



Coney: *Better Than Life*

Research & Development Report

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Executive Summary

"We're in one of those 50-year windows when an entirely new medium is being created and no one knows what to do with it. All you can do is throw stuff out there and experiment".

Frank Rose, author of *The Art of Immersion: How the Digital Generation is Remaking Hollywood, Madison Avenue and the Way We Tell Stories*

We find ourselves in a period of significant change. The interconnectivity that the web offers and the fast rise of pervasive media has changed how we communicate with each other, how we access information, how we experience news, stories and the world.

These changes have had a deep impact on storytellers of all kinds. The tools we use to tell tales are evolving, becoming more modular and tailored, more participatory and more engaging, compared to the printed word or the moving image. These new forms of digitally-enabled storytelling move beyond reinterpreting a text for radio or screen. We need to find new structures, and new relationships with audiences.

Better Than Life, led by Coney, is an immersive theatre company that specialises in creating new forms of responsive playing theatre, brought together by an extraordinary multidisciplinary team involving award-winning interactive theatre makers, digital broadcasters, developers, multi-platform creatives, academics, VR experts, a magician and many more.

We wanted to create a project that focused, in particular, on how live performance fits into the landscape of this terra nova. The aim was to create an event for a large online audience that combined digital connectivity and interactivity with the liveness and shared experience of theatre.

In particular, our aim was to understand what kinds of agency and what kind of control audiences may need and want to enjoy when engaging with this new form of live performance. We set up a system that allowed both audiences - in the live space and online - to participate and comment on the show in several new ways.

A total of eight public rehearsals and performances took place in June 2014, with over 300 people taking part in either the live space or online. At the end of the R&D process, a narrative of a new medium emerged. The material in the R&D wasn't normal theatre, it wasn't quite broadcast and it wasn't a game. It was a cultural experience that built on the live-storytelling and visceral nature of theatre, but combined it with the social interaction of MMO (*Massively Multiplayer Online* role-playing games) and the delivery infrastructure of online broadcast.



Performance still

Source: Coney

The show was held at a ‘secret’ location in London, with 12 people attending and entering the fictional world of the “Positive Vision Movement” (PVM). In the live space, the audience promenaded through the world of the PVM, following three actors playing, solving puzzles, chatting, debating and witnessing magic.

Online, people spoke and instructed characters, made comments, spoke to each other, made choices and switched camera views at will. At times, the online audience could even take control of lighting in the space in order to create specific atmospheres, or shine light on a particular place or person.

In each show, audiences were carefully monitored, questioned at various stages within the show and, in some cases, interviewed in depth about the experience.

Interestingly, interactivity - the ability to ‘take control’ of a situation, make a decision about plot or performance or change the mood through lighting or sound - was not rated as highly by any of the audiences, as much as the opportunities to socialise and engage with each other.

Data suggests that the online audience, in particular, enjoyed the ability to form strong social bonds with each other, and that they favoured elements of the show in which they were able to connect and communicate directly with performers in the show.

This would suggest that this new kind of hybridised digitally-driven storytelling and play environment is seen, first and foremost, as an opportunity to connect with others in a theatrical context, interacting with each other more as one might do at a music festival or house party. This is therefore not just theatre with an online component bolted on.

The three R&D partners felt that the project was also a great ‘social’ success in terms of what we learned from each other. The project genuinely worked within gaps of the knowledge overlaps between Coney, Goldsmiths University and ShowCaster, and we pushed each other to deliver a project with as many interesting new features as we could cram into one production space.

Better Than Life explored what is possible, and proved that hybridised models of entertainment and performance can open up experiences to audiences that genuinely span beyond the geographic boundaries of a single location or building.

Background

Summary

The world is changing and how we tell stories and engage with world is changing as a result.

Better Than Life was an R&D project that explored how we can change live drama to open it up to an engaged and active online audience.



Still From Filming Process

Source: Coney

This project was a team collaboration between online broadcaster ShowCaster, teams from Goldsmith's University led by Marco Gilles and Sian Prime, and theatre company Coney with its then directors Annette Mees and Tom Bowtell.

The team experimented with various forms of individual and social agency that audiences have come to expect in a networked environment. We wanted to know '*'Could we create a theatrical, immersive, emotional and intellectually stimulating experience for the ever-increasing active and energetic online audiences?'*

The State of Play

Interactive and immersive performance is a growing part of the theatre landscape. Audiences are hungry for live, meaningful experiences, but theatres are limited by their physical size and, generally, audiences only access their work if they can travel to its location.

Traditional broadcast genres like television, film and radio are also becoming more interactive; they hope to find effective ways to build a dialogue with audiences, driving social interaction around shows and offering an element of remote control over both content and scheduling through voting, user contribution, live streaming, etc.



*Early Days (Of A Better Nation):
Technology is creating new cultural
spaces, allowing for a different
relationship between artist, audience and
the work.*

Source: Coney

One of the biggest challenges currently faced by Coney and other art institutions is how to deliver powerful experiences across the web, whilst retaining the immediate physical and emotional impact of the work.



