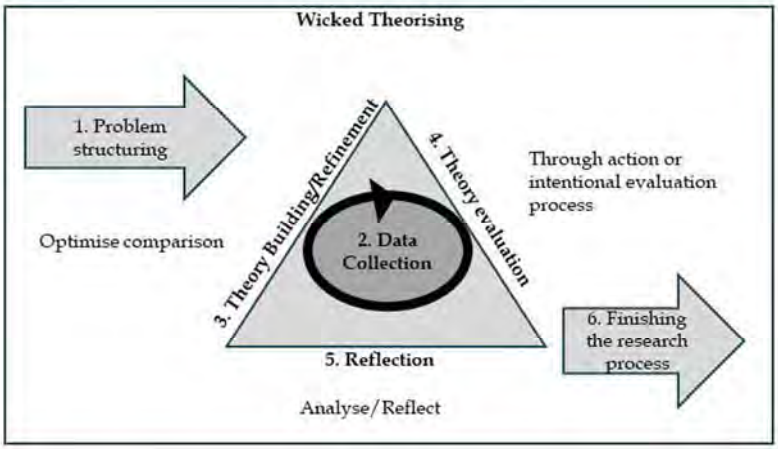

Figure 2. Iterative Approach to Wicked Theorising

Problem structuring

We have found Van de Ven's explanation of *formulating a research problem* helpful (Van de Ven, 2007), and align with other scholars on the criticality of a well-designed research question (Alvesson and Sandberg, 2013, Weber, 2003). In a chapter dedicated to the topic, Van de Ven (2007) justifies the importance and criticality of problem formation. He describes the process of problem formation as four overlapping and interdependent activities: situating, grounding, diagnosing and resolving. Similar to our intent, the focus is on problems that are not clearly structured, and instead, represent anomalies or breakdowns and a puzzle of "there's something else going on here" (Van de Ven, 2007, p. 72, Christensen and Sundahl, 2001). Van de Ven (2007, p. 73) describes a research problem as "any problematic situation, phenomenon, issue or topic that is chosen as the subject of an investigation". We affirm this approach helps ensure that the research question reflects a complex problem they need to solve. What this approach assumes, or overlooks, is that the problem has no known theoretical explanation or solution, or that the relevant theories are evidently ineffective.

An important part of the problem structuring in wicked theorising is *problematisation* to understand the strengths and limitations of existing theoretical explanations (Sandberg and Alvesson, 2011). This approach diverges with grounded theory methods because it starts with an analysis of the extant literature (Glaser and Strauss, 1967). In addition, this early analysis forms the basis for determining the theoretical and practical contribution later in the research process. For example, Author 1 found that while collaborating on the research question, different perceptions of leadership between the clinicians and researchers emerged. Grappling with these differences flushed out nuances that informed the developing theory and would later ensure the relevance of the research to the industry partners.

Another important aspect of problem structuring is to *define the role of theory* in the research process. There are several roles theory can play in an action research approach to problem-solving. If there are no known theoretical explanations, or the explanations are conflicting, you will need to build theory to help solve the problem and an inductive method is appropriate. If there are explanations, but they are for a different context or the explanations have limitations, hypothesising from an existing theory and deductive approach is appropriate (Okoli, 2023, Kennedy and Thornberg, 2018). Being intentional on how theory is used is also important for countering a common criticism of action research: that theory is subordinate to problem-solving (Mathiassen et al., 2012). For the remainder of this article, we focus on an inductive method, as deductive methods are well addressed in Susman and Evered (1978) canonical action research.

The final consideration in problem structuring is engagement with the industry partner. There are two aspects to this: *having a shared purpose* and *defining the level of engagement*. Having a shared purpose between the researcher and participants, and higher levels of participation than other methods, have the advantage of empowering participants that might otherwise be marginalised. However, there are several risks. These include that it is harder to predict how the research will unfold, empowering some

participants may disempower others, and rapport between the researcher and participants is required to enable an intervention (Pitts and Miller-Day, 2007). There may also be misalignment between research and practitioner goals and timelines. The skill and experience of the researcher in building rapport, managing the relationship and negotiating to achieve common goals is critical to the research outcomes.

The other aspect with engagement is defining the level of participation or engagement of the researcher and partner on a continuum in which we identify four main points. The first level is common to other research methods where there is minimal interaction with participants, such as when action and dialogue is observed. The second level is also common to other research methods, using interviews and surveys which require a level of interaction from the participant in the research topic. The third level of interaction is collaborative where participants discuss, debate and challenge the research process and findings. The fourth level is where participants facilitate an intervention with the dual objective of ameliorating their wicked problem and to help validate the theory.

