## Title: A DS106 Thing Happened on the Way to the 3M Tech Forum

Ms. Rochelle Lockridge, Strategic Analyst, 3M

[RLLockridge@mmm.com](mailto:RLLockridge@mmm.com)

Mr. Alan Levine, Educational Consultant, CogDog It

[CogDogBlog@gmail.com](mailto:CogDogBlog@gmail.com)

Dr. Mariana Funes, Chartered Research Psychologist, Still Web

[queries@marianafunes.co.uk](mailto:queries@marianafunes.co.uk)

### Abstract

#### Introduction

DS106 (<http://ds106.us/>) is a computer science course in Digital Storytelling at the University of Mary Washington (UMW), framed on principles of the web as a platform for storytelling. Students learn to manage their own digital domain in the process of understanding storytelling and creating media. In 2011, DS106 opened up to a global community of online participants.

This case study explores how DS106 tools, methodology and philosophy were adapted into the corporate world at 3M to build community, collaboration, and effective global communication skills. Our hypothesis was the pedagogy and assignments of the DS106 open course could be modified for delivery on a corporate intranet, using internal creation and communication tools standard for 3M employees. We hoped to learn how the course experience could work within cultural and technological constraints of a corporate environment.

Participants in 3M-DS106 were based in Minnesota, Texas and California. A majority were active members in the 3M Technical Collaboration chapter, a subset of the 3M Technical Forum (12,000 plus global members), which fosters communication across a diverse technical community.

#### Methods

The open DS106 course evolved from years of undergraduate courses at UMW. With no course offered for Fall 2013, an open online version without an assigned teacher was built from previously offered classes.

3M-DS106 began with an open invitation to several hundred users on Spark (3M’s Twitter equivalent for their technical community). As a network connector, Rochelle Lockridge customized and re-published assignments from the open DS106 class and shared back to the open community the activities of the 3M participants. The 3M-DS106 ‘Salon Model’ included weekly meetings held over lunch, to discuss assignments, done independently using 3M blogs and Spark as communication tools.

#### Results

The 3M participants were interviewed at the end of their experience. Their blogs record their growth and reflective practice. In narrating their processes, they found value in giving and receiving feedback via comments, and were developing a greater capacity for relationship building. With more comfort in using creation tools and 3M’s social networking platforms, they increased their effectiveness for technology transfer.

Participants identified a need and desire for integrating the course experience into their technical work. Using tools in real time on 3M related projects within a community of learners to provide support was deemed a highly effective practice. Based on the positive results, the 3M Technical Collaboration chapter will sponsor a yearlong 3M-DS106 course incorporating more 3M specific communication tools with a monthly focus to provide participants more flexibility, time, and practice.

#### Discussion

Research suggests action learning is more likely to generate key workplace competencies than more traditional classroom based ones. The 3M-DS106 model may also help address challenges faced in a corporate environment, such as Intellectual Property concerns, by its use of layers of openness. Our approach was to work within the ‘open organisational web’ rather than the full open web. This may have provided a layer of safety for the organisation to allow the development over time of a default open setting necessary for innovation.

### Main text

#### Introduction

The editorial for the 2013 JIME special issue on OERs suggests ‘the benefits of openness can extend to other individuals, communities and organisations beyond [Higher Education]’ yet even today ‘these are but small steps on a much longer journey of gathering evidence, sharing experiences and changing expectations’ (Lane, Comas-Quinn and Carter, 2013). This paper offers a case study of extending the benefits of openness to a sector rarely associated with that label, workplace learning.

The open digital storytelling course, DS106, began in early 2010 as a computer science course at the University of Mary Washington (UMW). Students must manage their own digital domain as they learn to understand storytelling and create different types of digital media. In 2011 DS106 expanded to integrate a global community of open online participants. Its design is distributed; participants publish and reflect on their work in individual blogs and social media sites; the course site subscribes to these sources, aggregating individual work together.  DS106 is an open online course, but not massive as popularized in the media (Pappano, 2012). As such it is not a MOOC (Massive Online Open Course) but more an OOC (Levine 2013a; Groom & Burtis, 2014). Groom & Burtis sum up the ethos of DS106 clearly: ‘don't get distracted by the massive invest in community’.

