



# Networks of Possibility

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**Book of abstracts**

Possibility  
Studies  
Network

# How people think about counterfactual possibilities

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## Abstract

People can imagine counterfactual alternatives to reality, situations that once were possible but are so no longer. They create counterfactual alternatives to explain the past and prepare for the future; and experimental evidence indicates that they simulate more alternative possibilities when they understand a counterfactual about how an event could have turned out differently, compared to when they understand a causal assertion about how one event led to another. The similarities and differences between counterfactual and causal thinking are revealing about the nature of the possibilities that people most readily envisage. People can also imagine counterfactual alternatives to reality about impossibilities; and experimental evidence indicates that they simulate impossibilities as if they were possible. I consider the implications of these discoveries about how people reason about possibility and impossibility for several theories about the nature of the mental representations and cognitive processes that underlie counterfactual thought.

## Biography

Ruth Byrne is the professor of cognitive science at Trinity College Dublin, University of Dublin, in the School of Psychology and Institute of Neuroscience. Her research is on human thinking, reasoning, and imaginative thought. Her publications include 'The rational imagination: how people create alternatives to reality' (2005, MIT), 'Deduction', co-authored with Phil Johnson-Laird (1991, Erlbaum), and recently, 'Thinking, reasoning, and decision-making in autism', co-edited with Kinga Morsanyi (2019, Routledge). Her BA was awarded by University College Dublin and her PhD by Trinity College Dublin. She worked as a postdoc at the MRC Cognition and Brain Sciences Unit in Cambridge, and held lectureships at University of Wales at Cardiff, and University College Dublin prior to her appointment at Trinity.

# Merging design thinking and design futures to envision new future possibilities

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## Abstract

We are witnessing exponential technological development adopting digital processes in all aspects of our life. While being a driver of increasing complexity, technological innovation brought into existence a set of opportunities in several fields that will require professionals to be ready to deal with a spectrum of probable future scenarios. Designers are in a peculiar position. Indeed, design has been able to maintain a connection between humanities and technologies in its identity, and through the Design Thinking (DT) approach it has provided companies with quick and effective answers. But when new problems and new necessities appear, DT needs to change. The presentation dwells on the will to implement the process of DT with Design Future (DF) to create a new methodology able to manage non-linear future scenarios and face social challenges of the future in advance, developing solutions able to fit multiple future scenarios, to set the groundwork for innovative market and product strategies

## Biographies

Marita Canina, Associate Prof. in Design at Politecnico di Milano. Scientific Director of IDEActivity Center, she coordinates various research, including the latest Erasmus+ "Digital Creativity for developing Digital Maturity future skills" (2020-2023), Polisocial 2019 project "ACCEPT. Adaptive Climbing for Cerebral Palsy Training" (2020-21) and EU project "Digital Do-It-Yourself" (2015-2017) guiding the team also in other national and international projects. PostDoc Associate at MIT (2006), contributing to a wearable tech research for an EVA spacesuit. Current research is focused on developing activities that combine research in design, studies on creativity, and a people-centred approach to creating methods that enhance the creative design process.

Carmen Bruno, Ph.D. in Design. Researcher and designer at IDEActivity Center. Her research focuses on investigating how digital tech influence the creative design process developing methods to empower the human factors of creativity within the design process. She merges a human-centred perspective, design thinking and co-design methodologies to facilitate radical innovation. She took part in EU and national projects collaborating with relevant companies. She is co-author of several scientific publications.

# Future studies at the Edward de Bono Institute: Avoiding the 'reeds in the wind' syndrome

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## Abstract

Foresight and futures exercises envision the future as possibilities that can develop in different directions based on the decisions taken by stakeholders today. We will first outline some of the research which our Masters students have conducted as a result of the module on foresight which we offer at the University of Malta. This will be followed by a discussion on the future of museums, a topic on which we are currently conducting research. Past experience involved the implementation of futures exercises that focussed on engagement as an innovative approach to building 'collective' intelligence about the future. In addition to raising awareness about future challenges, a participatory process aims to voice the needs and concerns of communities and stakeholders in relation to emerging problems or issues. Some observations on the relevance of stakeholder and community involvement in designing and shaping the future will conclude this presentation.

