Institution: University of Bristol

Unit of Assessment: 28, Modern Languages and Linguistics

Title of case study: Animation and Restoration: Developing early animation techniques into new technologies

1. Summary of the impact (indicative maximum 100 words)

Through a range of public engagement activities (film screenings, workshops, collaboration with animation studios including Bristol's Aardman Animations) research on early Russian animation has led to an increased awareness of innovative technological developments from pre-Revolutionary and Soviet Russia, including experiments with stop-frame motion, colour and stereo-scopic vision. 'Russian' technologies differ from those of European and American cinema and Beumers has identified differences of approach in film technologies that have facilitated exchanges of methods aimed at promoting the adoption of more efficient technologies in contemporary filmmaking. Her research has promoted the restoration and digitisation of rare historical materials, permitting their distribution to a wide audience in the UK, Germany and Italy.

External partners involved with the digitisation process have developed a 3D system used in animation today in Russia and Estonia. The research has permitted the development of a prototype animation Touch Table with local company Aerian Studios Ltd. The Touch Table, which animates old optical devices, has been on public display at museums and film festivals. A resulting iPad application 'Walking Pictures' is freely available on the App Store. The prototype has generated new commissions from other museums, which will provide significant new business revenue.

In a separate development, the Estonian Ministry of Culture, NIKFI Moscow, and the Russian State Film Archive Gosfilmofond have agreed, on the basis of Beumers' research and the proposed project, to accelerate the digitisation of films.

2. Underpinning research (indicative maximum 500 words)

This project arises from continuous research into Russian animation, first funded through a Lever-hulme Trust grant from 2007 to 2009 (detailed below). During the course of this research, Beumers discovered a privately owned archive in St Petersburg, containing unique footage of both drawn animation on paper and the earliest puppet animation in the history of cinema (made between 1906 and 1909, thus preceding historically known films by three years). These were made for amateur purposes but were produced to extremely high standards. These research findings were published in outputs 1, 2 and 5 listed below. The films were presented at Pordenone Silent Film festival in 2008 and toured (along with an exhibition and major animation and film events) in Europe and the US: see http://avs.kinokultura.com for events and responses.

Through her work rescuing and analysing the Shiryaev film archive, Beumers has placed the origins of Russian film in a wider context of key moments of technical innovation in film history. This work has generated two lines of impact: a demonstration of 'how pictures learnt to walk', drawing extensively on the archive, and the development of animation technologies. The project has spearheaded the restored Shiryaev archive, with the paper films restored digitally by David Sproxton (Aardman, Bristol) and some 17.5mm trick films digitised by Prestech (London).

Beumers' ongoing research builds on this work on early animation. Investigating stop-frame techniques and other techniques, Beumers' research developed into areas of special effects, especially in Soviet cinema of the 1930s-70s. During this period, numerous unique and labour-intensive effects were created: thus, for example, the appearance of weightlessness in space and interplanetary journeys were copied by American cinema when producer Roger Corman bought the rights to several Soviet films and re-edited them for American distribution.

This research explored the first experiments with colour and 3D in Soviet cinema, notably in animation (which serves as the 'cradle' for special effects), in the 1930s and 1970s respectively. Soviet film studios created colour animation by using three-colour film strips – a technique that can

no longer be projected, but after digital restoration these films can be seen again in their original intended form. In the 1970s the Scientific Research Film- and Photo Institute (NIKFI) in Moscow also developed a technique for 3D films, which can likewise no longer be projected on standard projectors, but it is now possible to capture the films digitally. On the basis of this body of research, the Estonian Ministry of Culture (because animated 3D films were made at Tallinn's Nukufilm in the 70s), NIKFI Moscow, and the Russian State Film Archive Gosfilmofond have agreed to accelerate the digitisation of films.

Beumers joined the University of Bristol as a Lecturer in 1994 and was Reader in Russian Studies when she left the institution in 2012. The research referred to here was carried out whilst she was employed by the University of Bristol, and the impact is a direct result of this research, which has been published in the form of authored and edited books and as journal articles and book chapters in Russian and English.

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

1. (co-editor and translator): *Alexander Shiryaev: Master of Movement*, edited with Victor Bocharov and David Robinson. Le Giornate del Cinema Muto, 2009. Can be supplied on request.
2. (author) 'Transforming Animation History', pp. 37-52, in *Alexander Shiryaev: Master of Movement*. Can be supplied on request.
3. (author) *A History of Russian Cinema*. Oxford and NY: Berg, 2009. Can be supplied on request.
4. (author) 'Rossiiskaia mul'tiplikatsiia 2009g. Vzliad iz-za rubezha' [Russian animation of 2009: a view from the side], in Irina Shilova, Ol'ga Ziborova (eds), *Khroniki kinoprotsessa 2009*, Moscow: Kanon+, ROOI Reabilitatsiia, 2011, pp. 88-105. Can be supplied on request.
5. (author) 'Aleksandr Shiryaev: popravka k istorii animatsii' [Aleksandr Shiryaev: corrections to the history of animation], *Kinovedcheskie zapiski*, 94-5 (2010), 340-61. Can be supplied on request.
6. (editor) *Directory of World Cinema: Russia*. Bristol and Chicago: Intellect, 2011. Can be supplied on request.

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

Beumers has developed this research base to explore technologies which were ground-breaking for their time; they are, however, no longer usable for adequate demonstration today as the projection technology is no longer available. These films (which have never been shown before) have therefore been digitised and restored in order to display the original effects. Thus, various other types and levels of impact can be measured:

- the impact on audience expectations of animation and of special effects
- the impact on animators' quests to find new and more effective ways of achieving special effects
- the impact on a comparative evaluation of the effect achieved in different technologies, for example at Aardman and Nukufilm. This seems particularly pertinent in the context of Aardman's announcement (November 2011) concerning the outsourcing of stop-frame animation.