3M, an American multinational conglomerate corporation based inSt. Paul, Minnesota, is guided by the McKnight Principles (3M Company [3M], n.d.) which inspire management to ‘delegate responsibility and encourage men and women to exercise their initiative.’ The principles provide the foundation for an innovative culture that offers staff unrestricted 15% time to explore projects beyond their day-to-day work. The idea is well established both practically (Goetz, 2011) and in management theory (e.g. Morgan, 1994).

The 15 percent rule is unique to 3M. Most of the inventions that 3M depends upon today came out of that kind of individual initiative…You don’t make a difference by just following orders.  (3M, 2002)

We present a learning approach we call a ‘Salon Model’, originating in the open education 'penny universities’ established in coffee houses during the Renaissance (Peter & Deimann, 2013). This pedagogical model is being tested at 3M as a way to bridge the gap between mainstream corporate training and learning on the open web focusing on a middle layer of open: the ‘open organisational web’. We used the DS106 teaching approach and curriculum, adapted for use in the corporate space with 3M internal tools to support an open pedagogy within the organization.

#### About DS106

A typical DS106 course explores issues of digital identity, intellectual property, elements of storytelling, and creative expression in the form of visual, design, audio, video, and remix, plus the web itself as a platform for stories. All participants are expected to not only create media, but to critically reflect on the ideas behind their work and share details of its production. Groom and Burtis (2014) suggest that we may even think about assessment ‘on the basis of which course is better at helping students think critically about the space that is the web’.

Among the suite of tools is the Open Assignment Bank, an example of how open pedagogy is used within DS106. As a participant generated resource of over 600 creative tasks Stacey (2013) characterizes it as a ‘hugely significant pedagogical innovation.’

Besides offerings for UMW classes, DS106 is designed to allow educators of similar courses at other institutions, who have their students publish their work in open blogs, to connect a class to the DS106 site. Courses to have done this include York College, Kansas State University, Kennesaw State University, University of Michigan, Temple University Japan, SUNY Cortland, Jacksonville State University, and St. John’s University.

Participant content is syndicated into the DS106 ‘flow’. Since January 2011 the site has accumulated over 30,000 blog posts written by some 2600 unique participants. The open, overlapping DS106 environment is a network similar to what Johnson (2010) describes as one where individuals can become both smarter and more productive.

Whilst we only have anecdotal evidence of how individual students benefit from an open pedagogy, narrative accounts consistently indicate how participation has significantly enhanced their ability to think critically about the open web.  In this paper we use participant quotations as external voices to illustrate the approach.

One of the great things about DS106, in my experience, is having people take what I’ve made and make new things from it—it’s like the ultimate validation, and it’s also like having a conversation with the other person. (Hendricks, 2013)

#### The headless DS106 experience

Until August 2013 people interested in openly participating in DS106 were dependent on the schedule of an offered course. With none planned at UMW for Fall 2013, Levine (2013b) proposed an open course that would be teacher-less; it was set up as a schedule to publish tasks based on the previous courses. Coined the ‘Headless DS106’ course, it was relatively unique as a community led learning experience. Some 86 people submitted their blogs to it, publishing over 1300 blog posts. Participants generated 6500 tweets (an average of 270 per week, with 3700 links shared).

But it wasn’t until I became immersed in the Headless Course that I understood how imagination powers our views of technology, and if nothing else, DS106 reminds us that the agency of creation rests with us, not our machines. We are the ones telling stories to make sense of the world. (Hodgson, 2013)

It was this open “headless” course structure that was implemented inside 3M.

#### About 3M

Out of the McKnight Principles (3M, n.d.), the 3M Technical Forum (12,000 plus global members) was founded in 1951 to foster communication across a diverse technical community enabling innovation to flow within the corporation, functionally as well as geographically.