ShowCaster: a platform that offers live streaming, plus chat & voting

Source: Coney

How can we open up live drama to an online audience, offering them various forms of individual and social agency they've come to expect in a networked environment, and still conjure up the kind of immersive, emotional and intellectually stimulating experience that people tend to seek on a night out at the theatre?

The Opportunity

Live streaming is an established part of the artistic landscape. From NT Live (<http://ntlive.nationaltheatre.org.uk/> - 2.7 million viewers in 4 years) through to live webcasts of national, county and local assemblies (such as <http://www.senedd.tv/>), there is a will to affect real events as we watch them, to participate rather than just witness.

Nevertheless, until now, most efforts to make theatrical work accessible to the mass has been relegated online (or cinema-based) where audiences are being passive consumers of a secondary experience.

These kinds of experiences can be very popular (e.g. The Royal Opera House BP Big Screens: <http://www.roh.org.uk/about/bp-big-screens>). However, little or no agency has been offered to these online audiences, e.g. no ability to send messages or content into the live space, in order to help influence events and atmospheres in that live space, or to start a dialogue with other people engaging with the show from a range of different geographic (local or international) locations.

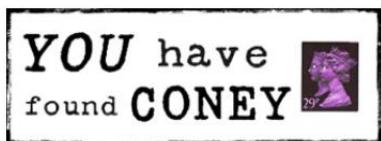
In more popular and mainstream worlds of online gaming, YouTube viewing and branded digital content (e.g. digital advertising or digital coverage of music festivals) these kinds of interactive and social features are now commonplace.

These new features have brought about new business models and revenue streams such as pay per play and ‘freemium’ models which have revolutionised the mobile gaming market, advertising banners and click-throughs on video channels, as well as monthly subscriptions to streaming services such as Spotify.

In the current traditional world of theatre, income is generally constrained by available seats and building capacity. Coney, an organisation devoted to truly immersive and engaging audience experiences, is further limited, since personalised, responsive experience offered to each participant precludes audience numbers to reach significant box office sales levels.

This project is aimed at exploring how an ever-increasing active and energetic online audience might be attracted to relatively small-scale live theatrical events and how new revenue streams might be found for this kind of work as a result.

Project partners



Coney (coneyhq.org) is an immersive theatre company that specialises in creating new forms of responsive playing theatre. The company is renowned for its theatrical events in which the audience can become characters in the narrative world, offering the chance to influence how a story may end. Co-directors Annette Mees and Tom Bowtell are experts in the creation of interactive narrative worlds in which the audience experiences real agency. The success of projects such as *Early Days (Of A Better Nation)* and *Cat Escapes* has proven that responsive narrative worlds can have a powerful and transformative impact on audiences.



Goldsmiths are a leading university with a rich academic heritage and are known as a creative powerhouse. Goldsmith's research on *Better Than Life* was two-pronged, as it focused on both the

technological development and the possible business models. The first team was led by Marco Gillies, an expert in computing, as well as online identity and experience. The second team was led by Sian Prime from ICCE, (Institute of Creative and Cultural Entrepreneurship) which delivers enterprise, cultural management and policy education to the creative and cultural sectors, and supports research into new approaches to business, financial models and management in the Creative Economy.

Better Than Life has also got a dedicated PhD student: Nicky Donald. Nicky worked with Annette Mees in 2012 on House of Cards, an installation at Kensington Palace. It quickly became obvious that combining live online interactive performance with Nicky's PhD research into telematics and Mixed Reality Performance might bright about interesting results.



From theory to practice, Goldsmiths identified ShowCaster (ShowCaster.com), a leading provider of live video streaming and an interactive web TV platform that includes social chat, live polls and real-time event analytics as a fitting partner on the project.

ShowCaster had developed a strong, robust platform with a proven track record in online broadcasting. They were interested in the project as an opportunity to experiment with new ways of building on their existing functionality to develop modules that allow engagement and agency.

The three parties agreed to work together on a project that would explore the possibilities of bringing online audiences to a live performance piece, whilst offering both the audience in the live space and those on the web varying levels of agency within the show.

The Project

Introduction

Better Than Life experimented with a new mixture of interactive live performance and online engagement. Throughout June 2014, Coney, Goldsmith University and ShowCaster developed a 45-minute interactive theatre piece created for a small live audience, and much larger online audience simultaneously.

The multi-disciplinary team worked together to think of ways to translate Mees' 12 stage breakdown of a Coney show into a digital equivalent.

The team had an interactive R&D period in which they invited audiences online and in the physical space to test the functionality and the experience.