The impact created by this research is visible in two areas:

- a two-day event at the film festival 'Encounters 2012', which included two film programmes, a workshop, and roundtable discussions.
- the restoration and development of the technologies used as an interactive museum Touch Table exhibit, also freely available as an iPad app on Apple's App Store.

Encounters 2012

The internationally recognised film festival 'Encounters' hosted the screening of two programmes (both on 19 September 2012), some of which would not have been restored and digitised without Beumers' work. The first showing consisted of 3D films, including a colour fragment from the first stereoscopic film, and three animated films made in the Oscar-awarded Stereo-70 system in the 1970s. The second screening presented five animated films created during the 1930s in a three-colour technique developed by Pavel Mershin. The screenings were held in the largest and most prominent screen in the festival complex, and were attended by 154 people in total (71 at the first screening and 83 at the second) [a]. As well as providing the audience with the opportunity to see the first ever screening of these films outside of Russia, the event enhanced the audience's knowledge of the inter-cultural nature of film and of how this has shaped the films we see today.

David Sproxton, Chairman of 'Encounters', commented that 'for many in the audience the technical expertise and imagination of the story-telling came as a wonderful surprise and reminded us all that films, especially animated films, can transcend the perceived barriers of national culture and contemporary trends' [b]. The screenings also paved the way for future impact, as Beumers agreed with Gosfilmofond and Nukufilm (who own the films' copyright) that she may propose the programme to other festivals, thereby achieving a broader impact on audiences, animators and film makers. The films have since been shown at Orosz Animacios Filmnapok, Budapest (March 2013) and the Flatpack Festival, Birmingham UK (March 2013). The films were also programmed for the Abandon Normal Devices Festival, Liverpool (3-5 October 2013) [c].

The screenings were followed by a workshop on film restoration (attended by 22 people) and a roundtable on 3D in contemporary animation (attended by 25 people), both held on 20 September 2012. Informal discussions after the two public debates were crucial to developing the future impact of this project; first steps were made towards projects that will see the restoration of *kinopanorama* and the inclusion of Estonian animation in 'Encounters' in 2013 with 'Estonian Dreams', 6 films made 2008-12 and scheduled for showing on 21 September 2013 [d].

In recognition of this work Beumers was given an 'Award for the Popularization of Russian and Soviet Cinema' by Gosfilmofond on 1 February 2013 [e].

Developing new technologies

Alongside Julia Bracegirdle (Animation Department, UWE), Beumers has been collaborating with Aerian Studios Ltd to develop further these animation techniques and produce a Touch Table. A prototype of this technology was presented at the Research and Enterprise in the Arts and Creative Technology (REACT) Showcase on 28 September 2012. The Touch Table is on permanent display at the Theatre Collection of Bristol University's Department of Drama but has also been shown at the *Museo del Precinema* in Padua (April-July 2013) [f], which specialises in early cinematic techniques. The research team have created a forward programme which includes the Stummfilmtage in Bonn (August 2013) [g], the Watershed Arts Centre, Bristol (September-October 2013) and the National Media Museum, Bradford (November 2013). The Touch Table enables visitors to the museums to use this innovative technology to explore the functionality of early optical devices, such as the zoetrope, phenakistoscope and kinora; visitors can view films of their choice by spinning them, thus replicating the tactile experience of the original device through digital technologies. The School of Modern Languages works closely with the museums to ensure that the impact of the exhibit is measured through qualitative questionnaires and by collecting visitor numbers.

In addition to attracting visitors to the museums and impacting on these visitors, Aerian Studios have benefitted from the opportunity of learning about and working with these new technologies, using this new expertise to generate new Touch Table commissions from other museums, providing significant new business revenue. In Aerian's view, 'the project helped raise awareness of the skills and ambition of our company, as well as acting as inspiration to staff and existing clients – pushing us further into the innovation space' [h].

The software, design and content of the Touch Table have been adapted for a free iPad application, 'Walking Pictures', which was launched in July 2013. The publicity which accompanies

the application's release will ensure that a wide range of people benefit from the technology.

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

[a] Audience numbers and feedback from the 'Encounters' screenings (September 2012)

[b] Feedback from David Sproxton, Aardman Animation & Chairman of Encounters Festivals

[c] Orosz Animacios Filmnapok, Budapest (March 2013): programme

Flatpack Festival, Birmingham (March 2013): programme

Abandon Normal Devices, Liverpool (October 2013): programme

http://www.picturehouses.co.uk/cinema/Picturehouse_At_Fact/film/Soviet_Animation_In_3D/

[d] Estonian Films at 'Encounters' 2013

http://www.encounters-festival.org.uk/estonian-dreams.html

[e] Reference to Beumers Award from Gosfilmofond (February 2013)

http://www.kinokultura.com/2013/40-beumers-belyestolby.shtml

[f] Museo del Precinema in Padua (http://www.minicizotti.it, 'How the pictures learnt to walk'), info@minicizotti.it: 'The touch-table works good [*sic*] also with a lot of visitors, indeed during the European Night of the Museum the influx of visitors has been very high and everybody enjoyed the touch-table' (7 June 2013).

[g] Introduction to Stummfilmtage programme, page 3:

http://www.bonn-international.org/fileadmin/Dateien/pdf/Stummfilmtage.pdf

and entry for 11 August (with image):

https://www.facebook.com/StummfilmtageBonn?hc_location=timeline

[h] Letter from Aerian to document their experiences of working with these new technologies.