The 3M-DS106 was implemented within an internally open corporate environment.  It met challenges in protecting proprietary intellectual property information and relying on enterprise software platforms that are not as flexible as those available in the open web space. M. Westerham, 3M IT Lab Collaboration Manager and a corporate sponsor of this initiative, is clear about the organisational benefits obtained from the approach:

3M is a technology company. It’s our [intellectual property] that we make money on.  There is a great fear of sharing that, even within 3M.  So that was nice to have that internal DS106 group where they share within themselves, but then also pulling in from the outside DS106 resources to help with the internal. The external ones just give you a broader geography, broader knowledge and even meeting more experienced people, where internal people in 3M are focused on our technology.  Those resources on the outside are very valuable.  But it’s also really good to have a secured protected group within just to protect [intellectual property]. (M. Westerham, telephone interview, January 28, 2014)

#### The 3M-DS106 experience

Most of the participants in 3M-DS106 were members of the 3M Technical Collaboration chapter. Geographically located in Minnesota, Texas and California, eighteen 3M technical employees followed the on-line 3M-DS106 Salon Connections Community.  Twelve participated at some level and eight completed assignments and documented their work with blog posts.

Our hypothesis was that the pedagogy and assignments of the DS106 open course could be modified for delivery via a corporate intranet, using creation and communication tools available to 3M employees.  3M-DS106 began with an open invitation to several hundred users on Spark, a Twitter-like platform for the 3M technical community.

Participants were invited to be part of the ‘3M-DS106 Salon’ where Rochelle Lockridge who is an internal 3M employee, acted as the ‘patroness’ (host) of the salon.  The invitation (Lockridge, 2013b) read,

Want to have some fun improving your 3M digital communication & collaboration skills? This is your invitation to join me in creating our first 3M DS106 Salon. Where we’ll develop our digital presence and learn the power and responsibilities that come with good digital citizenship – more important than ever as our digital lives blur between private, public, professional, and proprietary. The goal isn’t just to learn the technology.  It is to do something much larger by using these tools as resources to improve our positive impact and effectiveness inside and outside of 3M.

Figure 1. 3M-DS106 Salon Wall Walker GIF created by salon participants. (Lockridge, 2013d)



Lockridge customized and re-published assignments from the open DS106 class onto the 3M intranet and then shared back to the open web community the non-proprietary activities of the 3M participants. (Lockridge, 2013d). The role of the patroness here is as a network connector within 3M and outward to the open DS106 community. This role requires full membership of both communities it is attempting to connect. Lockridge had fully participated in the open DS106 before bringing it into 3M where she has been a full time employee since 1990.

Creating the scaffolding that supports the functioning of the 3M-DS106 Salon is key to the role of network connector or patroness. The 3M-DS106 course structure included: weekly meetings over lunch to discuss assignments, which were done independently using 3M blogs and Spark as communication tools. The gatherings were hosted in a traditional conference room at the 3M headquarters in St. Paul, Minnesota.  Web meetings and other digital communication tools allowed remote members to participate in real-time and asynchronously.

#### What happened

The 3M participants were interviewed at the end of their experience. Their blogs record their growth and critically reflective practice. In narrating their process, they affirmed the value in giving and receiving feedback via comments, developing a greater capacity for relationship building. With more comfort in using creative tools and 3M’s social networking platforms, they increased their effectiveness for technology transfer.

...take the skill that we have and use it, instead of just generate technology - but rather to find a way to better communicating across boundaries.  Those folks who are disconnected with time zones and language and cultural barriers, this type of activity has to be how we pull them into 3M, and equip them with the ability to connect. - 3M Scientist (Lockridge, 2013a)

Participants identified a need and desire for integrating the course experience into their technical work. They identified using tools in real time on 3M related projects within a community of learners as a highly effective practice. Digital storytelling in this salon style offers a high degree of opportunity to investigate a subject matter as it brings together creation of artefacts with public learning about the craft. Research suggests approaches of action learning (Revans, 1998; Pedler, 1974) are more likely to generate key workplace competencies than more traditional classroom based ones (e.g. Malone, 2013).

