New Design Processes for Knowledge Exchange Tools for the New IDEAS Project

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In this paper, we describe our research into designing tools for knowledge exchange on the New IDEAS project at ImaginationLancaster, a design research lab in Lancaster University. This paper will discuss the design process for designing tools that facilitate knowledge exchange, highlighting the challenges faced during the process. We go on to describe how to support others with designing knowledge exchange tools. We will discuss our experience of running a series of knowledge exchange labs as part of our research, in which participants from all of the faculties within Lancaster University co-designed tools and refer to the process of designing one of the tools - the *Case Study Tool*.

At the end of the paper we outline our key principles for designing KE tools for others so that they can be customised and modified. This has implications for those who work in KE but do not already realise that they are designing KE tools, those who have a desire to understand how to design KE tools and those who work in the area of participatory, open or KE design who want to gain a further understanding of their design process and how to support others in designing or adapting their own KE tools.

Keywords: Creative exchange, knowledge exchange, interactive conference

Introduction

Knowledge Exchange (KE), occurs when people share information with one another and while we may not use this term day-to-day, we all recognise good KE when we experience it. A good meeting, creative conversation or even Twitter exchange are examples of good KE (Cruickshank et al., 2012). Our research is focused on the design of interactions, often facilitated by tools to help more effective KE.

In our June 2012 paper, we set out our aims to 'help others create specialised mechanisms that address the problems they face' (Cruickshank et al., 2012), which we referred to as 'second order' KE design. Almost a year later, we have designed and facilitated workshops with people working in KE from every faculty of Lancaster University and co-designed a number of KE tool concepts. The project's design team is developing these tools with the continuous input of the lab participants and then disseminating them across the University, so that they can carry out second order tool design by testing and adapting them to fit their individual needs.

In this paper, we are focusing on the process of designing KE tools in the New IDEAS context. In particular we are examining the role of the designer, the challenges they face when designing a second order tool that will be adapted and the role of the end-user who will change the tool in order to fit their needs.

New IDEAS Tool Design Labs

The rationale for the New Ideas project was to work with the most innovative KE professionals across Lancaster University to co-develop new KE tools. We selected twelve representatives from all faculties within the University; they attended three half-day labs throughout November and December 2012 within the Imagination Lab. These labs were designed and facilitated by the New IDEAS project team, with the aim to 'develop a range of tools that draw on the collective experience of key people in this area (KE) throughout the University' (Cruickshank et al., 2013, p6). Over the series of labs, the group addressed their challenges in KE, transforming their discoveries into concepts for tools.

This culminated with the group design of a number of 'proto-tools' and these were further developed through a series of follow-up meetings with the participants to discuss their specific tool requirements. As a result we prioritised three specific KE tools; *Hexagons,* a replacement of the Post-it with a focus on connected thinking, *Outcomes* a simple downloadable tool that helps to draw out assumptions and perspectives in participants and *Case Studies* to explore new ways of disseminating interesting KE. For a more detailed description of these tools see http://imagination.lancaster.ac.uk/activities/New_IDEAS

The New IDEAS team have backgrounds in various design disciplines, therefore take a design approach to the design of KE tools. This process is similar to the one depicted in the 'Double Diamond' design model (Design Council, 2005, Figure 1), to which comparisons can be drawn to the Creative Problem Solving model (Isaksen and Treffinger, 2004). The KE tool design process will be discussed further in this paper.
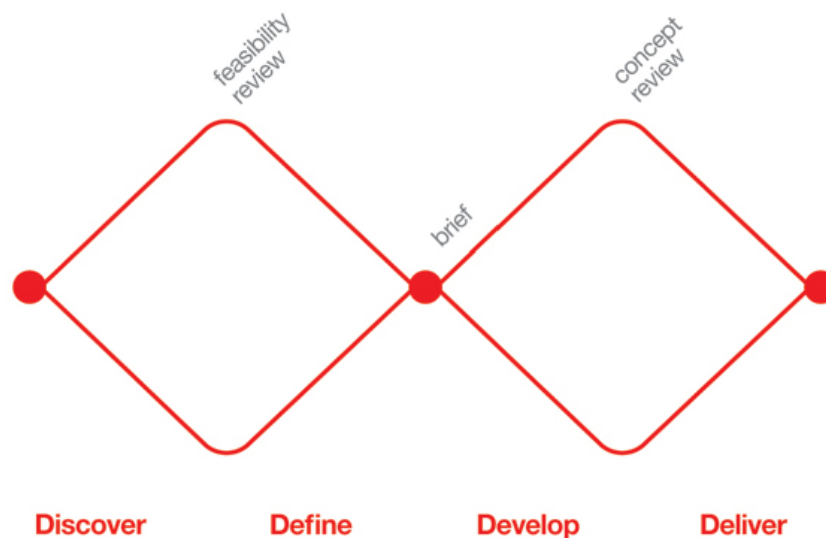

Figure 1 – The 'Double Diamond' design process model from the Design Council.

