
CHAPTER 6

# Everyday Dynamics in the Practice of Creativity: A Few Concluding Thoughts

**Abstract** This chapter draws from Plato's oft-cited saying "necessity is the mother of invention" to help us connect creativity and innovation to the human need to invent, improve and solve problems. At the same time, creativity is also the result of ordinary thinking and everyday dynamics. The chapter then highlights the impact that new technologies have on the practice of and thinking about creativity. It argues that because human involvement is present in the design and creation of digital technologies in artificial intelligence (AI), machine-learning functions and other forms of digital innovation, we should acknowledge them as original forms of everyday creative practice. The chapter concludes with thoughts on how creativity and innovation remain critical in solving future 'super wicked problems' such as climate change and environmental contamination. It is important that every ordinary person brings their own creative energies to spark innovative and extraordinary solutions to problems, however wicked those problems may be.

**Keywords** Creativity · Invention · Innovation · Technologies · Artificial intelligence (AI) · COVID-19 · Climate change · Wicked problem



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## Introduction: Why This Book?

In the opening chapter of this book, we stressed the importance of recognising that creativity and innovation must be studied from the perspective that it is always in-process, ongoing and necessarily disruptive and incomplete. For this reason, we have argued through the course of this book that creativity and innovation are best understood—and lived—as everyday practices that every person is capable of to varying extent, depending on the context, situation and circumstances. It also depends a great deal on one's disposition about the very discourse of creativity and innovation. If we think that creativity is the preserve of the innately smart inventor or the clever innovator, we exclude ourselves and may not be awake to opportunities to experience and partake in the practice of creativity.

The English proverb "necessity is the mother of invention" is attributed to Plato, who wrote in *The Republic, Book II*: "let us begin and create in idea a State; and yet the true creator is necessity, who is the mother of our invention" (in Jowett and Campbell 1894). This well-rehearsed saying has informed much of our thoughts on innovation and the creative process. Indeed, most of us see inventions as human responses to need or necessity, and modern civilisation as an agglomeration of ideas and inventions. Since the industrial age, many of these ideas have been, for better or worse, 'hijacked' by business types who see creativity and innovation as primarily about entrepreneurship and the ability to commercialise new ideas and inventions. Yet, as we have shown through the chapters in this book, creativity and innovation have a much larger scope.

In our contemporary Internet era, creativity and innovation have almost become synonymous with digital technologies. While we are not ideologically opposed to industrialisation, commercialisation or new digital technologies, or indeed of generating and registering patents for new products, we contend that the litmus test of whether something is creative or not goes beyond its ability to make money. Historically, technology has been a catalyst for many new dynamic ideas, inventions and creations, but the creative outputs and technologies that have proven to be successful and ubiquitously utilised by large groups of people around the world are those that pass what we would refer to as 'everyday' tests. Within this category would lie some of the big inventions like electricity generation, the light bulb, telephony and, of course, the Internet. But it would also include 'simpler' inventions like the ballpoint pen, paper clip

and the portable flash drive. In providing a summary of what the chapters in this book have presented and examined, this final chapter thus considers the everyday dynamics that are almost always present in the practice of creativity and innovation.

There is a lot of truth in necessity sparking invention. But at the same time, most people disregard the fact that Plato pays equally strong attention to the genesis of an *idea* that is the precursor to creating and inventing. As we have sought to prosecute across the chapters in this book, creativity does not need to result in an invented product. Creativity can come in thought or in deed, and can manifest itself in many forms and substances. And because it exists in the everyday, the creative process can be deciphered in practice, and therefore theorised such that its approaches and processes can be conveyed and passed on.

As well as unpacking historical and current research on the subject, the chapters in this book have also sought to make the case—in a somewhat surreptitious way—that it is possible to learn how to develop and *practice* creativity. Again, this is because the cognitive mechanisms underpinning creativity are more ordinary than many of us realise. As psychologist Robert W. Weisberg has made clear: "all creativity, including creativity at the highest level, is the result of processes of ordinary thinking" (Weisberg 2014 141; See also Weisberg 2006). In other words, everyday dynamics is what drives the practice of creativity. Hence, as with the title of this concluding chapter, the subtitle of our book emphasises the everyday dynamics of creativity and innovation. It is our desire that this book will offer the reader a refreshed theoretical perspective on creativity and innovation, as well as a sense of how to *do* creativity and innovation on an everyday, practical level.

## Reiterations: The Key Points

Chapter 1 framed the background to our study of creativity and innovation by offering an outline of how it has been perceived historically by scholars across different disciplines. As we discussed, although there have been changing conceptions of creativity through history, it is the ordinary, everyday dynamics that stand out.

