

ARTISTS AND DESIGNERS AS AGENTS OF CHANGE

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ABSTRACT

This paper will focus on the role of artists and designers as agents of change in sustainability innovation. We will analyse the characteristics of this role on the basis of a review of literature that discusses various concepts, methodologies and strategies applied by artists and designers in innovation processes. The paper will analyse two case studies in which artists and designers acted as agents of change and will discuss insights from these case studies in the light of the literature reviewed. We will then continue to investigate how certain characteristics of the involvement of artists and designers in innovation processes relate to the impact of the process on a social-, business- or product level. The paper will conclude with lessons learnt regarding the role of artists and designers as agents of change in innovation processes and will introduce directions for future research.

INTRODUCTION

The Pop culture, Sustainability and Innovations research group (PSI) of Hanze University of Applied Science researches the possibilities of art and design to act as a catalyst for innovation processes. PSI's research is motivated by the pressing need for more inter- and

trans-disciplinary approaches to innovation dealing with ecological and social issues. PSI's overall research is rooted in the belief that artists can play the role of 'agents of change' in innovation processes (Nigten et al, 2006-2007, 2013, 2014). An 'agent of change' is a person who catalyses innovation processes through radically different and refreshing approaches (i.e., ways of working) in relation to a given issue and context. PSI's research objectives are to better understand this role and raise awareness for what artists and designers have to offer (social and ecological) innovation processes by adopting this role. In this paper we will specifically focus on the research question: *What is the value of artists and designers as agents of change in sustainability innovations?* Although an all-encompassing answer to this question may be overambitious for a single paper, we aim to at least contribute some interesting insights into the role that artists and designers play in innovation processes and the impact they have on such processes.

This paper will discuss two case studies from PSI's research. Both studies were conducted within the framework of PSI's sustainability research through art, design and lifestyle, by students, researchers and professionals at Academy Minerva in Groningen, in the context of the Minor Art & Technology of Hanze UAS and a project titled *CCC-Reloaded CREALAB*. The descriptions of the case studies include reflections on the conducted experiments by the commissioners (SME's), students, teachers and professionals involved in the project, as well as by a group of European experts on innovation. The approaches followed in the experiments draw on the design notion of 'design thinking' (Brown, 2008), as well as on artistic approaches to innovation referred to as 'ludic' or 'explorative' (Nigten, 2014; Gaver, 2009). Although artists and designers can in principle take up the role of agents of change in any kind of innovation process and instigate or catalyse change with respect to any target

group, the two cases discussed in this paper specifically targeted changes with respect to sustainability innovation among energy consumers and stakeholders in the funeral industry, respectively. Before going into the two cases in more detail, we will first review a selection of literature that is relevant to the central research question of this paper introduced above.

LITERATURE

The research presented below is grounded in recent literature on art and design that supports our belief that artists can play the role of agents of change in innovation processes (Nigten, 2013, Van Dartel and Nigten, 2014). Although artists and designers could take up such a role in innovation processes in many different domains, this paper will focus on innovations in the context of sustainability. We will examine the approaches (i.e., ways of working) of such agents of change, study their impact on the process, and look at how they engage with audiences and participants. Before doing so, it is important however to first better understand the roles that artists and designers play in innovation processes by zooming in on the kinds of activities that they engage in within such processes through relevant literature on the topic.

To understand the role of artists and designers as agents of change, it is mandatory to put aside the traditional divide between the disciplines of art and design. In our view, contemporary art and design practices show that these disciplines cannot be seen as completely distinct fields (anymore). Designers often also work as artists, and artists frequently also design as part of their practice. In the production of media art for example, artists ordinarily also take up design and technical responsibilities and regularly shift between the role of artist, designer and technical developer throughout the process (Nigten 2014).

The *Processpatching* concept developed by Nigten, (2006-2007, 2014) is used as a theoretical framework for the research reported below. This framework considers artistic practices as patchworks of loosely 'stitched together' knowledge and expertise from different fields. Although early descriptions of *Processpatching* predominantly focused on collaborative research and production processes among artists, designers, and engineers, the theoretical framework has recently been extended with the inclusion of scientists and various other actors in R&D processes (Nigten, 2013, 2014).