## Biographies

Sandra M. Dingli is a Professor at The Edward de Bono Institute for Creative Thinking and Innovation at the University of Malta. She conducts workshops and delivers lectures on creativity and innovation management, foresight, leadership, and philosophy of mind to undergraduate and postgraduate students. Sandra set up the Institute in collaboration with Professor Edward de Bono in October 1992.

Lisa Pace is a senior lecturer of innovation management and foresight at The Edward de Bono Institute of Creative Thinking and Innovation at the University of Malta. She completed a PhD in innovation management at the Manchester Institute of Innovation Research, Alliance Manchester Business School, UK and has conducted research and worked on issues related to environmental innovation, energy efficiency, foresight and research and innovation policy.

# Cognitive versatility, possibility and probability

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## Abstract

Dual-process theories posit that humans process information through two independent but interactive cognitive processing types, namely: Type 1, which is non-conscious, automatic and fast; and Type 2, which is conscious, deliberate and slow. A central premise of dual-process theories is that Type 1, which gives rise to intuition, and Type 2, which generates rational analysis, operate independently from and in parallel with one other. This has led to the concept of cognitive versatility, which refers to the extensive use of both intuition and analysis, together with the ability to alternate between them as required. In this presentation, I shall outline the key features of intuition, analysis and cognitive versatility; propose how these cognitive processes may lead to the discernment of possibilities and the estimation of probabilities; and suggest what future studies could be conducted to empirically test these propositions. I shall draw upon my recently published research on cognitive versatility in entrepreneurship, in which I applied a 'think aloud' verbal protocol analysis method to capture intuition and analysis in new venture ideation.

## Biography

Dr Leonie Baldacchino is the Director of The Edward de Bono Institute for Creative Thinking and Innovation at the University of Malta. She holds a Ph.D. in Entrepreneurship from Warwick Business School (UK), an M.A. in Creativity and Innovation (Distinction) and a B.Psy.(Hons.) from the University of Malta, and is a Fellow of the International Society for the Study of Creativity and Innovation. Her research focuses on various aspects of creativity and entrepreneurship and has been published in various outlets, including the Journal of Management Studies, International Journal of Management Reviews, International Journal of Entrepreneurial Behavior & Research, and in edited books by Routledge, Springer and Edward Elgar.

# The author as possibillionaire and the stories they tell

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## Abstract

Storytelling is an art form that pushes 'the possible' to its extreme outer limits, with the 'author' acting as an 'authority' in what is possible. Narrative, through its myriad forms and expressions, toys with possible scenarios, values, futures and opportunities, as well as yet unseen and unspeakable possibilities. Stories explore the unifying principles of humanity (and our connection with the beyond human world) and translate these into an explosion of diverse options and connections through narrative in a way that opens up entire worlds – I describe this as 'possibillionism'.

I explore how stories have always been central to our ways of knowing the world and expanding on what is known. I also surface how our stories help us define and tame our world, and how the storyteller is always situated at the centre of the cosmos in our cultural history, creating all possibilities that may emerge. The power of the storyteller and the stories they tell – from the shaman to the prophet to the priest to the novelist – are often experiments with the unlimited self – what could be described as an 'ontological excess' of creativity (Eliade, M. 1959). This talk translates a metaphor from linguistic theory and explores 'the possible' through the lens of story.

## Biography

Professor Bem Le Hunte is the founding Course Director of the Bachelor of Creative Intelligence and Innovation (BCII) at the University of Technology Sydney (UTS), a transdisciplinary, multi-award-winning degree that combines with 25 different disciplines to explore novel approaches to the complex challenges of our times. She is also the Director of Teaching and Learning at the TD School. She has a BA and MA in Social Anthropology from Cambridge University and a Doctorate from the University of Sydney. She has worked in the creative industries through three decades and is also a novelist, published internationally to critical acclaim.