Chapter 2 explored what we mean by the word "creativity" and ways of approaching the creative process. We explored some of the definitions of creativity, especially how certain values are ascribed to the way creativity happens and the products that result from creative processes. We argued

that the value of a creative act and a creative product is often associated with the reasons behind their development and the needs they aim to address. This chapter also emphasised that the evolution of understandings of creativity has resulted in it being demystified to an extent; everyone (albeit with some help) has the potential to have their creativity developed. We also deepened our discussion of creativity by utilising what Mel Rhodes (1961) termed the 4Ps of creativity: person, place, product and press. We argued that Rhodes' 4Ps offer lenses through which to examine examples of creativity in practice. This chapter emphasised that knowing about what drives and supports creativity can assist in developing a creative practice, ideally for a broader range of people.

The focus of Chapter 3 was innovation and the process underpinning it. We explained what is meant by innovation and discussed some of the framework of an innovative culture. This chapter also examined key types of innovation particularly incremental, radical and disruptive. As we argued, due to the skills required for successful innovations, particular types of team environments and cultures can hasten the development and implementation of an innovative idea. We explored some of the key factors that may play a role in supporting an innovative culture including the spaces where teams work and innovative ideas are developed, the presence of incentives as well as constraints (that can ironically spark innovation via new or lateral forms of creativity). We also made the case for the value of supporting risk-taking and experimentation. This chapter considered the role of crisis—such as the COVID-19 global pandemic that impacted the world for several years from early-2020—in prompting and necessitating innovation.

Chapter 4 turned to what we termed 'prompts for creativity'. These are tools or strategies that can enable, enhance and/or encourage convergent and divergent thinking. As we contended, a creative practice may require a diverse toolbox of creative prompts or strategies that can then be deployed, depending on the situation and problem at hand. We discussed the role of perception in the creative process as well as the importance of employing and being open to ambiguity and contradiction in our creative thinking. The chapter then explained numerous creative thinking prompts including asking questions, analogies, assumption surfacing and provocation, attribute listing, brainstorming, the 6 thinking hats, forced connections, lateral thinking, mindmapping, PMI (plus, minus and interesting), reversal and SCAMPER. Such prompts and strategies are useful

to have in a creative thinking toolbox so they can then be deployed in the creative thinking process as needed.

Chapter 5 extended on the work of Chapters 2 and 4 particularly to discuss approaches to creative problem-solving (CPS). Chapter 5 highlighted the work of Alex Osborn (1953, 1957), specifically his three-procedure approach inclusive of fact-finding, idea-finding and solution-finding. We explained that each step is infused with both divergent and convergent thinking which necessitates asking a number of reflective questions at various stages to support the process of problem-solving. We then explained three case studies (a commercial loyalty program, Playpumps and baby incubators) to illustrate CPS in practice. In these case studies, we identified potential issues that affected the development of creativity and innovation. The chapter also explored what constitutes a 'wicked problem' and some of the inherent challenges in addressing them from a CPS perspective (Rittel and Webber 1973). However, 'wicked problems' have a better chance of having possible solutions generated in particular team environments, especially those that embrace diversity and difference as these are representative of the actuality of everyday life.

## Final Discourse: Technologies, Pandemic and Climate Change

In August 2022, Jason Allen, a video game designer from Pueblo West, Colorado won the first prize for a contest for emerging digital artist arts at the 2022 Colorado State Fair for his artwork which he entitled 'Théâtre D'opéra Spatial' (translated as Space Opera Theatre). This sparked a controversy when it was discovered that Allen did not make his entry with a brush or a lump of clay. His 'artwork' was created with Midjourney,[1] an artificial intelligence (AI) program that turns lines of text into hyper-realistic graphics (Roose 2022). A fierce debate ensued about the ethics of AI-generated art, and questions were raised about who (or what) was the

[1] Midjourney is one of several AI-enabled tools readily available online. It describes itself as "an independent research lab exploring new mediums of thought and expanding the imaginative powers of the human species." (https://www.midjourney.com/home/). Image and art-creation AI systems launched in 2022 include: 'DALL·E 2' (https://openai.com/dall-e-2/) and 'Stable Diffusion' (https://stablediffusion.fr/ and https://stability.ai/).

creator? (Tan 2022). Detractors argued that the use of AI apps is essentially a high-tech form of plagiarism, and that Allen should be disqualified since the technology could be deemed the artist, not him. Supporters however took the view that the use of AI to create an art piece was "no different from using Photoshop or other digital image-manipulation tools [since] human creativity is still required to come up with the right prompts to generate an award-winning piece" (Roose 2022).

