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Postcards from the edge: Trash-2-Cash communication tools used to support inter-disciplinary work towards a design driven material innovation (DDMI) methodology

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Abstract. In this paper postcards from the EU funded Horizon 2020 Trash-2-Cash (2015-2018) project - completed by workshop participants – are presented in three tables with a focus on how they contributed to the building of communication channels, shared understanding and methods in this inter-disciplinary consortium work. The Trash-2-Cash project aims to support better waste utilisation, improve material efficiency, contribute to reduction of landfill area needs, whilst also producing high-value commercial products. Novel materials will drive the generation of new textile fibres that will utilize paper and textile fibre waste, originating from continuously increasing textile consumption. The inter-disciplanarity of the participants is key to achieving the project aims – but communication between sectors is challenging due to diverse expertise and levels of experience; language and cultural differences can also be barriers to collaboration as well. Designing easy and accessible, even fun, communication tools are one of the ways to help build relationships. The cards reviewed were used in Prato (November 2015), Helsinki (February 2016) and London (November 2016). This paper concludes with insights for the ongoing development of the project communications work towards the Design Driven Material Innovation (DDMI) methodology, due to be presented at the end of the project in 2018.

1. Introduction

The aim of Trash-2-Cash is to provide creative companies with new material solutions for fashion, interiors, automotive and other luxury products. 18 partners, from 10 countries – around 50 individual designers, design researchers, materials scientists, social scientists, raw-material suppliers and end-product manufacturers from across Europe - make up the inter-disciplinary and cross-sectorial consortium. The designers lead on the formation of 'scenarios' for new material and product futures, defining the desired material properties and developing ways to collaborate with material scientists and developers to further develop the different eco-efficient regeneration processes for cotton fibre, paper/cardboard, polyester and fibre colouration.

The project collaboration is enabled through two-day workshops in different European locations every two to three months. In bringing together designers from academia with designers from industry, scientists and manufacturers, consumer behaviour researchers, and life cycle assessment researchers, the project demands that participants be prepared to challenge their normal ways of working. Indeed, to embrace the ideas of others – the language, methods and processes – and in order to collaborate, the project requires the participants to consider where their discipline ends and another begins.

Participants may well experience a gap here – bridges are needed. It is the role of the methodology team in the project to create tools and opportunities to bridge these gaps.

2. Context

2.1 Partnerships in the development of 'circular' textiles

As cotton becomes a more luxury-level fibre the materials world has a new space race on its hands. Regenerated cellulosics are being tipped as the front-runner for future fashion and clothing, but whilst the technology is undeniably exciting and innovative, there are still many challenges around quality, quantity and impacts. The Trash-2-Cash project is bringing new insights around how designers can drive future solutions.

Organisations like The Ellen MacArthur Foundation are beginning to highlight the challenge for designers in working across a number of contexts with business and science/technology fields, towards new innovation models (Maciver *et al* 2016) [1] for the circular economy. Multi-stakeholder partnerships are recognised as an important precondition for bringing about changes toward sustainability in the fashion and product design industries (Pedersen *et al* 2013) [2] (Dell'Era *et al* 2016) [3]. Furthermore, it has been acknowledged in the literature that bringing design and science closer together in material development could be an important contributing factor in supporting an 'advanced and sustainable textile industrial base' (Hughes *et al* 2011) [4]. These partnerships need to explore the *edges* of different fields and practices, as they currently exist.

2.2 Postcards as tools for collaboration.

One of the guiding principles for creating an inclusive environment for collaboration is surely to avoid alienating any one discipline through the use of discipline-specific language or tools [5]. Finding tools which are engaging, familiar and intuitive for all in a multidisciplinary setting can be challenging. Yet postcards, it could be argued, fulfil all of these requirements; they are a universally understood medium for a message 'from me to you'. They tend to be informal, associated with leisure-time and communication with friends and family (rather than the 'serious' work of an EU project workshop) which potentially allows them to elicit a different kind of response; one of openness.