Data collection

There are several important characteristics and considerations for sampling in this approach relative to other research approaches. The first is that the goal of sampling is to *optimise diversity for comparison* (Sandelowski, 1995; Martínez-Mesa et al., 2016). The reason for this is three-fold. The first reason is that diversity of sample is needed to reflect the inherent complexity of the problem to be solved. The second reason is that comparison between diverse perspectives provides the basis for analysis and theory building. The third reason is to mitigate the risk of data suffocation – a risk associated with the high volumes of data associated with inductive approaches to action research. Consequently, the method is more likely to involve multiples cases, or multiple roles within a single case.

A second characteristic of this approach is that *sampling is iterative and evolutionary*, that is, each round of data collection will inform the next. An evolutionary approach to sampling can be problematic for ethics approvals, but we have mitigated this by catering for as much diversity as possible in the ethics application, requesting approval in phases, or flagging that there will be a series of variations as more details are known. We depict these characteristics of data collection in Figure 3.

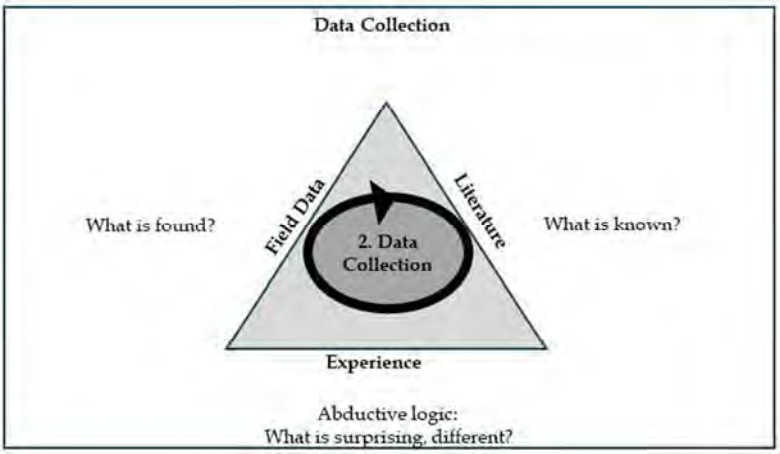

Figure 3: Data Collection – an iterative process of what is found, known and surprising or different

A consideration when designing the sampling approach is *triangulation of data sources* to improve research rigour (Flick, 2004). In this approach, sourcing different sample types for the same case or account helps triangulate a participant's account, for example, using organisational artefacts or public domain records. A second consideration is the difference between the theory building and theory evaluation phase. Whereas the theory building phase might consider first person accounts, the theory evaluation phase can revisit original participants to test the findings are captured as recounted, and include participants who can help validate the theory across a larger number of cases. Sampling in the theory evaluation stage should be purposeful in testing the boundaries of

validity for the theory, as well as purposeful questions to assess novelty, usefulness, and that the theory is minimally sufficient (Patton, 2014). A third consideration is having a mix of data collection techniques, such as surveys that deliberately separate the researcher from the participant to mitigate the risk of bias associated with higher levels of participation.

To manage these characteristics and considerations, we use a three-phased process of pre-planning, engaging and ongoing engagement, which are outlined in Table 1.

Stage	Description	References
Pre-planning	The pre-planning stage negotiates access to an organisation or group of participants. It is important at this stage to establish rapport by careful and attentive listening to understand participant needs, and to demonstrate you have their genuine interest at heart. This will require an appropriate level of self-disclosure to gain trust. Getting a sense of the issues at hand may not be self-evident, and may require informal conversations, observations at site or semi-structured interviews.	(Dick, 2002; Robinson, 1996; Emery, 1989; Argyris, 2004)
Engaging	Expectations of the client need to be established. This may involve both short- and longer-term goals. The short-term goal could be to attend to immediate concerns, but longer-term goals are also important so that the issues being faced do not arise again. It is also important to gauge who the stakeholders in the situation are and establish how much the client knows about these stakeholders. Useful questions to ask are:	(Dick, 2002; Checkland and Poulter, 2006; Checkland and Tsouvalis, 1997)