Perkins' theory on learning through the arts, by making, experiencing and reflecting (Perkins 1994), also informs our research on the role of artists and designers in innovation processes. In *The Intelligent Eye* (1994), Perkins advances a message that is twofold: First, he explains that looking at works of art requires thinking and that art should be thought-through in a careful sustained reflection. Secondly, he argues that looking at art is a means to cultivate thinking dispositions. In the

foreword to Perkins' book, Stankiewicz states the following: '*Drawing on recent research in cognition, he [Perkins] explains why art is uniquely qualified to support commitments to habits of thinking that are not hasty, narrow, fuzzy and sprawling*' (Ibid. p. ix). Perkins claims that art provides an excellent setting for better thinking dispositions by mentioning the features that make it so. '*[...] because art offers a sensory anchor for our thinking against which ideas can instantly be checked. Works of art call forth our personal involvement. They invite us back with their affective impact*' (ibid.). Especially this multifaceted character of knowledge generated through art, as well as its impact on the participant's ability to learn, are highly relevant to understand the impact of artists and designers on innovation processes.

In the arts, playful engagement is often referred as *ludic* interaction. Such ludic interaction is moreover aimed at learning and raising awareness through playing and often involves some kind of socially engaging activity. So-called ludic principles, rules for play inspired on Huizinga's (1944) *Homo Ludens* theory, open up non-competitive scenarios for multiple participants to interact with each other in the context of an artwork (Gaver, 2009). Such playful social interaction can be the basis for co-created shared experiences. Subsequently, such co-creation is a key element to establish communal learning. Learning through art therefore often means learning through playful interaction. Such interaction may contribute to co-ownership over the experience, a shared responsibility, or arguably even awareness, with respect to a certain issue presented through the work. This type of engagement with art is very different from the classic white-cube experience of art; especially when the interactive art presented solicits an active role from the public. Considering that most 'change' starts with learning and awareness, artists and designers that take up the role of agent of change often engage with their audience through such playful interaction.

The development of such playful interaction moreover requires a process of *processpatching*, which encompasses the combination of several types of knowledge, including tacit knowledge (whether non-verbal or informal (Polanyi, 1967)), implicit or practical knowledge (knowing how), or explicit knowledge (knowing that). Combining such very different types of knowledge in a development process is not self-evident however. Although this aspect is often taken for granted in the fields of art and design, the combination of different types of knowledge should be emphasized as a major strength of artistic and design-driven innovation. This combination of different types of knowledge is what invites audiences or participants to experience the innovation from a range of levels, such as the experiential, personal, intuitive, or intellectual level. Each of these different levels of knowledge offers potential direct access for personal engagement and starting points for feedback and learning, as also argued by Perkins (1994).

The relevance of designers as agents of change in sustainability innovations is also highlighted in literature on the notion of ‘Design Thinking’. Brown (2008) for instance notes that *‘Thinking like a designer can transform the way you develop products, services and even strategy’* (p.85). Other aspects of Design Thinking, such as its capacity to deal with ‘wicked’ social problems, also underline the importance of involving artists and designers in innovation processes. Given that the biggest challenge of our time is the transition to a more sustainable world model, a very wicked social problem, it is only logical to involve artists and designers in this transition. Brown (*ibid.*) states that these kinds of design research themes require the designer’s engagement and empathy with the topic as well as integrated (analytic and creative) skills to find solutions, new directions, or new engagement for complex issues, like those related to sustainability.

Contemporary design trends, such as today’s interest of designers in experiencing the meaning of (sustainable) materials (Kandachar et al., 2008), largely depend on the engagement of participants and require a shared responsibility ‘to shape the world’. Designer Van Bezooen (2015) notes that *“Since nobody is looking forward to a future where we are fighting for resources, it is important to find alternative solutions for the approximate ten billion people who will be sharing the planet in 2050”*. Such solutions can be explored through art and design on the basis of playful artistic experiences that raise awareness and ultimately catalyse change towards a more sustainable world.

CASE STUDIES

In the following section we will discuss two case studies that were developed at Hanze UAS, Art Academy Minerva, in close cooperation with the PSI research group, which are all based in the Netherlands. The case studies encompass research into: 1.) the social aspects of a sustainable lifestyle and 2.) bio-based materials for new appliances.