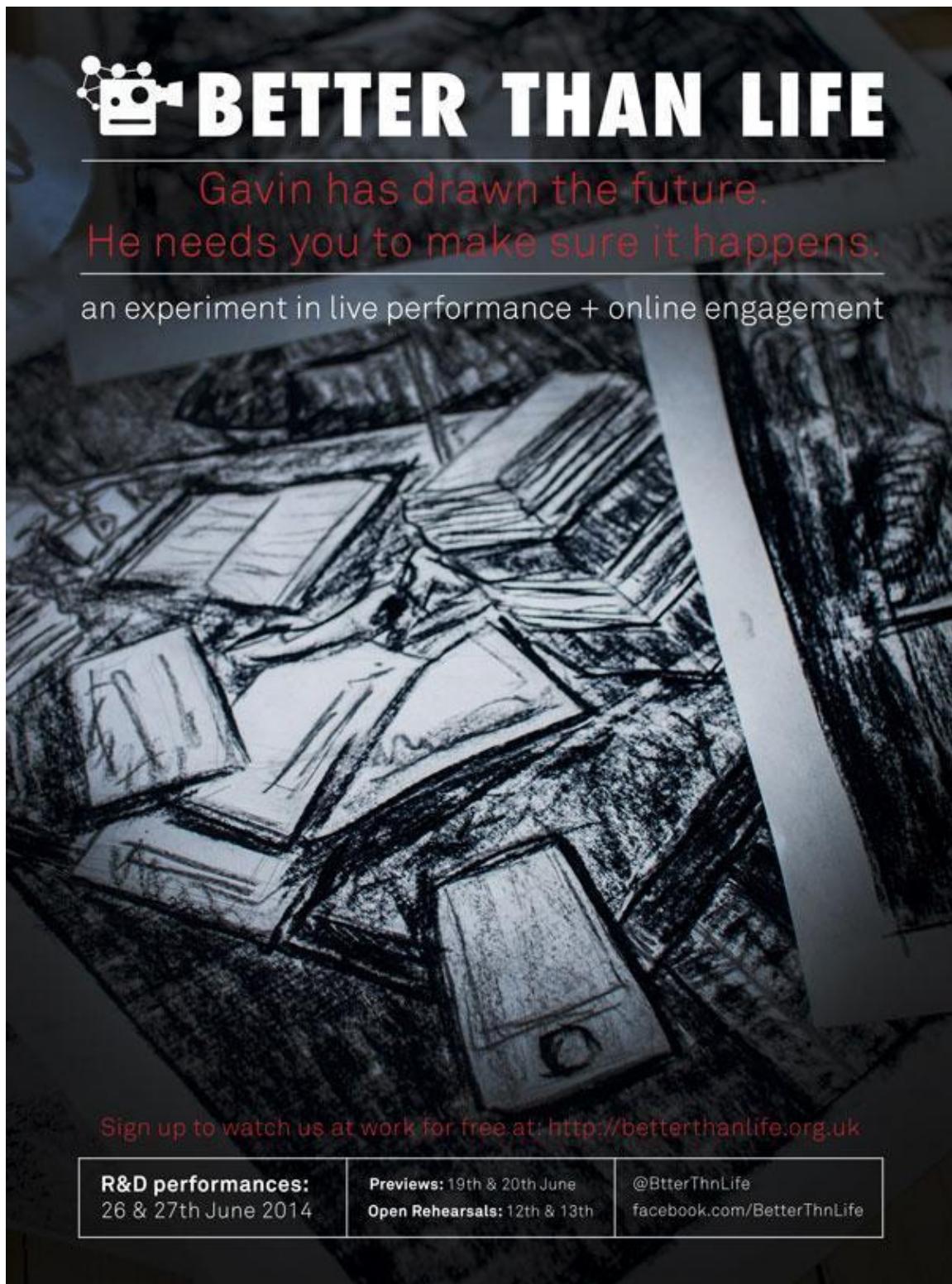
Our research looked at the dramaturgical changes needed for this new platform, its potential audiences and income streams.

Research Questions

In this R&D project, we wanted to investigate how Mees and Bowtell's form of interactive theatre might transfer online, and how the two resulting audiences could be given equal, but different, meaningful agency in a live performance. We were interested in gaining an insight into three main areas:

- **Dramaturgy** – what kind of work is suited for this medium, how should it be developed, created and presented to an audience that will lead to meaningful and rich experiences with a deep impact?
- **Audience** – what kind of people would form a natural audience for this kind of work and how can we attract them to the online show in significant numbers?
- **Income Streams** – in what ways could we obtain revenue from online participation and the playing audience's agency in the work?

The Proposition



Promotional Poster

Source: Coney

Rather than start with an existing show, Coney co-directors Mees and Bowtell created a brand new storyworld through *Better Than Life*, where the online experience could be developed, not as some kind of bolt-on element, but as an intrinsic part of the work.

Audiences were asked to join *The Positive Vision Movement*, a tiny cult centred around the reluctant clairvoyant Gavin Jackson. At a ‘secret’ location in London, 12 people choose to enter the world of the *Positive Vision Movement* and online anyone could access live camera feeds into the space via a customised version of ShowCaster’s online broadcast platform.