Stage	Description	References
	1. Who will be involved in the research? 2. What is their level of involvement? 3. What are the constraints on the research such as time, budget, and access? 4. What level of flexibility exists in proposing suitable interventions? A contract is helpful to agree the common ground, provide role clarity, to agree the approach and outcomes, and to align timeframes. A possible tool to use is from Peter Checkland's Soft Systems Methodology called CATWOE. (Customer-Actor-Transformarion-Weltanschauung-Owner-Environment). While initial contracting will help determine the relationship between the researcher and the client, it needs to be monitored and will likely need to be renegotiated as the project evolves.	
Ongoing engagement	Skills that will be required to establish and maintain an effective contract are good communication, relationship building, political savvy, influencing skills and an ability to be a good radar to sense change is coming and being prepared for it.	(Bourne and Walker, 2005; Bourne and Walker, 2008)

Table 1. Data collection phases

Theory building

We mentioned earlier that the word "theory" has some heavy lifting to do, and that practitioners and academics can have different perspectives on the purpose and criteria for useful theories. We have presented a case that beyond a certain level of complexity, situations become inherently unpredictable. Detailed plans for research (and action) are unlikely to work. As with Schön's metaphor about the swampy lowlands, a trial-and-error approach, one step at a time, can be more appropriate (Schön, 1995). The aim is that each step will increase understanding, thus supporting a good choice for the next step. In other words, the research and the action are interwoven rather than one following the other. The process is iterative, consisting of cycles of action and reflection.

A technique we have found useful is to integrate data collection with analysis and interpretation, in an adaption of a technique called convergent interviewing (Dick, 2016, Driedger et al., 2006, Riege and Nair, 2004). We describe how this can be used in the researcher/participant collaboration and theory-building process as follows:

1. Discern agreements and disagreements

   Within each interview or between interviews, notice agreements (compatible mentions of the same topics) and disagreements (incompatible mentions of the same topic).

2. Probe for exceptions and explanations

   When an agreement is identified, in the same or subsequent interviews probe for exceptions to the agreement. Note that exceptions then constitute a disagreement.

   When a disagreement is identified or elicited, in the same or subsequent interviews probe for explanations of the disagreement.

3. Amend the emerging theory where necessary

Amend the emerging theory, if appropriate, to incorporate the new explanation. If possible, phrase the theory so that it is actionable. This is easily done if the emerging theory is in the form of a theory of action. That is, it specifies which actions are likely to generate which outcomes in which situations. As appropriate, incorporate the new understanding in following cycles (steps). The process is summarised in the diagram (Figure 4).

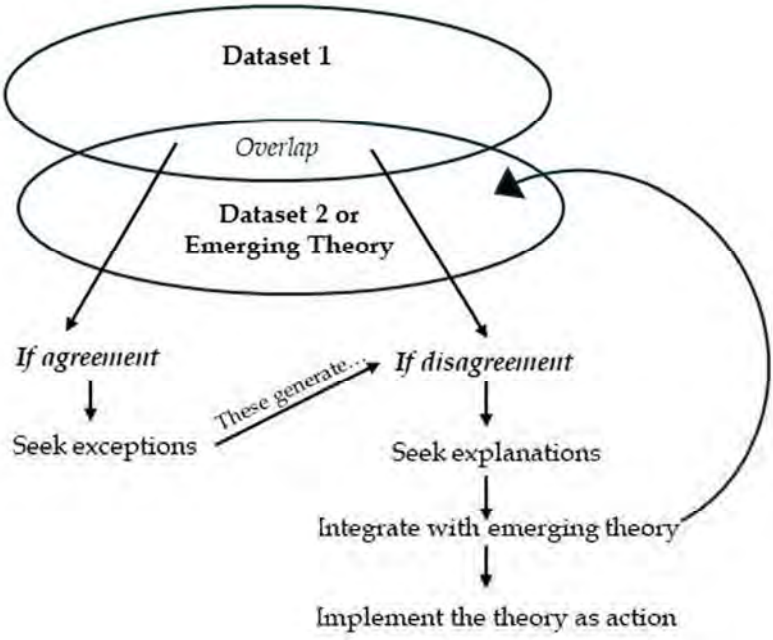

Figure 4. Data analysis for theory building (Dick, 2016)

A vigorous search for disconfirmation is a central part of this process. It serves three purposes:

1. comparison of agreements and disagreement can lead to a deeper exploration of the situation; it contributes to a better theoretical understanding;

2. disconfirmation (that is, exceptions) can help to define where the agreement breaks down; exceptions help to define the scope of the agreement; and

3. if we are vigorous in seeking out disconfirmation, yet it does not challenge the essence of the agreement, we can claim that our explanation (our theory) has survived our attempts to falsify it (Dick, 1997; Dick, 2012; Sankaran and Dick, 2015).

An example Author 1 had was in teasing out with participants whether an emerging pattern, instilling pride in the project objective, was significant to project success relative to the commonly accepted significance of a sense of urgency for the project.