CASE STUDY 1: PANOPTICON

The project *Panopticon*, by students that enrolled into the Minor Art & Technology in 2014, was developed under the guidance of teachers of Minerva Academy and the School of Communication, Media & IT. This group of nine students, with very diverse backgrounds, created an interactive installation within a fenced area of 16 x 16 meters in the shape of a pentagon. The pentagon had four entrances and one exit. At the center of this area, a pentagonal tower of four and a half meter in height was placed. Eleven smaller pentagonal boxes surrounded the main tower in the center. Both the tower and the smaller boxes consisted of a wooden skeleton covered in white plastic foil. Powerful RGB-LED theater lamps were installed inside the boxes and in different segments of the tower to make it possible to light them up in a full color spectrum. On top of each of the boxes, as well as on all five sides of the tower, a small metal plate was engraved that featured an image

of a hand. Cables went from these metal plates to the lights via two Arduino-controllers. (Arduino)

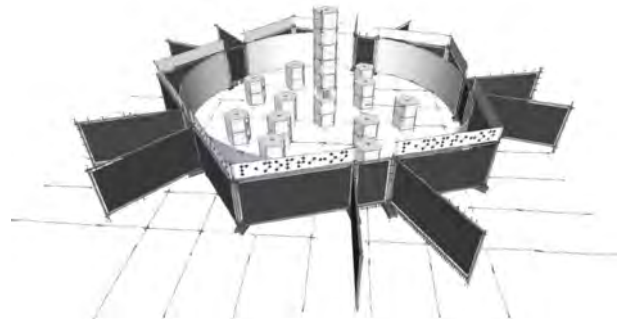


Figure 1: A 3D rendering of the Panopticon.

Visitors of the installation had to queue up at one of its four entrances. Every five minutes, one person from every entrance would be allowed to step inside the installation, which made it improbable that the four people that stepped into the installation at one time knew each other. Once inside, one of the small boxes and the tower would begin to flicker in one uniform color, inviting the visitors to connect the tower with the boxes by putting one hand on the box and the other on the tower. After a visitor did this, another small box would light up, indicating that it also ‘wanted’ to be connected to the tower. This small box however, was too far away from the tower to be connected to it by one person, which enforced visitors to create a ‘chain’ between that box and the tower by holding each other’s hands. In this way, a game evolved in which the visitors could complete different levels of increasing complexity, giving rise to an increasingly powerful light show in the tower.

CASE STUDY 2: CREALAB BIO-BASED MATERIALS DESIGN EXPERIMENTS

In the period 2013 – 2014, a series of bio-based materials design experiments took place as part of a project titled *CREALAB*. In a range of extracurricular workshops, interdisciplinary groups of students worked on bio-based material design experiments under guidance of Minerva Academy teachers, professionals and creative enterprises *House of Design and Material Stories*. This case study was part of the *Creative City Challenge reloaded: CREALAB*, a European project that ran from October 2013 until April 2015. The aim of this project was to initiate transnational knowledge transfer, with the help of Creative Industries and Scientific methods, in order to support businesses to develop innovative ideas, services, and products.



Figure 2: Exploring different properties of hemp fibre in the bio-based materials workshop.

In the first phase of the workshop series, students performed playful experiments with bio-based materials in their raw forms and original shapes (felt, bamboo, foil, potato starch, bio foam, bio plastics, card board, hemp). Designer Aart van Bezooeyen, of the creative enterprise *Material Stories*, supplied the students with both practical as well as theoretical support in this stage of the workshop series. During the experiments, the students explored new combinations of these materials for innovative applications, as well as their physical and experiential properties, such as the materials' translucence, malleability or adaptability. The experiments were documented in the form of 'recipes' and subsequently added to an educational knowledge base of bio-based research that Van Bezooeyen is in the process of developing.

The second phase of the series of workshops was based on design assignments provided by local small businesses (SME's). A producer of industrial hemp, a company for office furnishing and an undertaker each provided one assignment that the students could choose from. After careful consideration, the students decided to work on the undertaker's assignment, which posed several interesting design challenges in the light of the sustainable funeral services he provided. More precisely, students were asked to redesign a reusable jewellery pouch that, after a period of mourning, could serve another function. The students defined that function to be that of a candleholder, a memorial lantern, or a box to hold seeds that represented new hope.