# The parable proxy of possibilities

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## Abstract

The Parable Proxy of Possibilities is an innovation framework that enables organisations to safely interrogate the perspectives that materialise and maintain the status quo to generate system-wide transformation. The status quo is a convention that provides the knowledge needed to navigate and sustain culture, creating meaningful relationships that enhance people's emotional and physical well-being. However, it also suppresses innovation by stifling perspectives that question its truth. Culture gives society a shared meaning that makes its members feel emotionally centred and secure as it anchors them in the world. Culture creates its narratives with the myths and metaphors that materialise as its objective reality. Without the sense-making of culture, people feel displaced, so they suppress perspectives that can contradict the status quo – their truth. However, the status quo is not a sacred state. It is a metaphor for a culture's collective agreement of reality that limits knowledge production by excluding other epistemologies. Today, society is in desperate need of new ways of thinking about the planet's social and climatic challenges. It needs to increase the resilience of the status quo to embrace new knowledge without its members feeling displaced. The Parable Proxy of Possibilities is a framework to help new perspectives be incorporated into the status quo to engender more possibilities. It does this by demonstrating the similar differences of others' perspectives to enable new relationships to be discerned to enlighten and safely expand the worldview of the status quo. In this light, as the name reflects, the Parable Proxy of Possibilities is a creative insights generator rather than a creative problem-solving process model.

## Biography

Paulina Larocca is a doctoral student at the University of Technology Sydney. She is a creativity and innovation practitioner, trainer/facilitator and researcher. She has a MSc in Creativity from the International Center of Creativity Studies, SUNY, Buffalo 2014 and a Master of Management from Macquarie Graduate School of Management 2003. Her research interests are new forms of problem-solving to create more transformational innovation.

# PROMETHEUS project: Towards a sublime science and an expansion of possibility in science learning

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## Abstract

Despite of the number of significant scientific discoveries in Italy, youth engagement with science and technology is still very low in this country. Teaching young generations about the complex relationship between science, technology, and society (STS) is fundamental in order to promote higher level critical thinking skills, foster lifelong civic engagement. However, as students' interest towards scientific and technological disciplines continues to drop, so their participation is declining in public discussions on key contemporary issues concerning STS. PROMETHEUS Project has developed a novel approach to sustain STS awareness and education, which is based on Sublime-inspiring theatrical experiences designed to stimulate inquiry and enhance engagement in STS issues, which influences students' present and future worlds. Self-efficacy and perceived vastness associated to the scientific notions featured in class resulted in higher impact on young adolescents involved in the pilot testing of the theater-based intervention in 2021.

## Biographies

Andrea Gaggioli is Full Professor at Università Cattolica del Sacro Cuore in Milan and Director of the Experience Lab held in Milan. His research focuses on the psychology of human experience and its role in personal change, using a broad spectrum of methods, instruments, and technologies. His research has been largely funded by the European Commission. Andrea has published over 150 articles in peer-reviewed journals, including *Science and Nature*, and keynoted at several conferences, including EuroVR, Persuasive Technology, Design & Emotion, Supporting Health by Tech.

Alice Chirico is Assistant Professor at Università Cattolica del Sacro Cuore in Milan. She is Co-Director of the Experience Lab, Advanced researcher at the Applied Technology for Neuropsychology lab (Istituto Auxologico Italiano, Milan, Italy), Chartered Psychologist and professional singer. Her main research topics concern complex experiences (e.g., the sublime, awe, flow experience, group creativity) as elicited by art (especially, by music) and Virtual Reality (VR). Co-PI of PROMETHEUS Project, a national funded Grant on the role of awe for promoting inspiration to learn in students at risk of school dropout through the theater. In 2021, She published her first Italian book on awe and the sublime (Publisher: San Paolo Press).

# Education as fulcrum of possibility: Reimagining a new social contract

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## Abstract

In much literature education is cast as a pivot point, a tool that allows us to leverage different futures. Using the recently released UNESCO report “Reimagining our futures together: A new social contract for education” (2021) as its departure point, this presentation examines the politics of anticipation and possibility that support a range different ways of doing educational futures work, pursuing intergenerational justice, and advancing teaching and learning to best support us, our societies, and the living planet.

## Biography

Dr. Noah W. Sobe (PhD University of Wisconsin-Madison) is Senior Project Officer on the UNESCO Future of Learning and Innovation team, on leave from his faculty position as Professor at Loyola University Chicago. He is a historian of education and also active in the field of comparative education. Dr. Sobe is a past-president of the Comparative and International Education Society (CIES) and is co-editor of the journal *European Education*

# Serendipity as an actualization of the 'adjacent possible'

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## Abstract

The presentation outlines selected aspects of serendipity based on my entry 'Adjacent Possible' (Björneborn 2020) in The Palgrave Encyclopedia of the Possible.

