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Editorial

Creativity, Innovation, Sustainability: A Conceptual Model for Future Research Efforts

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Abstract: The interaction of creativity, innovation and sustainability is gaining momentum, but a lot more research is necessary. Some potential (not binding) areas of investigation for creativity and innovation are novel and useful conceptual definitions and theoretical framings of sustainability, as well as ideas for how to solve environmental and social problems with implications for sustainability. In addition, there is a high need for different methodological approaches to conduct research on sustainability, which might come from different fields like sociology or engineering. Before this background, this article introduces a conceptual framing of creativity, innovation and sustainability.

Keywords: creativity; innovation; sustainability

Every week, or least it seems like it, we hear devastating news about the deterioration of the living conditions on this planet. From the bushfires that have killed more than a thousand million animals in Australia to the recent recorded temperatures of 20 °C in Antarctica (its hottest day ever), we receive constant reminders about the importance of engaging in sustainable actions and finding sustainable solutions. This is, in part, the engine that drove our desire to act as guest editors for a special issue on Creativity and Innovation for Sustainability. Creativity and innovation are two multidisciplinary fields of scientific research by themselves. Sustainability is as well a multidisciplinary area of study. Hence, the potential for combining knowledge and research approaches from creativity and innovation with sustainability is unlimited. Surprisingly, there is still a huge gap in literature addressing this interesting intersection. As two researchers examining the potential contributions of creativity and innovation from a multidisciplinary angle [1], we posit that more research is needed across different disciplines and from multiple levels of analysis in order to generate empirical knowledge with the potential of shading meaningful light on the actions that must be taken. Why is this important? Currently, much knowledge gets lost because of missing links, as each discipline has its own conferences, journals and regional foci. Thus, each attempt to bridge these boundaries might help to foster our understanding of creativity and innovation in general.

This editorial, the three articles in this special issue and a recent article proposing a model for sustainable actions [2] are consistent with this premise. Now, more than ever, we need valuable knowledge if we aspire to provide reliable solutions. While there have been attempts to link creativity and innovation research from psychological and managerial perspectives, not much can be noted on the sustainability angle.

Creativity is usually defined as the generation of products that are novel and useful within a given social context [3]. Innovation usually involves the successful implementation of novel and useful ideas [4]. When examining the implications of creativity and innovation for sustainability, several

possibilities come to mind. One can think of novel and useful approaches to obtain sustainability, conduct research on sustainability, or even define what sustainability should be. Similarly, one can think about the challenges involved in implementing a novel and useful idea to seek sustainability. This happens in interactions between producers and customers, leading to different sustainability concerns (see Figure 1).

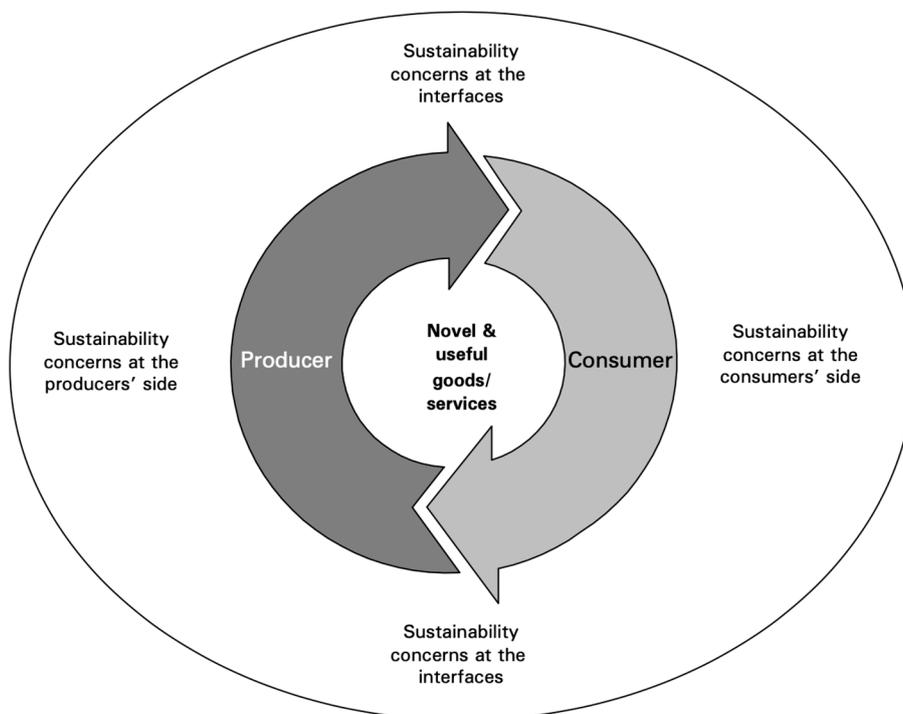


Figure 1. Sustainability contexts.