2.2.1 Previous uses of postcards as research tools. The use of the postcard as a communication tool is not a new one – the title of this paper references work by Sapsed and Salter (2004) [6] where cards were used as 'boundary objects' within a community project. The analysis of photographs used on postcards is also a current area of study (Millman 2013) [7]; as is the act of posting a card as an act of exchange in the 21st century to find out more about how sending a postcard 'motivates participation in a community' (Kelly & Gooch 2012) [8] – a time when emailing and texting have made the postcard a redundant form of communication. It is perhaps the appeal of it being such a basic exchange in a technologically advanced communication era, that makes it such a human research tool (Gray & Malins 2004) [9].

3. Research Method

The methodology adopted by the authors in the Trash-2-Cash workshops was similar to 'action research' where researchers observe a situation to understand a need then design an intervention and reflect on its impact as Berg (2007) states: "Action research is fundamentally a change-process, where the researcher consciously studies something in order to change or improve it." [10]. In this case the postcards themselves represent both the intervention and the data collected and analysed.

In this project the postcards were created as an open-ended communication tool, which could be adapted for each workshop. There are three different ways in which the authors have used the postcard format so far within the project; these are outlined in Table 1.

Table 1. Postcard tasks and purpose, by workshop.

Workshop	Task	Purpose
Prato #2 Nov '15	**'Tell us about…'** (Unscheduled: during networking time)	(a) 'Getting to know you' (building internal connections) and (b) To receive leads for building external networks
Helsinki #3 Feb '16	**'Postcard Q&A'** (Scheduled: standalone task)	a) To find out more about the scientific processes and (b) To enable a range of voices to be heard
London #6 Nov '16	**'What did I learn?'** (Scheduled: part of another task)	(a) To elicit feedback on the successes / weaknesses of a task and (b) To enable a range of voices to be heard and thoughts to be captured 'in the moment'

Each of these three different postcard tasks have been analysed in terms of the purpose, content - what people said – and how we (as action researchers) responded / what happened. The responses were analysed for common themes and the frequency of these themes are presented in the results section below to aid the discussion and conclusions.

4. Experiments & Results

The postcards created by the authors came in two sets – the first had four questions on them (Prato), and the second set were blank and were issued with different questions for the participants to answer directly after a task (Helsinki and London).

4.1 Postcard Task: "Tell us about…" Prato, Italy (November 2015)

The purpose: These were designed as a relationship-building tool, for the second workshop, held in Prato, Italy, and also to collect information that could help us to build networks and connections. (Figure 1). The content: Four questions were printed on the cards, which were completed during coffee break times and pinned to a wall for everyone to read. Participants were randomly given one of the four questions. 25 cards were handed back (a response rate of 71%).

Table 2. Postcard questions from Helsinki (Feb 2016), grouped by response theme.

Postcard question	Response theme	Frequency
What's the most interesting event you attended recently?	Events featuring garments made from recycled materials	*3*
	Other cultural events	*3*
Tell us about a project that crosses over with T2C.	Projects involving recycled materials	*3*
	'All of our projects'	*1*
Tell us about which partner you are most excited about working with.	Scientists	*4*
	Designers	*2*
	End-users (manufacturers / retailers)	*3*
	All partners	*1*
Tell us about an interesting conversation you have had tonight.	Relating to the potential of T2C materials	*5*
	Relating to consumer behavior / marketing	*2*
	Relating to impacts in other parts of the lifecycle (use, recycling etc.)	*3*
	Relating to cultural backgrounds	*4*

4.1.1 How we responded / what happened? The cards were useful in showing each other (they were pinned up) our broad range of cultural backgrounds and interests - *"Basquian food and ancient libraries"* – to an appreciation of the expertise in the project, *"I'm pleased and excited to work with all the T2C researchers, because I consider the overall team very efficient and well-skilled".* One card noted the need to find *"a common project language'.*

It was also clear from the responses that partners were excited about the prospect of working with other disciplines and that the potential of the materials were already at the forefront of discussions taking place in the social times of the workshop. The authors fed the responses back into the forward planning as using the cards gave 'voice' to individuals at busy and noisy project events. The reflective act of writing a single thought down appeared to enable participants to think though what to share or ask, and become more focused at key points during the two-day workshop meetings.