To see them use, especially in the DS106 area some of the technology like blogs and videos and animated GIFs was very impressive to see how quickly they went from not really using the software… to using it and feeling comfortable providing comment on how they used it. From that perspective I thought it was a very successful training session. - 3M Technical Collaboration Chapter Chair (Lockridge, 2013a)

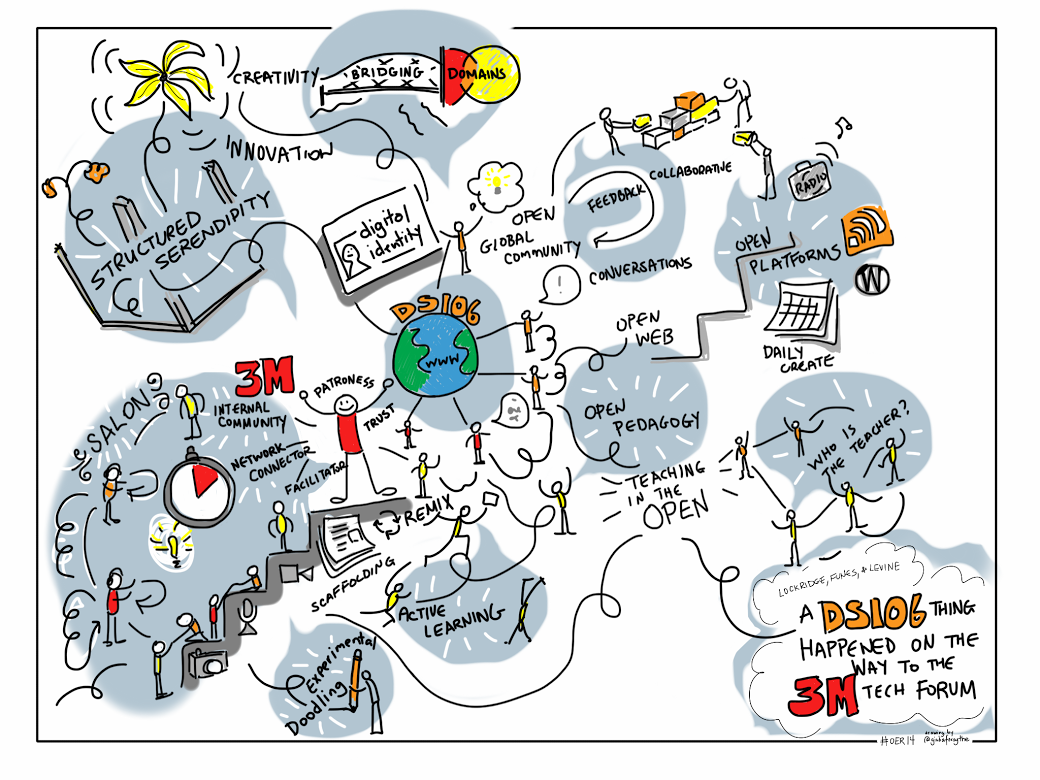
It’s been great to do it in conjunction with 3M systems so that I can immediately apply it to my job.  Each of us took away a different part… but it all needs to be there because you just never know what thing might spark something and somebody else that ends up being a crucial point to their job. - 3M Engineer (Lockridge, 2013a)

The organisation considered the initial experiment a success with the 3M Technical Collaboration chapter sponsoring a yearlong 3M-DS106 course for 2014 to provide participants more time, flexibility and practice with a monthly topic focus. The new iteration incorporates more communication and collaboration tools specific to 3M. The current 3M-DS106 launched in February 2014 and has more than doubled the number of people following the Salon community to 50+ members.

#### Reflections and relevance to open education

Encourage experimental doodling. If you put fences around people, you get sheep. Give people the room they need. - William L. McKnight (Govindarajan & Srinivas, 2013)

Figure 2. ‘A DS106 Thing Happened On The Way To The 3M Tech Forum’ by @GiuliaForsythe



‘Default open cultures’ generate the environment needed for innovation and creative thought. The workplace culture typically is a ‘default closed culture’ but it could become more competitive were it to implement default openness (Coplin, 2013). 3M has heeded this advice in supporting innovative ways to bring organizational openness to the workplace.

