

Institution: University of Surrey
Unit of Assessment: UOA 35 Music, Drama, Dance and Performing Arts
Title of case study: <p style="text-align: center;">Mobile digital storytelling for rural developing communities</p>
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>Surrey's research, developed by Digital World Research Centre, has created a new approach to information-sharing in the developing world that doesn't rely on internet infrastructure or text-based interaction and content. Mobile phones, tablets and analogue TVs are used to support local 'digital storytelling' in pictures and sound.</p> <p>The work arose out of an EPSRC sandpit on Bridging the Global Digital Divide and culminated in the release of a free Digital Economy toolkit for mobile digital storytelling. The approach has been adopted by other interested parties, and the toolkit is now in use by communities around the world.</p>
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>New audio-visual technologies can improve problems of the global 'digital divide' by facilitating the production, consumption and sharing of film-like information by semi-literate rural communities. Surrey's approach involves the creation of audiovisual news stories on a mobile phone, and their local archiving and sharing within a community repository.</p> <p>Initially Surrey's research expertise was focused in India through the StoryBank project from 2006-2008, in South Africa through the Community Generated Media project from 2010-2012, and in the UK, India and South Africa through the TV-Cam project in 2011-2012.</p> <p>These projects built on existing forms of local community radio and television, and were informed by ethnography, community art and interaction design contributions from Surrey. The work has now culminated in the creation of an open source community media toolkit called <i>Com-Me</i>, launched globally in three locations: first at the Royal Geographic Society, London, on 3rd July 2012; second at the Unbox Festival 2013 in New Delhi, India; and third in Cape Town, South Africa, on 18th March 2013. The <i>Com-Me</i> toolkit includes a mobile phone app for digital story creation, a tablet app for story archiving and playback, a solar-powered mobile phone charging station, and the TV-Cam device (renamed 'Com-Cam') for relaying mobile phone content to old TVs: www.digitaleconomytoolkit.org</p> <p>The foundation of the work lies in Surrey's investigation of 'audiophotography' as a new media form (Ref 1). Although the capture of sound with photographs has not yet become a mass-market practice, both sounds and images can be captured on mobile phones, creating the opportunity for apps to combine them into 'audiophoto narratives' or digital stories (Ref 2). While these are fast becoming a new form of digital art in the West, Surrey recognised that they might become a new form of audiovisual communication in the East, in areas where literacy rates are low.</p> <p>This prediction was endorsed by a study of community radio use in Budikote Village in south India (Ref 3) and confirmed in a trial of the StoryBank system there, which included a local story repository shown on a public display (Refs 3 & 4). The approach was expanded in the first published study of rural camera phone use in South Africa and led to the design and testing of an enhanced multimedia narrative app on an Android phone (both in Ref 5). A residual problem of sharing multimedia content on a small display was solved by Surrey staff working alongside colleagues at the University of Falmouth. An overhead CCTV camera was used to relay mobile</p>

phone content to analogue TV sets for a cost of under £20. Additional KTA money was secured to prototype and test an early version of TV-Cam/Com-Cam in both India and South Africa (yet unpublished). The resulting technologies have had significant benefits for communities in India, the UK and South Africa. The impact of the research is evident in short term deployments in the projects themselves; widespread public dissemination; and take-up of the research findings and technologies by individuals, companies and NGO groups.

3. References to the research (indicative maximum of six references)

1. Frohlich D.M. (2004) *Audiophotography: Bringing photos to life with sounds*. Springer.
2. Frohlich D.M. & Jones M. (2008) Audiophoto narratives for semi-literate communities. *Interactions Magazine*, Nov/Dec 2008, pp 61-64.
3. Frohlich D.M., Rachovides D., Riga K., Frank M., Bhat R., Edirisinghe E., Wikramanayake D., Jones M. & Harwood W. (2009) StoryBank: Mobile digital storytelling in a development context. *Proceedings of CHI 2009*:1761-1770. New York: ACM Press.
4. Frohlich, D.M., Bhat R., Jones M., Lalmas M., Frank M., Rachovides D., Tucker R. & Riga K. (2009) Democracy, design and development in community content creation: Lessons from the StoryBank project. *Information Technology & International Development (ITID)*, 5(4): 19-36.
5. Frohlich, D.M., Robinson, S., Eglinton, K., Jones, M. & Vartiainen, E. (2012) Creative cameraphone use in rural developing regions. Forthcoming *Proceedings of Mobile HCI 2012*. New York: ACM Press.

David Frohlich is Director of the Digital World Research Centre at the University of Surrey. Matt Jones at Swansea and Justin Marshall at Falmouth were key collaborators in this work.