There are several features of this approach that require further explanation. A maximum diversity sample is recommended, to increase the likelihood that all stakeholder views are taken into account (Riege and Nair, 2004). Each interview begins with a very open-ended question (such as "Tell me about this organization"). The contributed information is therefore chosen by the interviewee, not the researcher. The questions become more specific and detailed as the interview progresses, based on the responses to the earlier questions (Dick, 2016). The probe questions later in each interview, in seeking exceptions and explanations, involve the interviewees in interpreting the information collected (Driedger et al., 2006). That is, a level of analysis is integrated into the data collection process, which informs the direction of questioning and also future sampling. This is a more intentional and participative approach than traditional grounded theory approaches, and reflects the level of uncertainty and complexity (Williams and Lewis, 2005). Analysis continues after the data collection.

Reflection and abductive logic are fundamental to this approach and are important in distilling what is surprising and what the reasons for that might be. Abduction is defined as the cognitive process through which an explanation for a surprising fact is hypothesised (Alvesson and Kärreman, 2007, Kennedy and Thornberg, 2018, Sætre and Van de Ven, 2021). It is less important

in this approach, relative to traditional research methods, for the analysis to be right at the start. The iterative nature of the process, and the subsequent evaluation phase, help refine and validate the emergent theory. However, a challenge with integrating data collection and analysis is that it can be harder to demonstrate explicit links between the data and emergent theory, which is important in traditional journal article reviews. For this reason, we recommend intentional memo-ing and diarising using a template to prompt for reflection. It also increases the emphasis on the theory evaluation process, relative to other qualitative methods (e.g. Gioia et al., 2013, Gehman et al., 2017).

There is a complication. In a complex situation it is likely that more than one action will be required or is feasible. Often there may be several actions to be performed in sequence. The early steps may reveal more details about the nature of the situation. This may require later steps to be modified accordingly or a trial-and-error evaluation process to be applied.

Theory evaluation

The theory evaluation phase is where our approach diverges from most qualitative research approaches. It makes explicit what is implied in Van de Ven's engaged scholarship method and addresses a limitation of a majority of theoretical contributions in high-ranked journals: that they have not been empirically tested (Kacmar and Whitfield, 2000, Edwards et al., 2014). We outline two approaches to theory evaluation: Action Research and Iterative Evaluation.

1. Action Research

   The first approach is what distinguishes action research, that is, an *action* or *intervention*. This is our preferred method as our experience affirms Lewin's claim that the best way to understand something is to try to change it (Lewin, 1952). Using action research for theory evaluation involves co-designing an intervention with participants with relevant experience and skill to imagine a way forward, try it out, take stock of what happens and refine the plan accordingly

(McNiff, 2013). The action is the result of a review of what's working or not, From Gary Klein's work on naturalistic decision making, we know this can be done relatively quickly (Klein, 2008, Klein, 2016). Measurement criteria should be built into evaluate the action and adequacy of the planned response (Piggot-Irvine and Zornes, 2016).

2. Iterative Evaluation

We have encountered situations where an action is not possible, so have used *iterative evaluation* instead. While this approach might not be as strong as action research in testing validity, it is stronger at evaluating transferability and novelty. Iterative evaluation involves to re-engaging with participants and the literature to assess the novelty, validity, sufficiency and parsimony of the theory. An important part of this process is to seek disconfirming evidence – what is it ***not*** a case of, based on a priori assumptions. For this form of evaluation, data collection methods we have used include facilitating workshops with the participating organisation, re-engaging with original participants, sampling new participants and conducting surveys (using a write-up of the research findings). Example questions are provided in Table 2.

Theory evaluation criteria	**Example questions for evaluation**
Validity	Rate how the theory/model helps explain your experiences
Parsimony	What might the theory be missing or need to improve to better explain your experiences? Could any of the components be removed and the theory/model still work?
Novelty	Are you aware of other models of theories that are similar to this or better explain your experience?

Theory evaluation criteria	Example questions for evaluation
Usefulness	Rate the theory's usefulness to your context. How could applying the theory help this context?
Applicability	What would prevent your organisation from applying this theory?

Table 2. Example of theory evaluation assessment

Reflection

Unlike other forms of social science research where the researcher is isolated, to some extent, from the context in which field work and experiments are conducted, this approach inherits the attributes of action research where researchers are "immersing himself or herself in a human situation and following along whatever path it takes as it unfolds through time" (Checkland and Holwell, 1998, p. 11). Consequently, while other forms of research can follow a pre-determined process or plan, these methods require a different approach. Consequently, the next important element of this research is one of reflection, not only to analyse the results of the evaluation and refine the emergent theory, but to determine the subsequent steps in the research journey. To determine the remaining research journey, a "framework of ideas" is needed rather than having a solution in mind, such that the process is *recoverable* or understandable, rather than repeatable (Checkland and Holwell, 1998, p. 17, Holwell, 2004).