Once inside the *Positive Vision Movement*, the audience was invited to come and find out the truth about Gavin and help him to create his future. They could attend and help both in the theatrical space and online. For more details on the story world, see
<http://www.betterthanlife.org.uk/ourworld/>

In the physical space, a small audience played games, solved puzzles, engaged in magic tricks, dressed up, debated issues and interacted with a cast of three actors.

Online, people were able to switch camera views at will, in order to explore different areas of the ‘secret’ location, or focus on a particular character (an actor or an audience member). They could use a chat room to talk to each other, send messages and directions to the actors, as well as, at times, take control of the lighting in the space in order to create specific atmospheres, or shine light on a particular person to ‘select’ them.

The aim was to see how these various forms of ‘agency’ offered to the online audience might affect their perception of the live show. We also wanted to see how the live show might be shaped and shifted by various interventions by the online audience, and, in return, how the live audience might react to being remotely observed, inspected, commented upon and directly addressed by the online audience.

The Development Process

One of the most striking aspects of this R&D project was the multidisciplinary nature of the work. *Better Than Life* required a number of different partners from a range of professional and artistic backgrounds to work together.

Initial Workshops

Through previous shows, Coney had done a lot of work identifying the various stages of audience engagement that take place in a typical production; from the first moment someone hears about a show to the moment well beyond the end of the performance when audiences are still thinking and talking about what they experienced.

1. Marketing Small No Focus	2. Box Office AKA The Commitment	3. Advance The storyworld reaching out
4. Getting Ready AKA Pre-show ritual	5. Capitulation Shift from the real world into story world	6. Practising the world AKA The easy level
7. Act 1 - 2 - 3 Fully immersed in story world	8. Reflection Still immersed in different P.O.V.	9. End! -FIN-
10. Capitulation Shift from the story world into the real world	11. Post-show dialogue AKA The Bar	12. Tail Story world reaching out (capitulation) Small/No Focus

12 Stage Process

Source: Coney

Mees created a 12 stage process (above) of a typical Coney show to see how the sequence of events and audience activity might fit in with a production that supported an online audience, as well as a traditional theatre audience.

Writer Research

Bowtell developed the storyline and characters of *Better Than Life* using research into various cults, the history of different types of ‘visionary’, and how in an age of rationalism and scientific discovery it is still possible to believe in prophecy and miracles.

Prototyping

Marco Gillies and Nicky Donald of Goldsmiths worked on various ways of extending the standard ShowCaster platform (using Open Source tools and software wherever possible) in order to offer online audiences varying levels of agency; from being able to switch camera views through to the triggering of events such as lighting changes, prop manipulation or door unlocking into the performance space.

Consultant Magician

We worked with consultant magician Jon Armstrong on the types of magic tricks that could work both in the space and online. We set a key goal of a “mixed reality moment”, where the online and the physically present would experience the same feelings, at the same time. This had to be a *grand illusion*, big enough to come across on the small screen. Magic always fails on television because viewers suspect some kind of off screen intervention. In *Better Than Life*, one could see the reactions of the physical audience and ask them about it at the end.