The concept of the 'adjacent possible' stems from how biological evolution can be seen as exploration and actualization of what is adjacent possible, i.e., available at hand, at a given point in evolution. The concept has spread into a wide range of research fields including innovation studies, technological evolution, cultural evolution, learning processes, recommender systems, possibility studies, and more. The concept covers the set of possibilities available to, i.e., actualizable by, specific entities at a specific point in time.

The presentation addresses how the concept can be used to understand how we serendipitously discover, explore, and learn from new 'adjacent' ('nearby') things in all fields of life. Serendipity is seen as an actualization of adjacent possible resources (information, things, people, events, etc.) we find both interesting and unplanned, ranging from innovation and scientific discoveries to everyday encounters, 'micro-serendipity'. Serendipity is important to help us discover and actualize more of these potentially interesting resources in the vast, ever reconfiguring, and essentially unpredictable space of 'adjacent possibles'.

The presentation discusses serendipity and the 'adjacent possible' regarding different aspects such as interest development, learning processes, 'resonance' (Hartmut Rosa), 'uncontrollability' (ibid.), and 'co-serendipity', i.e., serendipity in a group context. Examples include physical and digital 'possibility spaces' like cities, libraries, and social media supporting serendipity through design features that help us discover, explore, choose between, and thus actualize adjacent possible resources in life.

## Biography

Born 1957 in Sweden. Associate Professor, PhD, in Information Science, Department of Communication, University of Copenhagen, Denmark.

Since many years, my research interests revolve around interplay/ resonance between design/ affordances and user interests/ interactions. Including complementarities between physical and digital design.

Especially, I am interested in what – and how – topologies and design dimensions in physical and digital settings may enable and support creative user practices in everyday life. In particular, practices like curiosity, exploratory behaviour, participatory culture, knowledge diffusion, interest development, and serendipity (i.e. interesting but unplanned encounters).

I have investigated affordances, i.e. usage potentials, that may facilitate serendipity in digital settings like 'small-world' web link structures, and 'micro-serendipity' in everyday life shared on Twitter. Also studied physical settings like urban spaces, library interior design, and library book marginalia. Essentially looking at interplays between human 'micro activities', 'macro structures', and 'adjacent possibilities' in these physical and digital settings.

# The alignment between teacher assessments and trained rater assessments of primary school students' creative problem solving abilities

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## Abstract

Interest in CPS from primary education onwards is growing, because it can be easily connected to the problems a student may face in daily life as well as to factual knowledge learned in school (Kim, et al. 2019). Understanding where students' creative abilities lie is essential for nurturing the creativity of these students in the classroom (Bolden, et al., 2020). However, the assessment of CPS showed to be a challenge (Jaskari, 2013). As a consequence, CPS is most often assessed by thoroughly trained raters (Kim, et al., 2019; Van Hooijdonk, et al., 2022). However, if we aim to bring the assessment of CPS to primary schools, teachers need to be able to assess CPS as well. Unfortunately, multiple studies illustrate teachers struggle to properly assess creative abilities (e.g., Beghetto, et al., 2016; Urhahne, 2011). Analyzing teacher assessments of students' CPS abilities may give us relevant information about how teachers judge CPS in the classroom and may also enhance the measurement of CPS in everyday educational practice. Therefore, the goal of this study was to study the reliability of teachers' CPS assessment and to gain insight in whether teacher ratings may be used in the classroom to determine primary school students' CPS abilities.

## Biography

Mare is finishing up her doctoral research at Utrecht University. She focusses on the assessment of creative problem solving in primary education.

# The possibilities of the space-time continuum: A multipurpose conceptual framework

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## Abstract

The seminar dwells upon the theoretical framework identified as the Space-Time Continuum, originally introduced for the comparative study of the constructs of creativity and intelligence (Corazza & Lubart, 2020, 2021). The Space-Time Continuum is a bi-dimensional space obtained by crossing the dimensions of conceptual space  $S$  and available time span  $T$ , each one varying in continuity from extreme tightness to extreme looseness. The possibilities offered by the space-time continuum are not limited to the comparison between intelligence and creativity, but can be extended to a variety of specific domains (Corazza, Reiter-Palmon, Beghetto, Lubart, 2021). Possible cases of application include education systems (Corazza, Darbellay, Lubart, Panciroli, 2021), management styles in business, and development of a creative identity and career. In each case, conceptual space  $S$  and available time  $T$  take on different and specific nuances, allowing for an in-depth analysis of situations as well as the design of novel approaches. Several paths for research exploiting the Space-Time Continuum are discussed.