Zweig (2011) proposes that an environment of ‘structured serendipity’ may increase creative output.  From a cognitive perspective, Funes (2003) research suggests creative thought has at its core ‘bridging’ activity; creativity happens at the point of discontinuity when bridging from one domain to another. Westerham expresses this well as ‘ideas need space to collide’,

With innovation you really need both sides of the brain.   You need that unstructured side, that artistic side, the humour side to mix up the logical and the technical… That’s where the innovation comes where you’re sharing ideas.   You need that sauce...  But it’s good to get some structured people there . It’s more about creating the environment where people can innovate and have fun and get the ideas colliding. (M. Westerham, telephone interview, January 28, 2014)

Funes research also suggests a golden rule for creativity:

Know what it is that you love doing in the whole of your life, pursue it with gusto and always assume that, no matter what it is, you can build a bridge from it to your work domain. The question to ask yourself starts with 'How can I…' and not with 'If…' (Funes, 2003)

We believe that the DS106 course can be adapted to workplace learning, achieve structured serendipity and encourage bridging as a creative literacy. DS106 pedagogy also encourages the role modelling of vulnerability on the part of the educators (Groom & Burtis, 2014). The patroness must be vulnerable in this context, both out in the open web and inside the open organisational web.  This helps participants develop trust to try out potential applications of what might at first seem unrelated to their day-to-day work (e.g. the creation of an animated GIF - Lockridge 2013c)

I couldn’t see how these things could apply to my job, and I’ve quite a few things [from DS106] that I’ve applied to my job that I had no idea that was something that would be possible.- 3M Engineer (Lockridge 2013a)

Pedler (1981) describe a ‘trainer as stranger’ role of a learning community facilitator. They argue that detachment enables the asking of difficult process questions.  Our work suggests a difference in the online space. By nature of its technological modality, virtual learning communities are detached. Our experience suggests a less detached ‘stranger’ role to avoid members feeling unsupported. Vulnerability and full belonging to both communities being connected may be the essence of the 3M-DS106 salon model innovation.

It is too early to make more than speculative generalisations, but it may be that the patroness role in the 3MDS106 model mitigates against the detachment of the open web. Lockridge is not a consultant but a full time member of the organisation; her presence generates a sense of belonging for all in the community.  Brown and Katz (2009) suggest that ‘we need to invent a new and radical form of collaboration... it's not about 'us versus them' or even 'us on behalf of them' […] it has to be 'us with them'.’

As we mentioned earlier Lockridge is a core member (Cormier, 2007) of the DS106 open course as well as a full time employee at 3M. This seems essential to fully understand what needs to be adapted to connect two unrelated communities (i.e. DS106 Open and the 3M-DS106 Salon). We need to do more work to elicit key literacies needed to be an effective educator in this particular role.

#### Conclusion

Via a salon model of 3M-DS106 we have tentatively shown that key elements of the DS106 open course can be deployed within an open organisational web. The fact that the organisation has extended the pilot course to a longer programme in 2014 indicates 3M has identified the potential benefits.

The 3M-DS106 model may help address challenges faced in a corporate environment by its use of layers of openness. Our approach was to work within the ‘open organisational web’ rather than the full open web. This may have provided a layer of safety for the organisation to allow the development over time of a default open setting necessary for innovation (Coplin, 2013).

We recognize limitations of this approach as we gather data of its application at 3M. The nature of the 3M organisation may have made this approach feasible where it might not be suitable to other types of organisations. The type of 3M participants - a research and development group - may have a higher than expected degree of self-direction (Pedler, 1981; Boyatsis, 2002) and be more amenable to experimentation. Groom & Burtis (2014) acknowledge that the open DS106 course may not be for everyone. They tell their students ‘you are going to be in the open and if this does not gel, then maybe it is not for you.’  The suitability of participants (see Funes, 2013 for preliminary ideas) is something we will be tracking with interest as the course is opened beyond the research and development community in 3M.

We took arguably the most open course on the web, DS106, morphed and adapted it to run in the proprietary corporate business world as an open organisational web course. While too early to make more than tentative conclusions, the signs are positive. We plan to follow up with participants and track organisational benefits as the 2014 course evolves, and we look forward to reporting on the next stage of our work at 3M and beyond.

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