Set – Up Still

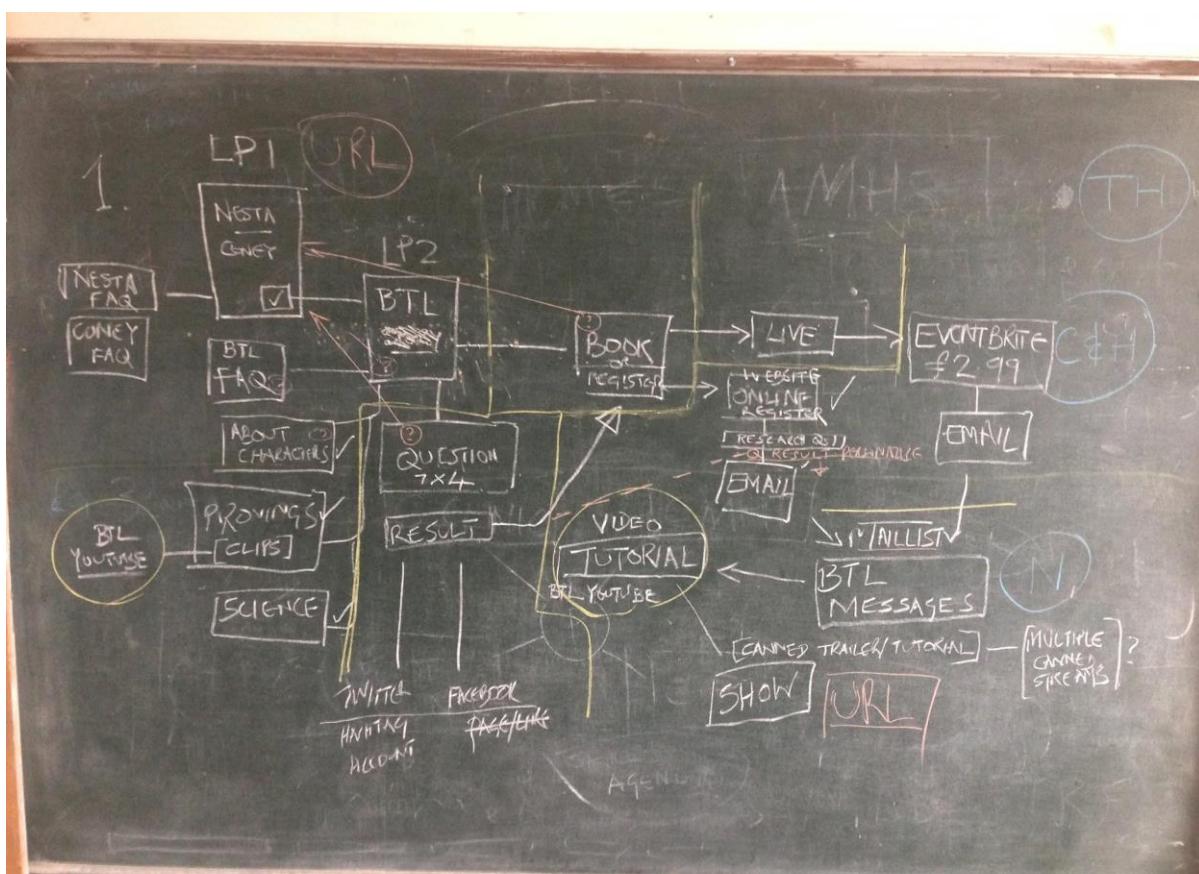
Source: Coney

Design

Experience design experts Pan Studios (<http://panstudio.co.uk/>) were brought on board to help develop a design for the production that could be consistent across the project, so that whether one found the show through the website, via a poster or actually experienced the production live, the tone, mood and central messages of the production remained coherent and recognisable. Designing a theatre set that could also match the design of the web viewing experience required a lot of thought and discussion between the different production teams.

Website Design and Interaction Paths

Planning all of the online elements that might be required to support this kind of hybrid production required a number of separate workshops. Importantly, we needed to map out what a typical online audience member might look like. The journey might start with a click through from, say, a YouTube movie or a tweet to the main website, then the user might look for more free content before deciding to register or buy a ticket. Then they might expect to remain in contact with the production via email or through targeted content updates over time. Designing a system that allows users to adopt natural and predictable interaction paths through a networked content system is a fundamental part of



delivering a successful audience experience.

Thought Mapping

Source: Coney

Advisory Panel

Every few weeks, Coney organised a meeting where the completed development work could be presented and discussed with senior professionals who have experience of managing and making similar multidisciplinary work. The aim was to get guidance from the group about which areas of R&D were best to concentrate on and which ones appeared flawed or not worth pursuing.