METHODS AND STRATEGIES

The *Panopticon* installation of case study 1 was exhibited during the *Night of Art & Science*, an art and science festival that takes place in the city of Groningen once a year and consists of interactive installations, performances, and lectures.

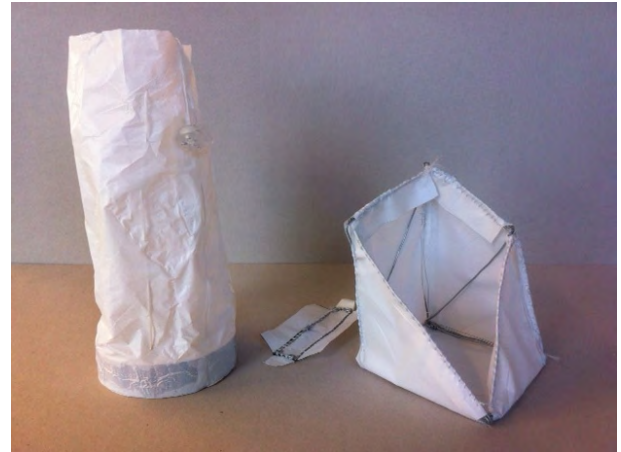


Figure 3: Reusable jewellery pouch redesigned for new functions.

The Minor Art & Technology students did intensive research into the typical visitor of this festival through questionnaires and personas. They also studied relevant literature to create a theoretical framework for the installation. Their findings were then translated into practical design considerations, which were subsequently tested on subjects that were interviewed about their experience after each test. The group consisted of students from diverse disciplines, such as design, theatre studies, communication systems and computer science, which guaranteed a mixed input to the process-patched development process. Students were encouraged to cross the boundaries of their own field of expertise, to share knowledge, and to be sensitive to ideas emerging from the group dynamics.

Based on the interviews and the participants' notes we conclude that the typical visitor of the festival is more inclined than the general public to let her daily decisions be influenced by sustainability and privacy issues. However, she is also rather individualistic and seems unaware of the possibilities of cooperating with others to address important sustainability issues.



Figure 4: Participants enjoy the collaboration with strangers in the Panopticon.

In general, she keeps to her own social circles, which means she is less prone to meet with strangers and moreover avoids uncomfortable forced social interaction. Though she is interested in art and science, it is difficult to get her to interact with the installation. Instead, she likes to watch and tries to keep the actual participation aloof.

The goal of the *Panopticon* installation was to let participants experience that cooperating with strangers (one might never see again) could yield great rewards. Such rewards can come in the form of an aesthetic experience that is based on addressing the challenge that one is facing together and the euphoric feeling of controlling the challenge and be rewarded. In order to reach this goal of the *Panopticon* installation, the following associative narrative was guiding the students' design process: *To work in a sustainable way, to make something of our future, we sometimes have to let go of our individual predilections and cooperate with other people; people whom we do not know or might never see again.*

In the *CREALAB* bio-based material design experiments that were part of case study 2, the role of the artist as an agent of change was more explicitly emphasised. The students were asked to become a creative partner in an innovation process and to perform explorative artistic research for inspiration and innovation. Since almost 80% of a product's environmental footprint is determined during the design phase, design contributions to innovation process can make a big difference (Van Bezooeyen, 2015). Aiming for both ecological and product innovation, the *CREALAB* workshops revolved around two themes: *Ecological Autarky* and *Bio-based materials*. While the *Ecological Autarky* workshop was directed to raise public discussion around self-sustainability, the *bio-based materials* workshop explored materials to be used in design assignments by entrepreneurs. During both workshops, the students engaged in an iterative process in which they mixed hands-on material research and ludic role-play with explorative elements of contemporary design approaches, such as haptic design (Wendrich, 2011) and material-driven design research (Zeeuw van der Laan, 2013). Workshop outcomes were, among follow up outcomes, presented to an audience on the basis of video clips, prototypes, performances and hands-on experiences. The outcomes of the *bio-based materials* workshop were also presented to the undertaker that provided the assignment. With respect to these outcomes, it should be acknowledged that the students also had to keep the entrepreneur's strategy in mind while fulfilling the assignment. The undertaker was looking for new products that could extend his field of business whilst meeting the current interest of his clientele and matching his sustainable business profile. The prototypes of the students worked as sensory anchors for the creative conversation between the

stakeholders. In the workshops and the exhibition the theoretic concepts of bio-based materials was replaced by a tacit experience and served as a placeholder for conversations. In summary, one could state that besides developing a sustainable product, the students were also involved in exploring how a creative dialogue between entrepreneurs and artists can add to product innovation.