Figure 1. Prato, Italy (November 2015) – each participant had one of four questions to answer.

Figure 2. Helsinki, Finland (Feb 2016) – questions were written on a postcard for the lead scientists to answer.

4.2 Postcard Task: "Postcard Q&A" Helsinki, Finland (February 2016)
The purpose: The aim was to give all the participants a chance to ask questions to the fibre scientists, in a session chaired by a facilitator (Figure 2). Participants filled the cards out during the lunch break. The content: The cards were changed to blanks, so that participants could write questions on them for the scientists to answer. 20 cards were handed back (a response rate of 56%).

Table 3. Postcard questions from Helsinki (Feb 2016), grouped by theme.

Questions about…	Frequency
Regeneration potential of fibre	*8*
Fibre technology	*7*
CEL Fibre Performance	*3*
PES Fibre Performance	*1*
The Project	*1*

4.2.1 How we responded / what happened? The question postcards provided the participants with the opportunity to ask any question of the experts. The authors noticed that some people asked questions

who had not 'spoken up' in the previous workshop session and also that the postcards enabled some common themes to be raised which then led to a more open discussion between the scientists and other members of the 'audience'. They questions also revealed some grey areas – a lack in the technological knowledge - which the methodology team were able to address in the subsequent sessions by arranging further more focused knowledge exchange opportunities.

4.3 Postcard Task: "What did I learn?" London, United Kingdom (November 2016)
The purpose: In London the blank postcards were used again but this time to receive feedback on the successes and weakness of a workshop activity; immediately after the session participants were given a postcard and asked to write something in response to the question 'what did you learn?'. Participants filled in the cards over lunch and then handed them back to the facilitators.
The content: From 27 participants 12 postcards were returned (response rate: 44%).

Table 4. Postcard responses from London (Nov 2016) grouped by response theme.

Response theme	Frequency
Learning generated by the activity	*5*
Suggestions for how to improve the activity	*3*
General suggestions for the project	*3*
Other indicators of success	*1*

4.3.1 How we responded / what happened? From the responses received it is clear that the postcards enabled participants to express their opinions on the task, with some suggesting improvements as well as others answering the question 'what did you learn?' more directly. This allowed the session leaders to understand if the activity had been successful as well as enabling them to make improvements to the activity. Where the responses revealed a misunderstanding of the task, an adjustment was made to the way the activity was briefed and explained. Participants also used this opportunity to reflect on the workshop and the project more generally, which shows the value of having this moment for reflection within the workshop itself as well as in hindsight using the post-workshop survey. The low response rate also led to a realisation that this postcard task might be better carried out within the scheduled space of the workshop so that participants could dedicate time and thought to the task without the distractions of lunch. This was undertaken in the following workshop (Forli, Italy) and the response rate increased to 87%.

5. Conclusion
We have presented three different uses for an open-ended communication tool – the postcard - to help support large multi-disciplinary projects. The aim was to demonstrate how this tool can be used to enable 'voices to be heard' as well as gaining insights into expectations, how people are responding to the project, its activities, and the other partners. The importance of this particular medium – the postcard – is its familiarity across disciplinary boundaries, its association with sending and receiving messages with friends (rather than just colleagues), the immediacy of the feedback 'in the moment' and the short response which requires minimum time and effort. This elicited responses which demonstrated a genuine openness and freedom of expression.

   One of the successes of the exercise was the way that we were able to use the tool to 'grow' our relationships and connections in stages, from focusing on 'getting to know you' at the beginning of the project, moving on to 'asking an expert' to enable more focused exchange related to the conversations that had already begun and then a reflective task asking 'What Did I Learn?'.

   From a practical perspective it is apparent that the postcard tasks are even more valuable if you give people a specific moment within the scheduled time of the workshop to reflect on their response.

The postcard will continue to be used as a communication tool within the current project, for similar tasks to those presented here but also expanding, exploring and experimenting with other potential uses which build on the existing work.

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