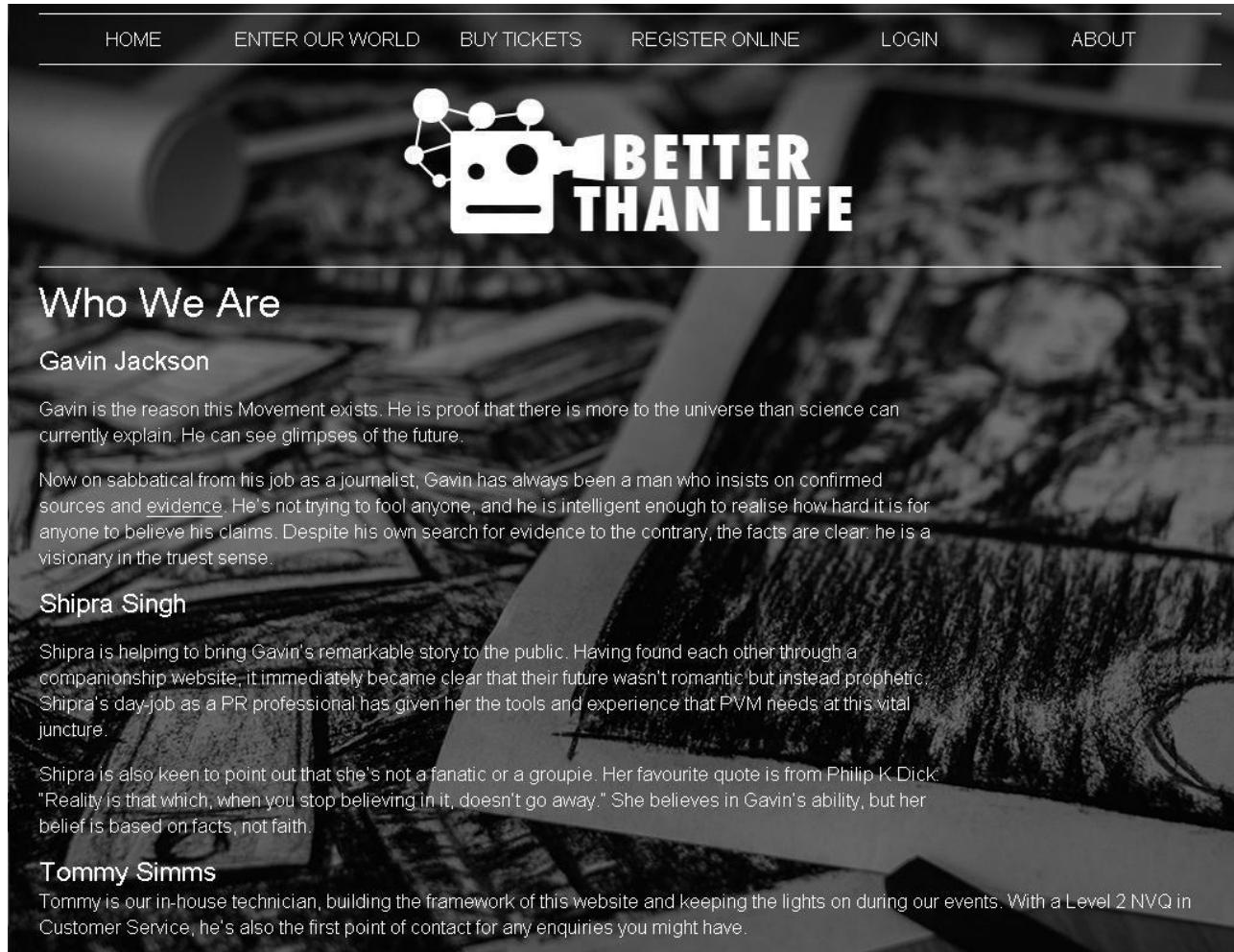
The Show

We created a series of 8 showings spread over three weeks, inviting an online audience as well as a live audience into the space to experience the 45-minute narrative. We repeated the platform, dramaturgy and setting of the show every week.

- *WEEK 1 Open Rehearsals:* we offered an organic beta version of the production that displayed our work in progress twice on Thursday evening and again on Friday lunchtime.
- *WEEK 2 Previews:* we offered a revised show twice on Thursday evening, taking in the learning and feedback from the previous two weeks working and performing onsite.
- *WEEK 3 Final Presentation:* we attempted to deliver three iterations of a media-rich prototype of the full show.

The Story

See <http://www.betterthanlife.org.uk/>

A screenshot of the Better Than Life website homepage. The header features a navigation bar with links for HOME, ENTER OUR WORLD, BUY TICKETS, REGISTER ONLINE, LOGIN, and ABOUT. Below the navigation is a large, stylized logo consisting of a video camera icon with three dots above it, followed by the text "BETTER THAN LIFE". The background of the page is a dark, grainy image of a person's face, possibly a cyclist, with a bridge visible in the background.

Who We Are

Gavin Jackson

Gavin is the reason this Movement exists. He is proof that there is more to the universe than science can currently explain. He can see glimpses of the future.

Now on sabbatical from his job as a journalist, Gavin has always been a man who insists on confirmed sources and evidence. He's not trying to fool anyone, and he is intelligent enough to realise how hard it is for anyone to believe his claims. Despite his own search for evidence to the contrary, the facts are clear: he is a visionary in the truest sense.

Shipra Singh

Shipra is helping to bring Gavin's remarkable story to the public. Having found each other through a companionship website, it immediately became clear that their future wasn't romantic but instead prophetic. Shipra's day-job as a PR professional has given her the tools and experience that PVM needs at this vital juncture.

Shipra is also keen to point out that she's not a fanatic or a groupie. Her favourite quote is from Philip K Dick: "Reality is that which, when you stop believing in it, doesn't go away." She believes in Gavin's ability, but her belief is based on facts, not faith.

Tommy Simms

Tommy is our in-house technician, building the framework of this website and keeping the lights on during our events. With a Level 2 NVQ in Customer Service, he's also the first point of contact for any enquiries you might have.