## Biography

Giovanni Emanuele Corazza is a Full Professor at the Alma Mater Studiorum University of Bologna, President of the Fondazione Guglielmo Marconi, founder of the Marconi Institute for Creativity, Member of the Marconi Society Board of Directors. His research interests are focused on the development of the Dynamic Creativity Framework. The Marconi Institute for Creativity (MIC), a joint initiative of the Fondazione Guglielmo Marconi and of the University of Bologna, was founded in 2011 with the purpose of establishing creative thinking as a science. The three pillars upon which MIC operates are those of scientific research, education activities, and support to the process of creativity and innovation.

# Neuroaesthetics of the built and natural environment

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## Abstract

Scientists, philosophers, and designers have long tried to understand the impact of the surrounding environment on our psychological states. Contemporary research in environmental and architectural aesthetics follows this tradition. Are there principles that govern a person's aesthetic experiences of the environment? What factors influence our preferences? In this talk, I will share ongoing work to identify what people like about buildings and natural landscapes. Using techniques from network science, we have found that preferences are rooted in three primary dimensions: coherence (i.e., analytic judgments about organization and comprehension of a scene), fascination (i.e., a scene's informational richness/interest), and hominess (i.e., how personal a space feels). This work also considers how preferences differ for built and natural spaces, as well as how experiences vary across individuals. I will conclude by presenting exciting new efforts to build a real-world space informed by research from empirical aesthetics.

## Biography

Adam is a postdoctoral fellow at the Penn Center for Neuroaesthetics and Georgetown Laboratory for Relational Cognition. Adam's research is situated at the intersection of creativity and aesthetics, and incorporates a variety of behavioral and neural methods. Specifically, he has focused on the neurocognitive processes by which people come up with creative ideas, and how to intervene in such processes via behavioral and neural interventions (e.g., tDCS) to boost state creativity. Adam's work has also examined aesthetic experiences of the built and natural environment. Integrating these interests, Adam is presently working with a small team of designers, artists, and architects to construct a real-world space to facilitate creative thinking and problem-solving.

# Beyond narration: Stories as systems for transdisciplinary research

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## Abstract

Increasingly, both Business and STEM fields adopt the word “story” as a broad term to encourage people to narrate discoveries and events. While stories, when deployed with expertise, are wonderful communication tools across disciplines, such out-of-field applications lack detailed knowledge of what “story” is and can do. The imaginative and intellectual work of storytelling encompasses a range of specific, interrelated, and fit-for-purpose skills that can create 360-degree, immersive systems for envisioning solutions, predicting consequences, and preparing for orthogonal threats. Moreover, our cultural familiarity with storytelling—whether it be through books, television, films, or games—provides readily accessible shared terms to communicate across interdisciplinary divides. In this presentation, I will outline the beginnings of a theory of stories as systems, and provide examples of the work in practice with defence technology, agricultural futures, and digital health.

## Biography

Kim Wilkins is a Professor of Writing at The University of Queensland, and a novelist with more than thirty published books to her name, translated into more than 20 languages. She has a particular interest in how the imagination can be upskilled for research across disciplines, both to improve ideation and to build cohesive teams. She is founder of UQ’s “WhatIF Lab” for imagining the future of research through speculative fiction skills and techniques.

# From chance to possibilities - the ethical turn in serendipity studies

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## Abstract

At the network's launch last year, I spoke of my own perspective on the role that chance plays as an aid to our moral imagination, generating new possibilities for us to consider, which may lead to a better life for all. Since then I have noticed an increasing turn toward ethical considerations about the impact of chance on people's morality and the opportunities they have for a good life, among scholars who study serendipity and its role in various contexts. Further, discussions have opened up new considerations about the way we see chance, as a generator of possibility or as a driver of defensive behaviour, and how context can provide a different coloured lens through which to look at the same conditions of accidental discovery and overturned expectations. In this talk, I will review and discuss the implications of this ethical turn for serendipity studies and for our understanding of how ethics and possibility for serendipity studies and for our understanding of how ethics and possibility intertwine.