As mentioned earlier, creativity researchers have been consistent about positing that solutions to ill-defined, divergent types of problems need to be novel and useful in order to be considered creative (see [5] for a recent handbook on creativity). Hence, two important implications are that creative solutions for sustainability problems need to be novel and useful, and that creativity and sustainability scholars face similar ill-defined types of problems. Hence, creativity and sustainability research could inform and supplement one another. Regarding the definition of a creative solution, the novelty component would lead to several benefits at consumer, company and societal levels. At the consumer level, it would catch the attention of potential adopters of sustainable solutions. At the company level, it might allow businesses to have a meaningful and differentiating positioning, which might potentially represent an important competitive advantage, besides the moral obligation of caring for this planet. Lastly, at the society level, novel solutions would be easier to justify and would obtain higher levels of social support. Regarding the usefulness component, creative sustainability solutions need to work better than previous solutions. They need to show that the potential benefits of sustainability solutions outweigh their potential costs [6]. Creativity and sustainability researchers face ill-defined, difficult problems without single, perfect solutions. Hence, both disciplines could inform each other about the process of generating and evaluating possible solutions.

Innovation research tends to emphasize the correct implementation of novel and useful solutions. Some scholars, for example, suggest that companies are not short of ideas [7]. Instead, they face their biggest challenges trying to correctly select their best ideas and implement the ideas with the most potential [7]. Implementing creative solutions for the sustainability problems we face involves tackling challenges and obstacles at individual, company and societal levels. Hence, research on innovation

and management can shed meaningful light on how to select and implement the best sustainable solutions (see [8,9] for two examples of management perspective on sustainability).

As stated at the beginning of this article, it is undisputable that we are currently facing the most difficult sustainability crisis of all time. Climate change, poverty, pollution, water scarcity, overpopulation, income disparities, exploitation of resources and overconsumption are some of the challenges and problems that worry scientists from a wide range of research disciplines such as ecology, biology, chemistry, economics, sociology, management, creativity and innovation (see [10] for a discussion of different sustainability issues and potential solutions). These problems represent 'wicked' types of problems [11], without simple solutions, requiring comprehensive efforts at all levels as mentioned above. In our recently developed model of sustainability solutions, we argue that it is important to conduct research on solutions at multiple impact- and range-specific levels (mini solutions, little solutions, pro solutions and big solutions) if we hope to achieve the goal of maintaining and preserving the health of this planet for the next generations. The idea of breaking down solutions into different levels comes from a scholarly approach on creativity [12], showing how creativity research can enlighten sustainability research.

As consumers, we crave novelty [13]. It is not good enough to have an iPhone X, once we know that a new iPhone 11 with three cameras is launched. Sustainability research has shown that we have no choice but to change this mindset. It is not sustainable to maintain our current levels of consumption. Hence, it might be fine that companies strive to provide novel and useful solutions to consumer needs, but the lack of sustainability of our current consumption levels must be emphasized. Governments need to envision prosperity without economic growth [14]; companies need to reassess their business goals [13]; consumers need to rethink their consumption priorities [15]; and designers, as many others, need to re-evaluate how they currently design their products and packages [16]. Hence, sustainability research could and should inform creativity and innovation research and practices, lending evidence to the utility of our proposed connection between creativity, innovation and sustainability. Recent developments have yielded results in this direction. The idea of designing products from cradle-to-cradle [17] is not new, but is gaining momentum. The same is true for the idea of eco-innovations [18]. Already at that time, Rennings noted that this topic was attracting increasing attention. Apparently, many years since then, the traditional capitalistic focus has not supported these developments. Responsible Research and Innovation (RRI) is an exemption, since it was strongly supported by the European Union. RRI is focused around ethical and societal concerns within the new product development process, ideally implemented in the corporate business strategy [19].

As of the writing of this editorial, bushfires are still burning in Australia; Antarctica just recorded its hottest day ever; thousands of people are infected with the coronavirus, with important economic consequences for companies (e.g., Apple, adidas) and countries such as China, South Korea, Spain, Italy, and USA; and the world's economy is about to enter an economic recession. In addition, France, Lebanon, Chile, Bolivia and Colombia, among others, have experienced significant social unrest with thousands of arrests and hundreds of deaths. While we do not wish to take a huge leap, trying to connect all these incidents to a single, fundamental cause, it might not be too far of a stretch to suggest that they might be, at least to some extent, related to climate change, the mindset of endless and constant economic growth, poverty, income disparity and overconsumption.