4. Details of the impact (indicative maximum 750 words)

Creating new forms of artistic expression;

- The StoryBank system was deployed in Budikote village with approximately 3,000 inhabitants. 137 stories were made and shared in the final trial by a wide cross section of people, including the low caste Dalit community who are usually excluded from village debate. The content suggested strong uses of the technology for sharing health information, advertising local goods, diagnosing crop problems, supporting teaching and learning in schools, and capturing cultural heritage stories. Ram Bhat of the NGO 'Voices' who managed the trial said: "The stories demonstrated that not only was the design community-friendly, but also led to innovation in content, wherein communities made use of individuated technology like mobile phones, to create and share deeply personal stories".
- Similar testing of Com-Phone, Com-Charge and Com-Tablet with 11,000 inhabitants in the Mankosi region of the Eastern Cape revealed further uses of digital stories beyond those created in India. These included the capture and circulation of indigenous music, remixing of captured radio and TV content, community event recording, healthcare dramas for HIV, tourist information and multimedia letters to government.
- An early version of the Com-Cam device was tested in a vocational training centre in the township of Khayelitsha outside Cape Town - <http://www.learn-to-earn.org.za/> According to the Director of the ICT4D Research Centre, University of Cape Town, who ran the trial: "Com-Cam offers an exciting possibility to project or display media which is trapped on the handset to a

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wider co-located audience. Without Com-Cam, there is no way that this media could have been shared with the group... In short, Com-Cam is a unique product which addresses a real need in the developing world."

- Com-Cam was also tested by Co-Director of Maara Media Collective, in a busy drop-in centre for sexual minorities in Bangalore, India - <http://sangama.org/>. User response was very positive:

"Defying all expectations, the communities in India did not restrict the use of these technologies merely for creating and playback of content created via mobile phones. They experimented with the technology to present charts and slides to their peers, magnify objects and so on... The Community Generated Media toolkit attempts to address not just participatory content creation in terms of user interface and design, but has also addressed some of the infrastructural challenges to participatory and citizen media in India. The technology is robust, low cost and can be easily adopted by willing entrepreneurs who can then distribute to communities who are interested."

Contribution to a Wider Public Understanding;

- StoryBank was exhibited at the British Science Festival at the University of Surrey in 2009. Approximately 1000 members of the public visited the StoryBank stand during the weeklong festival. 75% of respondents in a questionnaire survey (N=50) agreed that the work 'had impacted their awareness of global digital divide issues': <http://www.tellingstorybank.info/>
- StoryBank was used as a case study in FutureLab's report on social inclusion, launched by Baroness Estelle Morris at the Institute of Directors, April 2008. The report has been highlighted in a range of local and national policy forums including BECTA.
- EPSRC has also used StoryBank in its 'Impact! On Poverty Reduction' leaflet

Since its launch in July 2012, the Com-Phone app has been downloaded 16,500 times and Com-Tablet 350 times (@3.10.13). Auditable, third party logs show that users are drawn from 71 countries around the world. The areas showing greatest interest in the toolkit are suggested by the top download figures for Com-Phone. These are from the US (4428), Philipines (1847), India (1380), UK (743), South Africa (607) and Malaysia (427).

Feedback from users of the toolkit is difficult to obtain due to the nature of the remote communities benefiting from the technology, but numerous NGO groups have informed us or worked with us in their experiments to use the Com-Me toolkit with community groups. They include ValleyKids in Wales, The Centre for Digital Storytelling in the US, World Vision in Switzerland, Quest Alliance and Digital Study Hall in India.

Surrey's research has led to Nokia developing a mobile journalism system that was informed by the StoryBank work and later tested in a subsequent Surrey project called Bespoke: <http://www.newelo.com/home>.

In India, Nokia used the broader approach in other projects, as described by the Director of the project: "We realized the importance of creating technologies to support (as opposed to replacing) already existing practices, such as the community radio in this case. This realization had an influence on a subsequently formed project, titled HealthRadar. For that project, my group designed a mobile disease surveillance technology on top of the already existing practice of paper-based surveillance. The idea of co-existence of old and new technologies originated from the observations of the StoryBank project."

5. Sources to corroborate the impact (indicative maximum of 10 references)

Storybank project

- a) Nokia Research Bangalore. Contact details provided.
- b) Nokia Research Tampere and Newelo. Contact details provided.

Community Generated Media Project

- c) Director, Centre for Digital Storytelling, Berkeley. Contact details provided.
- d) Community Voice Projects Manager, Field Operations, World Vision. Contact details provided.
- e) CEO Quest Alliance. Contact details provided.