Case Study Triangle Tool Example

The *Case Study Triangle Tool* is a triangular shaped, durable and reusable aide-memoire artefact with a title structure that provides the scaffolding for promotional case study writing activities.

The need for this tool was discovered during the Tool Design Labs, where the participants highlighted problems with making what they do visible and structuring their case study engagement process (Cruickshank, L et al. 2013). The team responded to this with a physical prototype structure for the group to critique and develop in the final lab. Meetings with the individual participants revealed further applications, such as events where real benefit could be gained with a low overhead for the organiser due to the ready-assembled nature of the tool.

The designer's role is to develop the concept prototype to a refined tool that can then be adapted by the end-user. The designer, Laura Morris was briefed to design a tool that prompted good case study writing. This involved an investigation of information structures, methods and challenges associated with writing promotional case studies. A driver for the tool design was the common challenges experienced when writing case studies, which the designer mapped (Figure 2), with the action that a tool could perform to address these challenges. This is similar to the process the lab participants undertook, where they responded to their KE challenges by generating ideas for tools but the difference is that a challenge was paired with a tool action. For example, a challenge is *condensing information* to make a case study easy to read to which a tool could aid by *simplifying* the process.
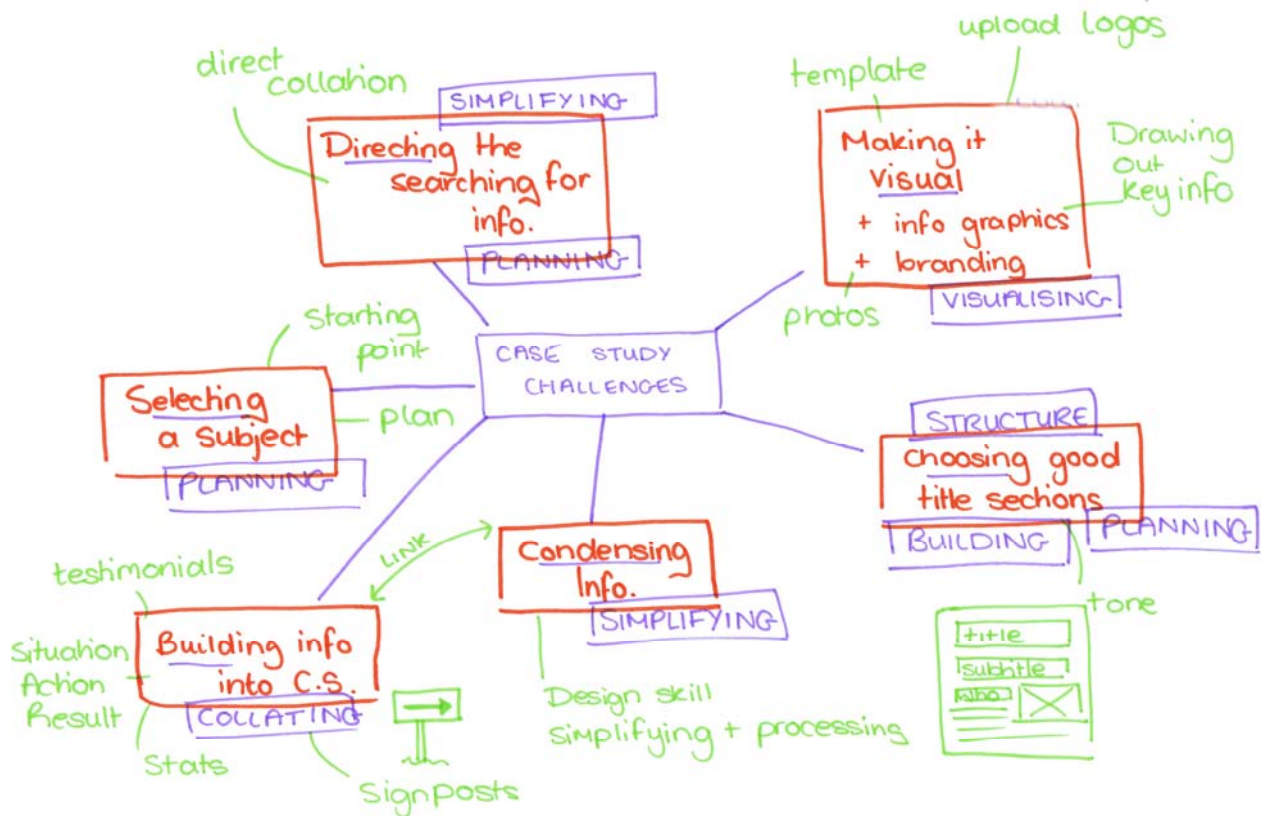
Figure 2 – Designer's note diagram of challenges matched with actions.