Regardless of one's moral position, it is not possible to deny the dynamics of human involvement in the creative process, whether this takes place in artistic sketching using actual tools such as paintbrushes or chisels or in the creative input of programming through the manipulation of algorithms, otherwise known as 'machine learning'. The Colorado State Fair episode gives us a significant insight into how technology has and will continue to challenge our thinking around human creativity and what counts as innovative, original creation. As David Tan (2022), a legal copyright expert, makes clear: "it is the presence of the author's [or creator's] own choice or volitional path in the creation of a work—as a result of the conscious mind (entailing rules of logic) and subconscious mind (involving fantasy, imagination, intuition and premonition) working together—that makes a work 'original'." The corollary is that AI-generated works are clearly original—and therefore, deemed creative—as the AI systems are tools or agents that aid the human creator to render ideas into expression (ibid.).

As we unpacked in Chapter 3—especially in drawing from Mel Rhodes' (1961) 4Ps discourse (product, process, person and press), the creative process starts in our subconscious mind, which generates images, feelings and emotions, and then transmits them to our consciousness. We then consciously perceive these images and make decisions about how they can be expressed, not just as an artwork, but in written text or song. The conscious and dynamic comprehension of impulses and enlightenments in our subconscious minds thus perform the function of selecting the form of expression, resulting in the innovative process of (re)producing the creative output (Tan 2022).

There is little doubt that technology has reshaped much of our thinking on and of creativity and innovation quite simply because it is so pervasive in our modern, everyday lives. Those of us living in advanced developed countries are already starting to employ 'smart' technologies that utilise AI and machine-learning functions. These may come in the form of smartphones, surveillance cameras and security devices,

traffic management systems and autonomous vehicles. These have sparked concerns about a contemporary phenomenon known as datafication, which refers broadly to "the quantification of human life through digital information, often for economic value", particularly in the misuse of personal information for mischievous and illegal purposes, such as identify theft and financial fraud (Mejias and Couldry 2019).

If, as we assert, creativity can be mobilised and deployed to solve problems that we encounter in our everyday lives—even wicked problems that demand multifaceted solutions (Rittel and Webber 1973)—then we must remain confident that solutions can and will be found through creativity and innovative practices. COVID-19 is one wicked problem that the world has contended with in recent times. We have witnessed how multiple creative and innovative responses around the world, such as online video-conferencing tools, rapid deployment of vaccines and rapid antigen self-test kits, have enabled many people to cope during the coronavirus pandemic (as Chapter 3 has highlighted). Many other wicked problems have preceded COVID-19, and it is certain that more will come in the future. If nothing else, these problems will ensure the ongoing relevance and importance of creative and innovative practices not only to see us through setbacks, but help us continue to improve and thrive.

The problem of climate change, along with environmental contamination through the excessive misuse of plastics and the growing risk of species extinction, is arguably the most complex wicked problem of our times (Incropera 2015). Like COVID-19, climate and environmental crises have the capacity to disrupt both lives and livelihoods. Yet, unlike COVID-19, they have been decades, even centuries in the making, and are likely to remain destructive to human existence into the foreseeable future. The myriad of problems caused by climate change requires not just creative and innovative responses, but collective action. As Mike Toman from the World Bank has noted, "climate change is an issue that presents great scientific and economic complexities, some very deep uncertainties, profound ethical issues, and even lack of agreement on what the problem is" (Toman, cited in The World Bank 2014). The Swiss international law scholar Anna Saab goes so far as to describe climate change as a 'super wicked problem' because its "causes are multiple and complex, its impacts are uncertain and interrelated, and potential solutions to climate change might well cause further problems" (Saab 2019).

If we are to channel Plato's 'necessity is the mother of invention' mantra into the super wicked problem of climate change, and of environmental problems more broadly, we would adopt an optimistic and *super* creative mindset to the process. Climate awareness and diplomacy have increased substantially, and have taken centre stage in the political arena of many developed economies, especially in Europe. Significantly, while climate change was for a long time the domain of climatologists and geographers, it is now part of mainstream debates in many disciplines (Saab 2019). Although we are a long way off from reaching any concrete resolution, being part of mainstream debates takes the issue into the 'fact-finding' territory (Procedure One) of the creative problem-solving process (Osborn 1953, 1957). Procedure Two, which involves 'Idea Finding' can thus follow and lead us towards Procedure Three, which is where solutions are identified and enacted upon (see Chapter 5). While it would be naïve to think that the super wicked problem of climate change can be reduced into a mere three-procedure approach, it is precisely where we need to make a start. Thankfully, it has already started in several polities and jurisdictions, but more will need to come on board.

As we conclude our brief study, it is worthwhile reiterating that creativity is always in-process, ongoing and is necessarily disruptive and incomplete. And because it occurs at the level of the everyday, every ordinary person will need to bring their own creative energies so as to spark innovative and extraordinary solutions to present and future problems, however wicked they may be.

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