There are five components we have found useful for contributing a rigorous and recoverable theoretical response to a complex problem, all of which are mentioned to some degree in the fourth phase of Van de Ven's engaged scholarship and Champion and Stowell's treatise on validating action research (Van de Ven, 2007, Champion and Stowell, 2003). For wicked theorising, these components need to occur continually throughout the research process: grounding the research in the research question, ensuring

the authenticity and credibility of the research, documenting research choices and determining if the findings are sufficiently complete. These five components are now explained in turn.

1. Continually ground activity in the research question

   With a complex problem, large volumes of data and emergent process, it is even easier than it might be with other methods to get side-tracked or suffocated by data (Pettigrew, 1990). To mitigate this risk, we have found continually grounding research decisions, findings and activity in the research question is necessary. For example, in Author 1's research, there were many factors that could contribute to project success, but the research question was specific on the role of organisational leadership. Consequently, findings were continually evaluated on the significance and priority to organisational leadership.

2. Continually refine and assess for authenticity and credibility

   As the research progresses, continually looking for ways to ensure the authenticity and credibility is important. While it is important to consider the choice of participants up front (Champion and Stowell, 2003), we advocate that these are not just matters that are considered in advance, but get re-assessed as the inquiry proceeds. A question we continually ask ourselves is "do you have sufficient evidence to support your claim on the contributions to theory and practice from your research?" For example, Author 1 included leaders of different transformation types to help determine the boundaries of validity for the emergent theory. Other decisions that were made during the research process were including parliamentary transcripts as a data source to validate participant accounts and conducting a survey to test for bias in interview findings.

3. Reflecting on who is approving/rejecting what and why

   Another consideration in improving authenticity is "reflecting upon who authorized or supported which elements of the inquiry and for what purpose" (Champion

and Stowell, 2003, p. 30). For example, in doctoral research intellectual guidelines may be set by the supervisor or access guidelines may be controlled by the research setting at the start of a project. In Author 1's research, for example, participations and interventions were approved and later declined by the host organisation, the reasons for which informed the research.

4. Reflecting on relationships between participants

   Another area for continual assessment is in the "developing and planned relationships during any inquiry process" (Champion and Stowell, 2003, p. 31). Evaluation of relationships are deemed useful for "questioning any undeclared worldviews held by participants…such reflection may provide insight into how the issues of individual power and control have been dealt with by participants during the inquiry" (Champion and Stowell, 2003, p. 31). In addition, in addressing wicked problems, analysis of how relationships manifest can inform the viability of a solution. For example, in Author 1's research, the change in relationships wrought by a rapid response to COVID-19 revealed possibilities (and findings) that had not been possible (or evident) in the planned transformational change.

5. Involve participants in assessing agreed criteria of rigour

   A final consideration for improving validity is involving participants in the learning and evaluation process (Champion and Stowell, 2003). Questions that Author 1 asked of participants included whether there is anything that could be removed from the theory and it still be valid, whether they are aware of better or more plausible theoretical solutions, and whether there is anything missing from the theory that would better explain their experience.

Finishing the research process

Discerning when enough is enough

How and when to finish a wicked theorising project is much less clear cut than for traditional forms of research. Firstly, as the approach is iterative, learnings and findings from each cycle inform and develop subsequent cycles, so when should the researcher stop iterating and start publishing? Similarly, a question often asked by doctoral researchers is how to align research timing with an organisation's timing? Author 2 faced this dilemma when the long, drawn-out change management process in an organization extended beyond the normal time expected to complete doctoral research (3 to 4 years). This dilemma is exacerbated when the aim of the research is to help solve a complex problem. Expecting a neat, tied-up-in-a-bow solution is unrealistic, and a different approach is required. Instead, questions to inform when the researcher can stop are "do you have a convincing story to tell in that the research helped the organization to change from where it was and it was well on its way to where it needs to be?". The decision on when to publish should be guided by assessing whether the research process is recoverable by interested outsiders (Holwell, 2004). A question Author 3 has often been asked is "will I have enough for a thesis?". His reply is that "it is more likely you will have 12 theses and the challenge will be to choose which one". The original research question guides that decision, as can a principle used in agile development and entrepreneurial business startups, that of considering a *minimum viable product* that can be further refined later (Lee and Geum, 2021).

