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FACILITATING SCIENTIFIC EVENTS GUIDED BY COMPLEX THINKING: A CASE STUDY OF AN ONLINE INTER/TRANSDISCIPLINARY ADVANCED TRAINING SCHOOL

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ABSTRACT

Aim/Purpose	This paper aims to illustrate, through an exploratory ideographic case study, how a Complex Thinking framework can inform the design of scientific events and the facilitation of scientific Inter and Transdisciplinary groups towards positive emergent outcomes, both at the level of the functioning of the group and the collective complexity of their thinking. Moreover, it aims to show how the choice of facilitation strategies can contribute to positive emergent outcomes in the context of a fully online event, with its inherent constraints. Finally, this study aims to conduct an exploratory qualitative evaluation of the participants' experiences during School, with a focus on the processes and how they relate to the aims of the School and the goals of the facilitation.
Background	Science needs to embrace modes of knowing capable of generating more complex (differentiated, integrated, recursively organized, emergent), ecologically fit, and creative responses, to meet the complexity of the world's challenges. New formats and strategies are required that attend to the facilitation of Inter and Transdisciplinary scientific events and meetings, towards creative and complex outcomes. A Complex Thinking framework provides suggestions for the facilitation of Inter and Transdisciplinary meetings and events through targeting key properties which may lead to the emergence of complex and creative outcomes.

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Facilitating Scientific Events

Methodology	We adopt an ideographic case study approach to illustrate how a complex systems approach, in particular a Complex Thinking framework, grounded in an enactive view of cognition, guided the design choices and the facilitation strategies of an online Inter and Transdisciplinary Advanced Training School (Winter School). We aim to illustrate how the facilitation strategies were selected and used to promote deep and creative interactions within the constraints of an online environment. We adopt an exploratory qualitative approach to investigate the participants' reports of their experiences of the School, in light of the principles and goals that guided its design and facilitation.
Contribution	This paper opens a new area of theoretical and applied research, under the scope of a Complex Thinking framework, focused on the facilitation of Inter and Transdisciplinarity at scientific events, meetings, and discussions towards complex and creative outcomes.
Findings	The results of the exploratory qualitative analysis of the participants' experiences regarding the event suggest a critical role of its methodology in fostering rich, deep, and constructive interactions, in leading to the emergence of a collective group experience, to the integration of ideas, and in facilitating transformative personal experiences, under the effects of the emergent group processes. It suggests that the strategies employed were successful, anticipating and overcoming the particular constraints of an online event.
Recommendations for Practitioners	This case study suggests that a Complex Thinking framework can fruitfully guide the design of facilitation strategies and activities for scientific events and meetings, activating a number of key relational processes that contribute to or boost the emergence of positive group experiences and the production and integration of novel ideas.
Recommendations for Researchers	This study calls for action-oriented and applied research focused on the developmental evaluation of innovations, regarding the facilitation of scientific creativity and integration, within the scope of a Complex Thinking approach.
Impact on Society	This paper calls for new modes of organization and formats of scientific activities, suggesting that Inter and Transdisciplinary events and meetings may benefit from intentional management and facilitation of interactions between participants to produce transformative impacts. It demonstrates the importance of the organizational principles used to plan and run events that engage multiple and various societal agents, from academics to practitioners and social activists, towards enhancing their richness and relevance to complex real-world challenges.
Future Research	This study highlights the need for process-focused systematic case study research using complex systems-informed designs to explore how and which facilitation strategies may promote which (interaction of) properties of Complex Thinking and associated processes and how, and under which conditions, these lead to more complex and creative outcomes.
Keywords	complex thinking, interdisciplinarity, transdisciplinarity, facilitation, emergent group processes

AUTHORS



Ana Teixeira de Melo is a researcher at CES-UC, with a PhD in Clinical Psychology. Her research interests span from investigating family change and resilience processes to the understanding and management of change in complex human systems and the development of models, tools, and strategies to support the practice of more complex modes of thinking for guiding effective actions in managing ‘real-world’ complexity. She is interested in Inter and Transdisciplinarity and in investigating creativity and abductive, from a process-relational perspective, informed by a Complex Thinking Framework. She is interested in building more complex understandings of the nature of relations, informing new modes of Relating towards transformative human experiences and realities.



Rita Campos is a researcher at CES-UC, with a PhD in Biology from the University of Porto. After several years working on evolution and population genetics, in September 2016, she started a path dedicated to research on Science Communication and Non-Formal Science Education. The aim is to develop communication tools that emphasize the benefits of protection and rational use of biodiversity on health, using results from current research on these topics and formats that privilege an approach between the public and researchers.