## Biography

Samantha Copeland is an assistant professor in the ethics and philosophy of technology section at Delft University of Technology. She works with researchers developing emerging medical technologies, on collaboration and ethics in science. As co-founder of the Serendipity Society, Samantha has been building a network of researchers and practitioners and those interested in the emerging field of serendipity studies since 2016. Her current project takes up possibility as well as serendipity, as a way to understand the process of doing ethics in collaborative and creative contexts.

# Social creativity: Shifting perspectives

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## Abstract

Social creativity studies emerged from the parent discipline of Psychology. Typically, studies exploring social creativity view individuals and groups in relation to the context in which they operate with social interactions lying at the heart of such research. The present paper proposes a shift in perspective to how social creativity is perceived and interpreted. Shifting the perspective from one with foundations in psychology to one grounded in business and management, it becomes possible to perceive social creativity from a completely new viewpoint. In a similar way as in the field of entrepreneurship and innovation, the term creativity could be viewed from a more 'humanitarian' perspective. The term 'social' can be interpreted beyond its implications and assumptions emerging from psychology and instead refer to aspects instigating social change that may benefit society. Deliberately thinking about social creativity in terms of the common good for society could enhance possibilities to further explore this area of study. Glăveanu's Five A's of creativity will inform the exploration social creativity through a humanitarian lens.

## Biography

Margaret Mangion is a Senior Lecturer at The Edward de Bono Institute for Creative Thinking and Innovation and at the University of Malta. She has been lecturing in creativity and innovation since 2011. Margaret holds a Doctorate in Social Sciences (University of Leicester). While actively working on various outreach programmes that engage different sectors in the business and social community, Margaret has also pursued research projects in the area of creativity and its manifestation in different contexts. Margaret has also been actively involved in projects and studies pertaining to the field of education. She has recently conducted a study exploring the self-perceptions of the creative self-concept by children in Primary Schools. Margaret was invited to join expert panels at policy making level in the area of education and management on various occasions

# Creative emergence on multi-sided platforms

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## Abstract

Multi-sided platforms constitute a productive domain in which participants enacting different institutional logics come together with a collaborative shared purpose. As they interact on a platform, participants make sense of one another's way of doing things and promote their own way. Through these interactions, new possibilities emerge that open up innovative opportunities for effective collaboration. Our data is drawn from Lego Ideas, a platform on which adult fans of Lego submit ideas for Lego to produce and market as new sets. Micro-level interactions on the platform suggest frequent clashes between fans enacting their community logic and Lego administrators operating from the perspective of a market logic. We show how creative ways of collaborating on the platform emerge at a macro-level from the micro-level interactions.

## Biography

| Marie Taillard is a L'Oréal Professor of Creativity Marketing at ESCP Business School.

# The possibilities of teaching for creativity in elementary science education

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## Abstract

While educators around the world postulate that the elementary science classroom is a great environment to stimulate children's creativity, little research has validated this claim. We conducted an intervention study to examine if we can indeed stimulate creativity during elementary school science education. Therefore, science lessons were created in which children were repeatedly prompted to think divergently (e.g., write down as many research questions about boats as you can) and convergently (e.g., which research question do you find most creative?). The final lesson series consisted of five lessons in which the exercises were equal, yet the topic under investigation changed (e.g., boats or bridges). In total, eleven classes (ranging from 4th to 6th grade) participated in this study. These classes were distributed amongst three different intervention conditions. The basic structure and exercises done during the lessons were equal across conditions, yet the instruction differed. The data collected can provide us with new insights regarding the ways in which we can stimulate creativity within the elementary science classroom. Put differently, we can examine the possibilities of teaching for creativity in elementary science education.

## Biography

Robin Willemsen is working on her doctoral research at the Radboud University. Here, she examines how elementary science education can serve as a platform to stimulate creativity in elementary education.