Both case studies presented here illustrate that the students, in the role of agents of change, combined learning through the arts with playful principles. The audience engaged with each other in the *Panopticon* installation through playful interaction and built their shared experience in the installation. The installation worked as a framework for learning through the arts, in which the participants built their shared sustainability awareness experience. In contrast to the first case study, in which students focused on an installation that could provide the context (or the building block) for the stakeholders' social interaction, in the second case study students reflected upon new products and the treatment of bio based materials. This *CREALAB* case study described a process that is much closer to the notion of Design Thinking introduced in the literature review, since the stakeholder did not participate in the design process as such. The students participating in this case study combined their choice of materials with explorative research on new applications and innovative products. It should be noted however, that the director of the SME could be considered the most important stakeholder in this process. The undertaker did not only benefit from the outcomes, but also indirectly participated in the process by bringing in his business' focus on sustainable materials as a given factor in the assignment.

RESULTS

The aim of the *Panopticon* installation was to raise awareness about social sustainability among the visitors of the *Night of Art & Science*. Moreover, the effects of works of art and their duration are difficult to capture in a quantitative manner. These effects can often only be observed in the involvement of the audience with a piece of art, the time spent looking at or participating in a work, and qualitative interviews after visitors experienced the work.

During the public exhibition of the *Panopticon* installation, thirty-seven runs of four minutes each were carried out. The individuals of every group were at first a bit reluctant to enter the installation and waited around while looking at the boxes and at each other. After a few encouraging words from the game-master however, who was present inside the installation at all times, participants generally undertook the first steps in solving the challenge embodied by the installation. Once on their way, hesitation seemed to quickly dissolve with every participant and they would complete level after level, clearly enjoying the progress they made. Judging from the interviews that were taken at the exit of the installation, the participants did not only

connect with the tower and the boxes, but also with each other. The photos of the groups of participants that were taken at the exit illustrate the effect of the installation: Almost every image shows four people that look like age-old friends, while they had not even met five minutes earlier.



Figure 5: After participating in the *Panopticon* for only four minutes participants that were complete strangers before often looked like old friends.

This social bonding between participants actually already started to take place at the four entrance points. Given the setup of the installation, people had to wait at least four minutes before they could enter. During the course of the evening, this waiting started to take more than twenty minutes, which resulted in that people in the queue started to talk with each other about their expectations of the installation. These expectations were driven to a pinnacle because hardly anything of the installation was visible from the outside and everyone only saw the smiling faces of people exiting the installation. One could argue that the participants already started to get involved in the installation even before entering it.

The second phase of the *CREALAB* case study dealt with sustainable product innovations based on an assignment from a local entrepreneur. In his reflection on the workshop outcomes, the undertaker mentioned the broad range of perspectives and the thorough and personal approach as two factors that truly surprised and inspired him. For the students, the dialogue with the entrepreneur brought about a more realistic view of their future professional field and on how to make sustainable practices based on their design skills. The students realised some new concepts and took some initial exploratory steps to work *outside the box* on applications that encompassed new directions of a business. The outcomes also met the requirements of the assignment to work with sustainable materials in innovative ways and to support a personal sustainable experience for the mourning clientele. Although the innovation processes was product-driven, the workshops were very *process*-oriented: Rather than in the product produced, the value of the workshops was in the exploration of an open research process in which the central focus was on tacit knowledge.

For the evaluation of our case studies it is important to acknowledge that the impetus for change produced by the students was very different for each innovation process. The case studies share their aim to create social rather than financial value, but while in the first case study the agents of change worked according to a playful multiuser interaction approach to achieve a wider social understanding, in the second case study the product and material innovation were mixed with the entrepreneur's desire to innovate his business. This could be referred to as an enterprise view; in this case a product innovation cycle to enhance the branding of a SME.