Webpage Screenshot

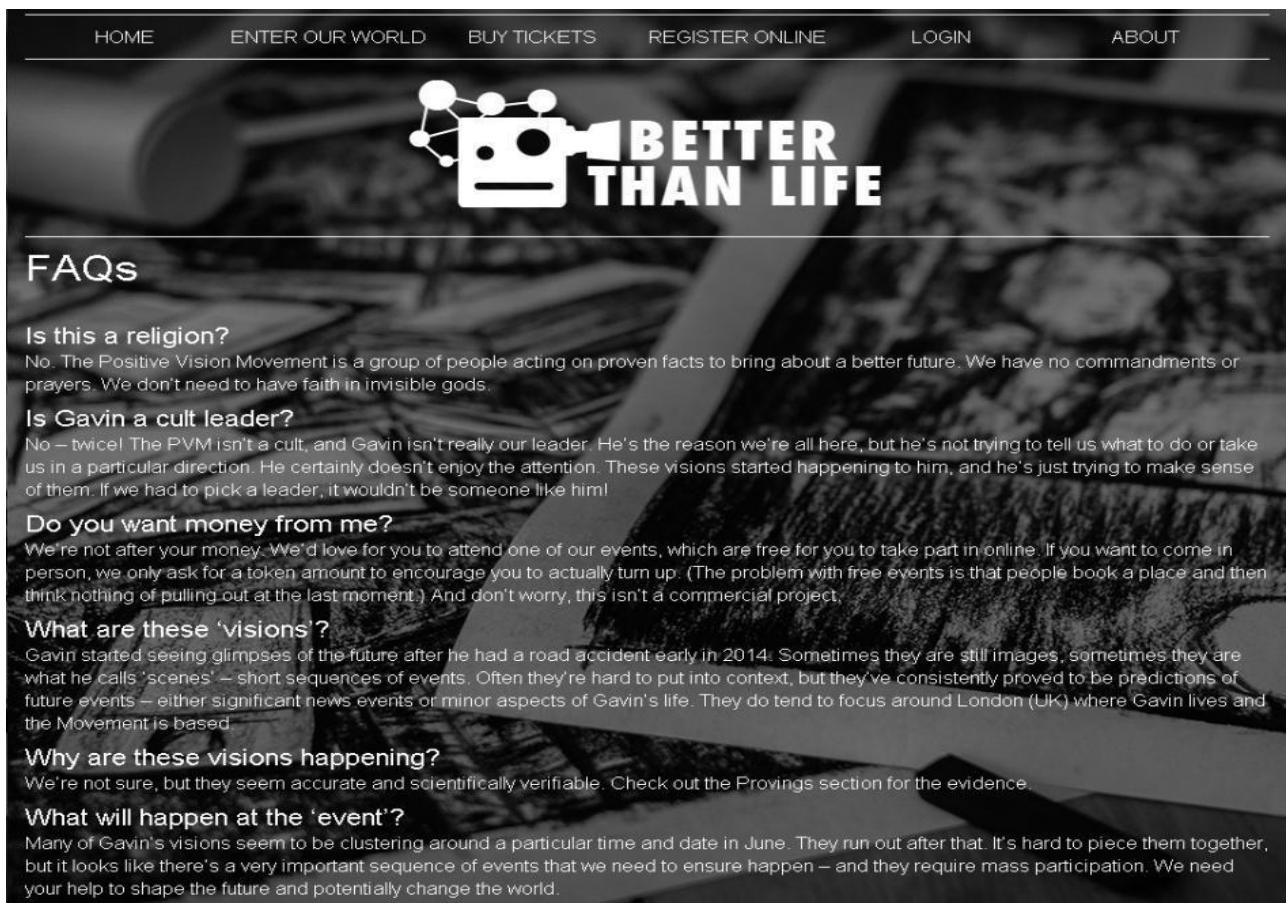
Source: Better Than Life

The storyworld of the *Positive Vision Movement* begins with a minor road accident in early 2014, which triggered an injured cyclist, Gavin Jackson, to start having visions of the future.

Gavin is a journalist and a resolutely rational man so, at first, he does not believe that his visions could be real. But time and time again he would draw pictures of his visions and they would come to life.

Gavin has been assessed and tested by top academics and scientists, who have confirmed that his visions are genuine. Nobody can yet explain how a bang on the head unlocked Gavin's visionary potential, but that doesn't mean it isn't real. The evidence is overwhelming.

Gavin's visions were clustered around a future event in June 2014 at the location of a live performance. Gavin 'saw' that people would join him online and in the space helping him to ensure that the future he foresaw would happen.

A screenshot of the Better Than Life website. The header features a navigation bar with links for HOME, ENTER OUR WORLD, BUY TICKETS, REGISTER ONLINE, LOGIN, and ABOUT. Below the navigation is a logo consisting of a stylized camera icon with three dots above it, followed by the text "BETTER THAN LIFE". The main content area is titled "FAQs" and contains several questions and answers. The background of the page is a dark, textured image of what appears to be a crowd or a large-scale event.

FAQs

Is this a religion?
No. The Positive Vision Movement is a group of people acting on proven facts to bring about a better future. We have no commandments or prayers. We don't need to have faith in invisible gods.

Is Gavin a cult leader?
No – twice! The PVM isn't a cult, and Gavin isn't really our leader. He's the reason we're all here, but he's not trying to tell us what to do or take us in a particular direction. He certainly doesn't enjoy the attention. These visions started happening to him, and he's just trying to make sense of them. If we had to pick a leader, it wouldn't be someone like him!

Do you want money from me?
We're not after your money. We'd love for you to attend one of our events, which are free for you to take part in online. If you want to come in person, we only ask for a token amount to encourage you to actually turn up. (The problem with free events is that people book a place and then think nothing of pulling out at the last moment.) And don't worry, this isn't a commercial project.

What are these 'visions'?
Gavin started seeing glimpses of the future after he had a road accident early in 2014. Sometimes they are still images, sometimes they are what he calls 'scenes' – short sequences of events. Often they're hard to put into context, but they've consistently proved to be predictions of future events – either significant news events or minor aspects of Gavin's life. They do tend to focus around London (UK) where Gavin lives and the Movement is based.