# Ways of worldmaking: VR experiences and our dialogues with technology

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## Abstract

With increasingly accessible technology, virtual reality is quickly redefining what is possible for educators, artists, game developers, therapists, and other professionals. In this doctoral project, I explore the ways in which VR experiences, in artistic and educational applications, contribute to expanding our repertoire of perspectives, and ultimately reconfigure our hermeneutic horizons in the real world. This research also investigates the ontological status of VR, and, employing a sociocultural view of technology, asks if and how our engagements with this new medium can be truly social, dialogical, and open ended.

## Biography

André Mestre is a researcher fellow and sound artist working in the intersections between creativity, technology, and learning at the Centre for the Science of Learning & Technology at University of Bergen. At SLATE, he is investigating multi-user VR environments and their capacity to promote creative experiences and potentialize learning. He has previously published on topics of creativity in engineering education and the development of new musical interfaces. Before joining UiB, he worked at the Institute of Acoustics at the Universidad Austral de Chile, where he remains an Associate Researcher with the Laboratorio de Arte y Tecnología (LATE).

# Encounters in third space: Transdisciplinary learning as an engine of possibilities

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## Abstract

This paper examines creative possibilities that open up in higher education contexts when uncertainty, difference and mutual learning are embraced as key components of curriculum and learning.

The paper applies the notion of third space to explore how deliberate attention to 'transitions, borders, gaps, voids, fissures and movements between states, positions, systems and disciplines' (Stenner 2017, p. 26) in curriculum can stimulate learning and experimentation.

The case of transdisciplinary learning within the Bachelor of Creative Intelligence and Innovation at University of Technology Sydney is explored, with a particular focus on student agency and 'manufactured serendipity', examining creative strategies for making space and time in the classroom for students to take charge so that new forms of learning and understanding can emerge.

The paper concludes with a broader framing of transdisciplinary learning as an engine of possibilities, highlighting the importance of creative encounters in higher education and beyond.

## Biography

Dr Giedre Kligyte is a Senior Lecturer within TD School (Transdisciplinary School) at the University of Technology Sydney (UTS). Giedre's research is focused on transdisciplinary collaboration practices and partnership pedagogies in universities and industry or community organisations. In her work, she explores how different perspectives and relationships across organisational roles, silos and disciplinary divisions can be creatively leveraged to create 'third spaces' – spaces where difference, experimentation and co-creation are embraced to stimulate mutual learning, new ways of thinking and creativity. In her PhD research, Giedre examined the role of collegiality in academic practice.

# Constraints as sources of creative possibilities

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## Abstract

What role do constraints play in creativity? The Integrated Constraints in Creativity (IConIC) model advances an answer to this complex question. While not all constraints yield creative outcomes for all individuals in all contexts, the model proposes that: (a) creative outcomes emerge from the identification and successful leveraging of constraints, which differ in their flexibility (fixed, faux-fixed, or flexible) and functions (exclusionary or focusing); and (b) experimentation with diverse constraints promotes the development of a constraint-leveraging mindset that benefits creativity.

## Biography

Catrinel Tromp is a Romanian-born cognitive psychologist and associate professor at Rider University (USA). After a Ph.D. from Princeton University, she worked for a hedge fund and co-owned a recruiting firm in Manhattan before pursuing an academic career. Her research aims to elucidate the role of constraints in creativity.

# Incremental or radical innovation? The influence of cultural orientation, thinking style, and the perception of creativity – A preliminary study with a southern German sample

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## Abstract

The individualistic-collectivistic dimension of culture has been explored extensively on a wide range of topics in psychological and social sciences, including implicit theories of creativity and innovation. Studies show that individualism and collectivism can facilitate different types of innovation at different stages of the innovation process. Does cultural orientation also influence employees' preference of incremental or radical innovation? What is the possible psychological mechanism behind this relationship? Drawing on the literature of cultural psychology and innovation studies, this study aims to seek answers to these questions by investigating the relationship between collectivistic-individualistic orientation, holistic-analytical thinking style, and the preference for incremental or radical innovation. A total of 952 employees from Southern Germany were investigated through an online survey. It was found that collectivistic orientation was positively related to the preference for incremental innovation with holistic thinking mediating this relationship. Individualistic orientation on the other hand was positively related to radical innovation but not significantly related to incremental innovation. The indirect relationship between collectivistic orientation and the preference for incremental innovation through holistic thinking was further moderated by employees' personal perception of creativity. Collectivistic orientation was more strongly related to the preference for incremental innovation when employees put more weight on usefulness and usability in evaluating creativity. The study contributes to the existing body of literature dealing with the influence of cultural dimensions on the preference of innovative styles and calls for further research to investigate this relationship across cultures.