In sum, we posit that scholars from creativity, innovation and sustainability fields could learn from each other. Creativity scholars have shown how individuals, groups and companies generate novel and useful ideas [5]. Innovation scholars have paid attention to the process of selecting and implementing the most creative ideas [7]. Last, sustainability scholars have proposed environmental [6] and economic solutions [13] to many of the sustainability problems we currently face. With the following figure, we would like to summarize our research suggestions in a conceptual framing (see Figure 2).

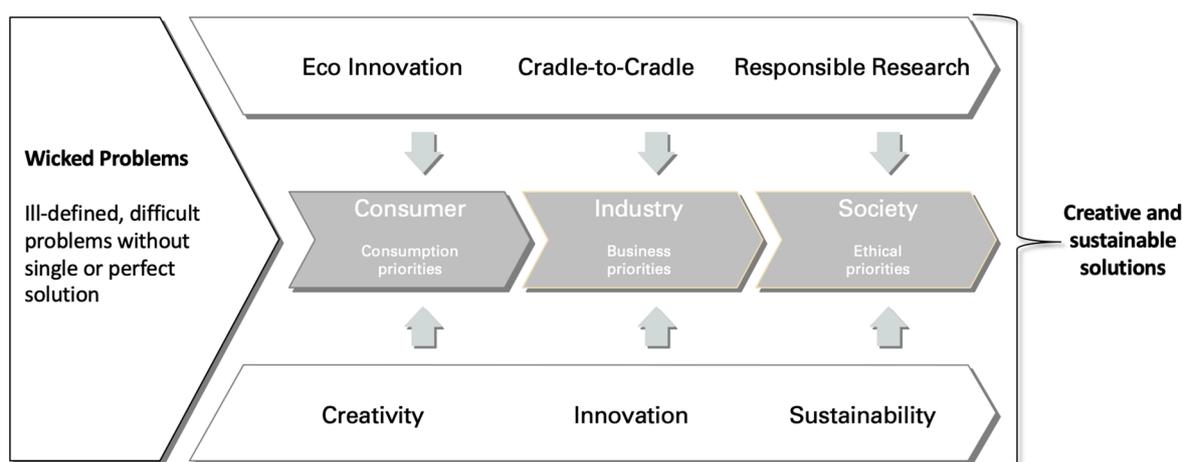


Figure 2. Creativity, Innovation, Sustainability Framework.

It is with this spirit in mind that we act as guest editors for this special issue and introduce the following articles on Creativity and Innovation for Sustainability. The first one, by Yang et al. [20], already introduces an interdisciplinary topic: how the design of a teacup shape may influence our perception of tea. This needs design, psychology and business perspectives, which are covered in this article. Results show that, indeed, the design of a tea-drinking vessel might influence the taste and scent of the tea for the person consuming it. The second article by Tang et al. [21] investigates the relationship between the openness of a company and exploratory and explorative innovation. Their results indicate that the industry of a company has a significant effect on innovation capabilities. Also, they highlight that this is not dependent on the external number of search channels. The last paper, written by Cheng et al. [22], is focused on the influence of leader encouragement on innovation speed. Here, they show that this relationship is significantly mediated by creative process engagement and organizational ambidexterity at the same time. So overall, all these articles cover very different but interesting aspects of the introduced interdisciplinary triangle of creativity, innovation and sustainability.

Even though this special issue could give some insights into the interaction of creativity, innovation and sustainability, a lot more research is necessary. Hence, we would like to motivate researchers from different disciplines to start or continue their work on sustainability from the perspective of creativity and innovation (and vice versa). We are specifically calling for novel methods in approaching creativity, innovation and sustainability, as well as international research approaches.

Some potential (not binding) areas of investigation for creativity and innovation are novel and useful conceptual definitions and theoretical framings of sustainability, as well as ideas for how to solve environmental and social problems with implications for sustainability. In addition, there is a high need for different methodological approaches to conduct research on sustainability, which might come from different fields like sociology or engineering. Ethics and sustainability, for instance in the context of RRI and other technological developments, is also a field for further investigation. In addition, we think there is also a high need of research on challenges when implementing novel and useful solutions to problems of sustainability. Furthermore, we encourage more interlinked research on eco-innovation and cradle-to-cradle approaches. There is much to do—for this, joint forces are needed.

Last but not least, we also need to add an important limitation. So far, it is rather difficult to publish real interdisciplinary research. However, this is a prerequisite for researchers, since this is the currency in our academic world. Hence, we also call for more openness at international journals for such research. Maybe this special issue could foster this development a bit.

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