The designer used these couplings to generate tool ideas, from which the Triangle Tool was selected in a meeting between Leon Cruickshank and Laura Morris (2013). The Triangle tool specifically addresses the challenges of *building, condensing information* and *structuring*. The development of this tool is being done through iterations of the model structure, form with the use of prototypes and sketches.

The resulting tool consisted of a three-part structure comprising of a sequence of titles, hence the triangle form, inspired by discussions on the power of three in writing (Clark, 2007, Crossfield, 2009, Dundes, 1968) to make the structure easier for the writer and reader. With an understanding that a good case study is a good narrative (Borghini et al, 2009, Felder, 2012 and Harvey, 2013), the model of the tool is also influenced by Randy Ingermanson's story writing 'Snowflake Method', which encourages writers to build up from a small basis of information to something more complex.

The essence of the tool is to provide scaffolding or support for planning and structuring case studies without any unnecessary functions or requirements that make the tool harder for the end user to adapt. It will encourage the end user to adapt it to their individual needs and it will do this by remaining flexible and allowing different interpretations. Achieving both principles of flexibility and scaffolding is the main challenge for the tool designer to ensure the tool is second order. They must therefore be mindful of these principles from the beginning of the process.
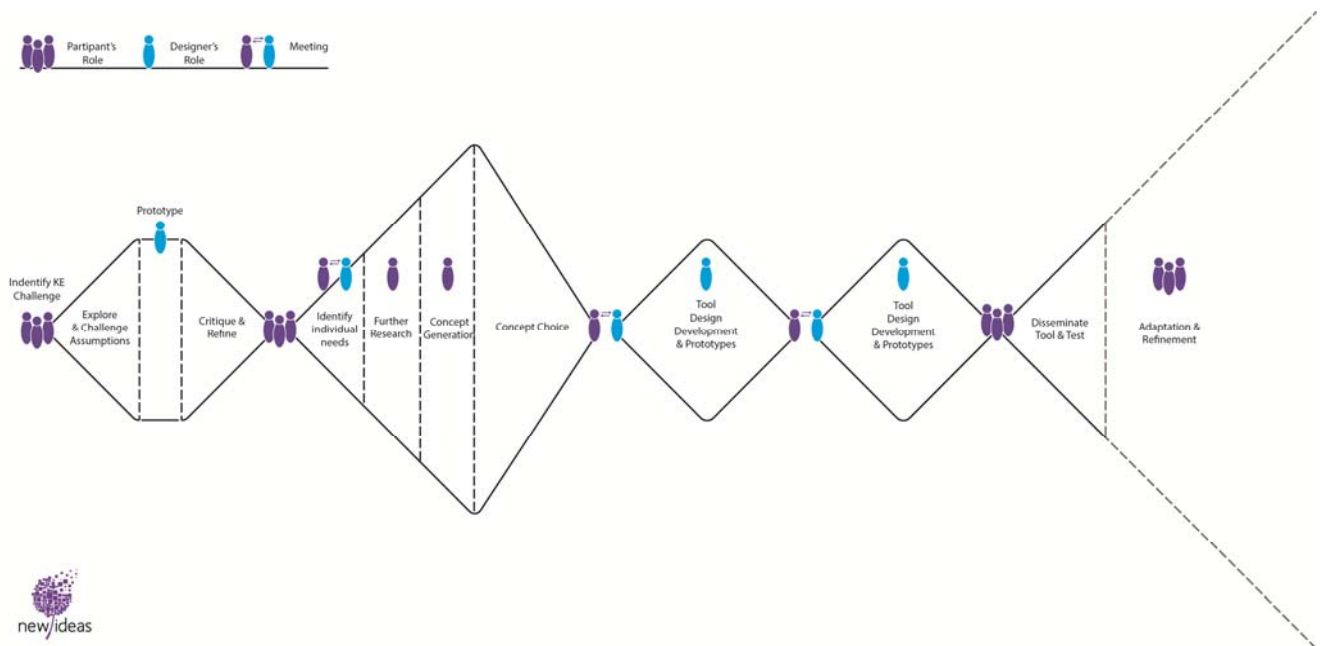
Figure 3 – A diagram of the design process for the Case Study Tool

A model for the overall process of designing the tool can be seen in Figure 3. It has convergent and divergent phases like the Double Diamond process in Figure 1, however the final diamond is open in the divergent stage. This is because the user will continue to adapt the tool to suit their own applications as they arise. The designer's control over the shaping of the tool varies throughout this process, unlike the Double Diamond. The participants have control in the first part of the process where they are discovering and defining the tool and based on this the designer develops proto-tools to be tested by the participants. At the end of the process, the designer gives up control over the development and innovation of the tool to enable the participants to carry out second order tool design. Previously, the New IDEAS team discussed that in order to carry out second order KE design, a process must be developed that enables people who are new to tool design to create their own new approaches (Cruickshank et al., 2012). The process in Figure 3 is a step closer to understanding this approach, as it shows how allowing the participants to define and shape the tool design with the support of the designer enables them to eventually gain full control of how the tool is adapted and used.