## Biographies

Sebastian Hofreiter is a PhD candidate in work and organizational psychology and works as creativity researcher at the Institute for Creativity & Innovation at the University of Applied Management, Germany. His research focuses on exploring the psychology of creativity, the bright and dark side of creativity, and applied creativity at work.

Joel Schmidt is a professor of Business English and researcher at the Institute for Creativity and Innovation at the University of Applied Management, Germany. He has held leadership roles in teaching and research as well as international development. His current areas of research include creativity in education, adventure and outdoor learning, educational management, and educational technology.

Min Tang is a professor of International Management and Director of the Institute for Creativity & Innovation at the University of Applied Management, Germany. She is the initiator and manager of a series of intercultural and interdisciplinary projects about creativity and innovation. Her research focuses on systems approach to creativity, implicit theories of creativity, team creativity, international management, and cross-cultural studies.

# The creative mathematical thinking process

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## Abstract

The value of creativity is increasingly recognized by those involved in mathematics education (Leikin & Sriraman, 2017). This increased interest fits well in the tradition of mathematicians like György Pólya and Jacques Hadamard, who both stressed more than 75 years ago that creativity is a driving force behind the discovery of new mathematical insights. But creativity is also important to those not involved in breaking new mathematical grounds, such as primary school children. Creative thinking helps them to integrate mathematical information and come up with different solutions or strategies to solve a problem (Hadamard, 1996; Mann, 2005). If we want to support the development of creative thinking skills in mathematics education, more insight into the creative thinking process is required. This study therefore aspired to illuminate the use of creative thinking, specifically divergent and convergent thinking, in solving different types of mathematics problems. 28 children from two groups (characterized by high vs. low mathematics achievement) were observed while doing mathematics tasks and asked about their creative problem solving process. Two types of open mathematics tasks were used: a problem-posing task and a multiple-solution task. Qualitative analysis showed that most children use more divergent than convergent thinking, but that children who generated multiple original ideas did so using both divergent and convergent thinking. Children with high mathematics achievement generated more creative ideas than children with low mathematics achievement.

## Biography

Isabelle conducts her doctoral research on mathematical creativity at Radboud University. She studies how creativity can be promoted in primary school mathematics education, as well as transfer of creative thinking skill across domains.

# The possibilities of failure

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## Abstract

When we first approach a problem, we generate a model (whether mental or physical) of the situation. In the case of insight problems, problem solution is dependent on a reevaluation of that model, that is to say, we need to expand the possibility space to incorporate new, previously overlooked information. The mechanisms through which this happens are currently unclear. In this presentation, we will consider the importance of the role of failure in the generation of new ideas. We will suggest that non-optimal solution pathways may paradoxically be the fastest route to uncovering the correct answer requiring us to focus on dynamic and microgenetic assessments of problem solving process rather than simply the final outcome.

## Biographies

Wendy Ross is a Senior Lecturer in Psychology at London Metropolitan University. She has studied creative problem-solving extensively, focussing on the importance for creative processes of interacting with the environment and the role of material serendipity in insight problem solving and creativity. She draws on methods from eye-tracking and experimental psychology to cognitive ethnography. She is co-editing two collections on serendipity: *The Art of Serendipity* (Palgrave) and *Serendipity Science* (Springer). She is Co-Chair of the Serendipity Society and Vice President of the Possibility Studies Network. In 2021 she was awarded the Frank X Barron prize by Division 10 of the APA.

Tom Ormerod is a Professor of Cognitive Psychology at the University of Sussex. He has published over 120 journal articles in the areas of expert thinking, complex problem-solving, and human interaction with technology. Much of his research involves the study of people in work environments undertaking demanding tasks such as creative design, fault diagnosis and crime investigation. He also studies how individuals and groups succeed and fail at solving problems and designing organizational solutions. He has over 15 years management experience as Head of Psychology at Lancaster and Sussex Universities.



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