The work-processes of the agents of change in both case studies includes ideas and approaches that blur the lines between art, design and engineering. They also share other similarities, such as the shifting of roles, that is common to media art practices. The first case study combines such role shifting with the notion of ludic design (Gaver, 2009) and the mix of approaches and expertise that is combined to meet the specific requirements or goal(s) of the projects is very typical of *Processpatching*. Such a 'processpatch' of approaches and expertise typically enables the realisation of art or design concepts that aim for a different type of engagement, rather than for solving problems directly. Both case studies empower the participants to engage and reflect upon the cases' sustainable thematic by learning through the arts. In case study 1, the *Panopticon* installation, this is established in a playful implicit way. *Panopticon* encourages the participants to reflect on their own behaviour through an (inter) active art experience. In Case study 2, *CREALAB* focused on material- and product innovation as its a tangle outcome its learning process is exposed in a more explicit and practical way. Both case studies brought forward the importance of their physical or tactile components to foster the participants' or stakeholders' reflection.

DISCUSSION

While this paper focused on documenting and sharing our experience for future applications in a scholarly way, it should be considered as an open invitation to join the discussion on the role of artists and designers as agents of change in innovation processes. Although we described and discussed two cases, we have yet to explore the long-term impact of the work of such agents of change. How long did the social impact of the *Panopticon* installation or the bio-based material experiments last? Do their effects sustain beyond the temporary engagement with the mini-ecology of participants in the project's presentation? How can we turn the temporary effects reported in this paper into a long-term impact that contributes to true sustainable behaviour? These long-term effects of artists and designers in the role of agents of change will be the focus of our future research.

CONCLUSION AND FUTURE RESEARCH

In this paper we investigated the research question: *What is the value of artists and designers as agents of change in sustainability innovations?* To answer this question we analysed different ways in which artists and designers are involved in innovation processes and identified the potential value of such involvement of artists and designers for people, companies, and society at large.

After a brief review of relevant literature, we described and analysed two case studies of sustainability innovations in which artists and designers played the role of agents of change. The case studies were developed by groups of students with diverse backgrounds, who combined a range of different methods and applied a mix of theoretical frameworks. The most prominent of these frameworks were ludic design (a playful approach for building shared experiences) and Design Thinking (for sustainable innovation). The loose way of mixing very different approaches, expertise, methods and frameworks observed could be described as a form of *Processpatching* (Nigten, 2007).

We have identified such *Processpatching* as an important property of artists and designers that take up the role of agents of change. Our case studies and the literature studies provided us with an important insight into the way artists and designers work in their role as the agents of change. The students' work refers to a wide range of art-, cognitive-, cultural- and design theories, that are patched together to provide access to different types of knowledge. Making this broad range of knowledge types accessible through the arts was observed as the agents of change's most important assets for innovation. The case studies revealed that the combination of tacit knowledge, practical knowledge and explicit knowledge is of crucial importance to engage with audiences or participants, as these types of knowledge correspond to levels of engagement that are available to participants. This is in line with Perkins' analysis of 'learning through art', in its '*sensory anchoring for thinking, wide spectrum cognition and personal engagement and sustained reflection*'. The case studies therefore acknowledge that among the strong features of artists and designers in the role of agents of change are the multiple knowledge levels on which art and design experiences communicate. Each of these levels forms a potential for engagement that might ultimately lead to change. The scale of the cases studied was however too modest to generalise these conclusions, for which future research is required.

Besides the innovative outcomes of the case studies, they also display the students' professional development towards becoming innovators and illustrate how their contributions can unleash the innovative potential among the participants or user groups themselves. Artists and designers are in a pioneering stage of playing the role of agents of change, but the case studies discussed above reveal a glimpse of what their role may look like in the future of innovation processes.

What the impact of agents of change in longer innovation processes could be and within which other fields of innovation these roles can be productive remains to be investigated. We therefore also suggest further research into the impact of artistic and design approaches in a broad range of fields and innovation processes of different durations.

We hope that this modest contribution to the discussion on the role of artists and designers in innovation processes will inspire more debate and reflection.

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