Writing up

We have mentioned there can be challenges publishing this type of research in mainstream academic journals. As with any qualitative research process, being transparent on the justification and explaining the research journey is important for research credibility (Checkland and Holwell, 1998). This is even more important when the process and action evolve over the inquiry period. To make evident the *authenticity* and *credibility* of any

knowledge created through the inquiry process, Champion and Stowell advise "reflecting upon, and if necessary making a record of, certain crucial elements of the inquiry as it unfolds" (Champion and Stowell, 2003, p. 28). If these details are recorded, then interested individuals not involved in the inquiry process can gain an appreciation of, for example, why certain individuals participated, and others did not. Documenting these decisions and justifications also provides the means for *boundary critique,* the capacity to reflect on different possible boundaries in systemic interventions (Midgley, 2000).

Another recommendation we have found useful is making evident "the methods and tools employed to engage people in the learning process" as it is important for communicating the constraints under which the research was conducted (for example, timing, how observations took place and the level of interaction involved) facilitating reflection on the environment in which the learning took place (Champion and Stowell, 2003, p. 29).

Ison (2017) further elaborates on the notion of recoverability proposed by (Checkland and Holwell, 2007), and provides some guidelines on how it can be achieved in practice. While the most common form of doing this is to write an account of what happened the writing is a "reflection on action and is never the same as the actual doing" (Ison, 2017, p. 288). Recoverability can also be achieved in other ways such as participating or thorough narratives, with the goal to have the explanation accepted by yourself and someone else (Ison, 2017).

We summarise the distinguishing elements of wicked theorising, and the sub-components involved in Table 3.

Distinguishing elements	**Sub-Components**
Problem structuring	• Formulating a research problem • Understanding strengths and differences of existing theoretical explanations • Define the role of theory • Engagement with industry partner • Having a shared purpose • Defining the level of engagement
Data collection	• Optimise diversity for comparison • Iterative and evolutionary sampling • Triangulation of data sources • Phased engagement with partner
Theory Building	• Discern agreements and disagreements • Probe for exceptions and explanations • Amend the emerging theory where necessary • Maximum diversity sample • Reflection and abductive logic • Multiple feasible options
Theory Evaluation and refinement	• Action research or iterative evaluation
Reflection	• Continually ground activity in the research question • Assessing and refining for authenticity and credibility • Who is approving/rejecting and why • Relationships between participants • Involve participants in assessing rigour

Distinguishing elements	Sub-Components
Finishing the research process	• Discerning when enough is enough • Writing up

Table 3. Elements and sub-components of wicked theorising approach

Discussion

It is the persistence of problems in research and practice that motivated us to revisit what some may consider is a well-trodden path, as well as connecting this path with Gioia's recent claim that academia is "on the road to hell" of irrelevance to practicing managers (Gioia, 2022, p. 174). Representing three generations of action research scholars, we believe there is unutilised potential in using theory-based action research and engaged scholarship to help address wicked problems. Although the need to address these complex societal challenges is not new, the urgency to address what is likely a need for societal paradigm shift is high (Arbib and Seba, 2020, Glenn et al., 2024). With such lofty aspirations, it is no surprise there are challenges. We don't lay claim to this method for wicked theorising being the only approach to these circumstances, nor a perfect approach. What we can attest is that we have found this approach to be helpful for us and the organisations we have worked with in getting better insight into how to improve the performance of transformational projects. We believe this approach can avoid potholes on Gioia's road to hell (Gioia, 2022).

Although none of the elements in isolation is unique to this approach, we claim novelty through a combination of factors. Our starting point for *wicked theorising* is a particular set of circumstances – a complex situation, a lack of theory to explain or predict and a research purpose that aims to empower or enrich a community or society. It is the combination of elements, and the iterative, trial-and-error nature of the approach that differentiates this from mainstream methods. What characterises the outputs is

that it produces a theory that is validated, at least to some extent, within industry. Claims to validity are substantiated by triangulation, iteration and evaluation (Denzin, 2012, Patton, 2014, Creswell and Creswell, 2005). The approach makes no claim to generalisability, but intentional sampling in theory building and evaluation enhances the potential for transferability.

This approach is inherently multi-disciplinary and typically involves mixed sampling methods. The iterative nature caters for complex situations which, by definition, do not have predictable outcomes and need to consider perspectives from multiple actors and stakeholders. Leveraging the wisdom accumulated over decades of research with the contemporary practical experience in industry in a trial-and-error process is not novel. That we can transport significant weight over long distances by air is one example of a significant and novel development that was the consequence of collaboration over decades between practitioners and people who developed theories around aeronautics, aerodynamics and heavier-than-air objects (Gardner, 2003). Had it not been for approaches such as these, practitioners might still be trying to stick feathers to frames and researchers would still be investigating the causality between the attributes of birds and flying.