Discussion Points

Designing KE tools for others to use requires a different approach to conventional design processes. The precise nature of these differences is still emerging through on-going research in ImaginationLancaster and The Creative Exchange. As part of this research three key second order tool design principles for discussion are emerging, these include:

Fundamental understanding: The designer must understand what the essence of a tool is to ensure that the tool achieves the user's aim, however it must remain flexible and without unnecessary functions.

Application prediction: During the design process, the designer needs to consider the potential uses for the tool in an open way so that the user can achieve them with the tool. This needs to be balanced with a flexibility or 'porosity' to allow and encourage unexpected uses.

Giving up control: In a process that resonates with participatory design, giving up control of the final use is critical. Like inclusive design processes, for KE design instead of designing a tool for as many people to use as reasonably possible, it is designed for as many uses as reasonably possible.

This returns us to the notion of scaffolding; this needs to be structured enough to support participant's innovation aspirations but if the process is too structured and defined, it will pre-determine the outcomes, squashing the emergent innovation that we are seeking to propagate.

Brought together, these principles can form the basis of what we believe is an effective design process for creating second order knowledge exchange tools. Within this process, the end-users have control over defining the shape of the tool so that as a result they receive a tool, which they feel they have ownership of, and have the confidence to modify for their own knowledge exchange activities.

References

BBC (2009) *My Story. Resources: Planning Your Writing.* Available at: downloads.bbc.co.uk/raw/doc/mystory_planning.doc (Accessed: 5 May 2013)

Borghini, S., Carù, C., Cova, B. (2010) 'Representing BtoB Reality in Case Study Research: Challenges and New Opportunities', *Industrial Marketing Management, 39 (1) pp. 16-24*

Clark, B. (2007) *How to Use the "Rule of Three" to Create Engaging Content.* Available at: http://www.copyblogger.com/rule-of-three/ (Accessed: 5 May 2013)

Crossfield, J. (2009) *Writing: The Power of Three.* Available at: http://www.jonathancrossfield.com/blog/2009/06/writing-the-power-of-three.html (Accessed: 5 May 2013)

Cruickshank, L., Morris, L. and Whitham, R. (2013) *New IDEAS, Co-Designing Tools for Knowledge Exchange.* Lancaster University, ImaginationLancaster

Cruickshank, L., Whitham, R. and Morris, L. (2012) 'Innovation Through the Design of Knowledge Exchange and The Design of Knowledge Exchange Design', 2012 International Design Management Research Conference, Boston, USA, 8th – 9th August. Available at: http://www.dmi.org/dmi/html/publications/news/viewpoints/Cruickshank_Whitham_Morris_paper.pdf (Accessed: 7 May 2013)

Cruickshank, L. (2013) Conversation with Laura Morris, 2 May.

Design Council (2005) *The Design Process* Available at: http://www.designcouncil.org.uk/designprocess (Accessed: 10 May 2013)

Dundes, A. (1968). 'The Number Three in American Culture' *Every man his way: readings in cultural anthropology*, 401.

Felder, L. (2012) *Writing for the Web: Creating Compelling Web Content Using Words, Pictures and Sound.* Berkeley, California: New Riders

Harvey, J. (2013) *Why Case Studies are a Bridge to Influence: A Super Quick Guide* Available at http://www.researchtoaction.org/2013/02/why-case-studies-are-a-bridge-to-influence-a-super-quick-guide/ (Accessed: 3 May 2013)

ImaginationLancaster (2013) *Hexagon Tool Now Available From New IDEAS.* Available at: http://imagination.lancs.ac.uk/hexagons (Accessed: 10 May 2013)

ImaginationLancaster (2013) *Scenario Comic Available from New IDEAS.* Available at: http://imagination.lancs.ac.uk/news/Scenario_Comic_Tool_Available_New_IDEAS (Accessed: 10 May 2013)

Ingermanson, R. (2005) *The Snowflake Method for Designing a Novel.* Available at: http://www.advancedfictionwriting.com/articles/snowflake-method/ (Accessed: 5 May 2013)

Isaksen, S. and Treffinger, D. (2004) 'Celebrating 50 years of Reflective Practice: Versions of Creative Problem Solving', *The Journal of Creative Behavior,* 38 (2) pp. 75-101

Mitchell, H. (2005) 'Knowledge Sharing – The Value of Story Telling', *International Journal of Organisational Behaviour*, 9 (5) Pp 632 - 641