Conclusion

Documenting this approach, and the strategies we have used to overcome some of the inherent challenges, provides the practical guidance we had not been able to find ourselves. This approach enhances the extraordinary legacy of Van de Ven (2007) and others (including Mathiassen and Nielsen, 2008, Lindhult and Axelsson, 2021, Barge and Shockley-Zalabak, 2008), for example, by clarifying the process of problem definition, and providing strategies for dealing with high volumes of data. In short, wicked theorising is differentiated from other methods with the combination of intentionally designing the research question to address wicked problems in research and practice, pluralistic sampling to optimise comparison, convergent questioning to sift

through vast amounts of data, iterative approaches to triangulate findings and an evaluation phase to refine the theory.

Limitations and future research

There are caveats we need to explain. We have found that although it is desirable to establish root causes of problems, it is not always necessary. A second caveat is not every problem has a, or indeed any, solution. In the first author's case, the method revealed paradoxes that needed to be navigated and the levers for doing that, rather than a neat tick-a-box solution. There are also implications for publishing academic journal articles. Claims to rigour are less about demonstrating the link between data and theory, and instead, emphasise the results of theory evaluation.

The United Nations Secretary General claims that "we are at an inflection point in history" – with pandemics, geopolitical conflict, climate change heightening issues around poverty, discrimination and violence (Secretary-General, 2021, p. 3). If so -- dramatic changes are likely in future decades – and research that addresses wicked problems, the theory-practice gap and the nature of theory become more salient. Our aspiration is that this approach, or derivations of it, will continue the tradition of engaged scholarship and action research in giving voice to the voiceless and hope for addressing societies' most wicked problems.

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Natalie is an Associate Professor of Practice in the John Grill Institute for Project Leadership, University of Sydney. She is also a non-executive director in Health and Community Service organisations and Government.

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Bob Dick is an independent scholar, an occasional academic, a researcher and practitioner and facilitator, and a coach, mentor and advisor. He works in the fields of community and organisational change. In his facilitation work, he uses action research and action learning. These approaches enable him to integrate his practice with available evidence and models. His aim is to help people, communities and organisations (and himself) to understand and improve their functioning

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Criterion 5: How well does the paper consider the ethics of research practice for this and multiple generations?

Criterion 6: How well does the paper and/or its subject aim to leave some lasting capacity amongst those involved, encompassing first, second and third person perspectives?

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While *ALARj* promotes established practice and related discourse *ALARj* also encourages unconventional approaches to reflecting on practice including poetry, artworks and other forms of creative expression that can in some instances progress the field more appropriately than academic forms of writing.

Submissions are uploaded to our Open Journal System (OJS) editing and publication site.

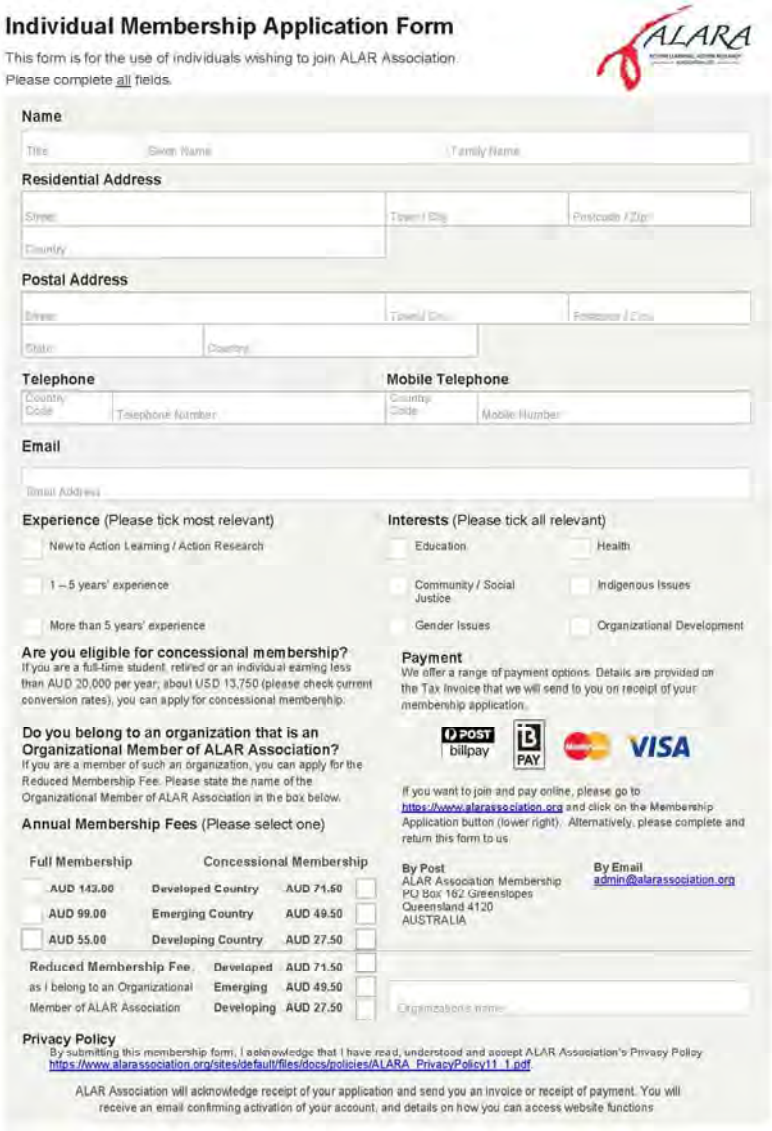
The reviewers use the OJS system to send authors feedback within a 2-3 month period. You will receive emails at each stage of the process with feedback, and if needed, instructions included in the email about how to make revisions and resubmit.

Access to the journal

The journal is published electronically on the OJS website.

EBSCO and InformIT also publish the journal commercially for worldwide access, and pdf or printed versions are available from various online booksellers or email admin@alarassociation.org.

For further information about the *ALAR Journal* and other ALARA publications, please see ALARA's web site http://www.alarassociation.org/publications.



Individual Membership Application Form

This form is for the use of individuals wishing to join ALAR Association.
Please complete all fields.

Name

Title | Given Name | Family Name

Residential Address

Street | Town / City | Postcode / Zip
Country

Postal Address

Street | Town / City | Postcode / Zip
State | Country

Telephone | **Mobile Telephone**

Country Code | Telephone Number | Country Code | Mobile Number

Email

Email Address

Experience (Please tick most relevant)

- New to Action Learning / Action Research
- 1 – 5 years' experience
- More than 5 years' experience

Interests (Please tick all relevant)

- Education
- Health
- Community / Social Justice
- Indigenous Issues
- Gender Issues
- Organizational Development

Are you eligible for concessional membership?
If you are a full-time student, retired or an individual earning less than AUD 20,000 per year; about USD 13,750 (please check current conversion rates), you can apply for concessional membership.

Do you belong to an organization that is an Organizational Member of ALAR Association?
If you are a member of such an organization, you can apply for the Reduced Membership Fee. Please state the name of the Organizational Member of ALAR Association in the box below.

Annual Membership Fees (Please select one)

Full Membership		Concessional Membership	
AUD 143.00	Developed Country	AUD 71.50	
AUD 99.00	Emerging Country	AUD 49.50	
AUD 55.00	Developing Country	AUD 27.50	
Reduced Membership Fee, as I belong to an Organizational Member of ALAR Association	Developed	AUD 71.50	
	Emerging	AUD 49.50	
	Developing	AUD 27.50	

Organization's name

Payment
We offer a range of payment options. Details are provided on the Tax Invoice that we will send to you on receipt of your membership application.

POST billpay | BPAY | VISA

If you want to join and pay online, please go to https://www.alarassociation.org and click on the Membership Application button (lower right). Alternatively, please complete and return this form to us.

By Post
ALAR Association Membership
PO Box 162 Greenslopes
Queensland 4120
AUSTRALIA

By Email
admin@alarassociation.org

Privacy Policy
By submitting this membership form, I acknowledge that I have read, understood and accept ALAR Association's Privacy Policy https://www.alarassociation.org/sites/default/files/docs/policies/ALARA_PrivacyPolicy11_1.pdf.

ALAR Association will acknowledge receipt of your application and send you an invoice or receipt of payment. You will receive an email confirming activation of your account, and details on how you can access website functions.

ALARA is a global network of programs, institutions, professionals, and people interested in using action learning and action research to generate collaborative learning, training, research and action to transform workplaces, schools, colleges, universities, communities, voluntary organisations, governments and businesses.

ALARA's vision is to create a more equitable, just, joyful, productive, peaceful and sustainable society by promoting local and global change through the wide use of Action Learning and Action Research by individuals, groups and organisations.