Why are these visions happening?
We're not sure, but they seem accurate and scientifically verifiable. Check out the Proving section for the evidence.

What will happen at the 'event'?
Many of Gavin's visions seem to be clustering around a particular time and date in June. They run out after that. It's hard to piece them together, but it looks like there's a very important sequence of events that we need to ensure happen – and they require mass participation. We need your help to shape the future and potentially change the world.

Webpage Screenshot

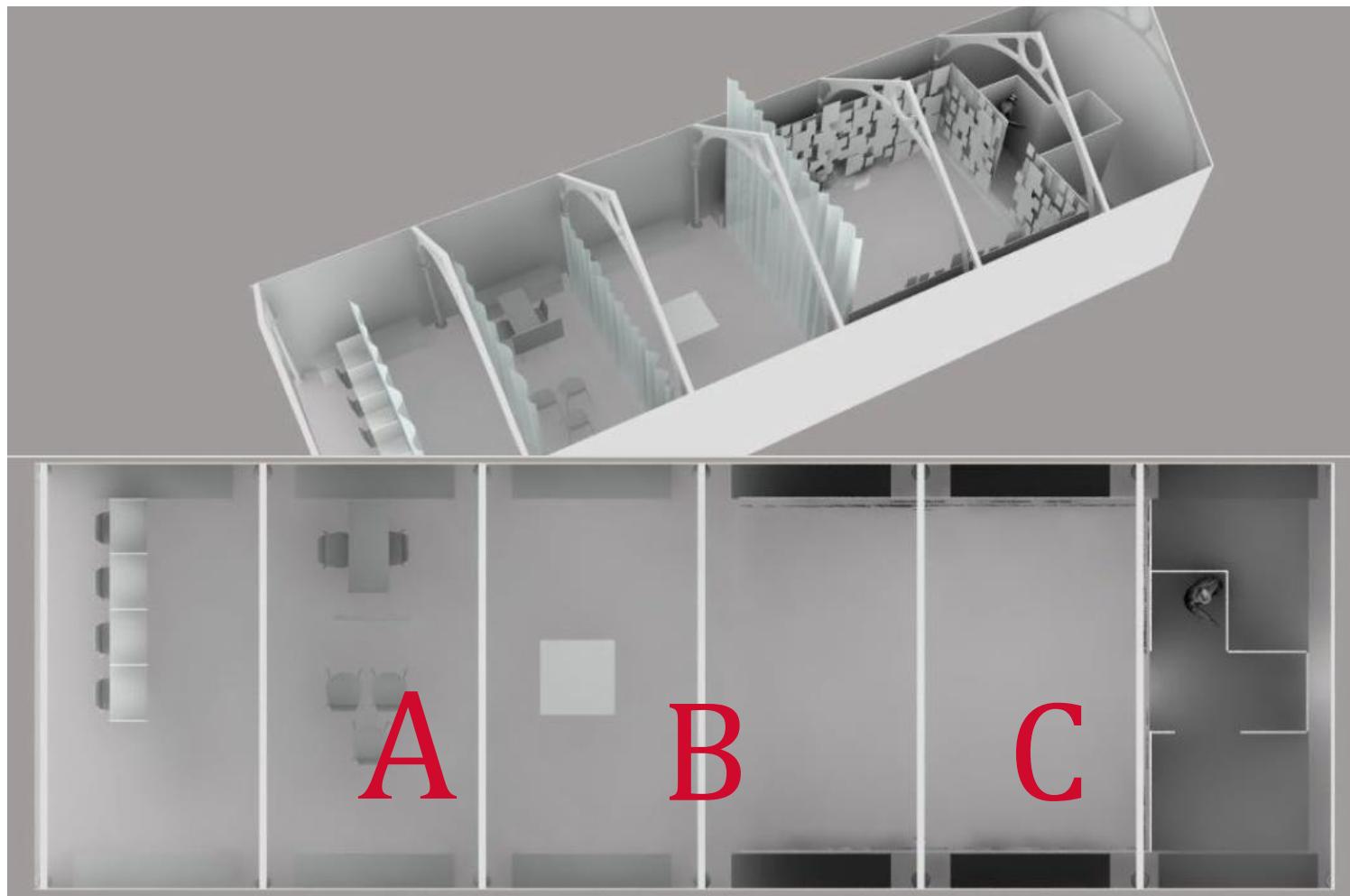
Source: Better Than Life

The *Positive Vision Movement* – now organised and promoted by two key acolytes, Shipra and Tommy – just needed 12 people to turn up in

the physical space at the appointed hour, and for everyone else to turn up online.

It was a chance to change the world for the better, a chance to make something magical happen...

The Physical Space



White Card Model of the Set

Source: Coney

All shows took place in an Orangery on the Goldsmith's campus in New Cross (see <http://www.gold.ac.uk/static/virtual-tours/surrey-house-exterior.html>).

The rectangular Orangery in New Cross was divided up into thirds, roughly equivalent to acts, each one delineated by a transparent butcher's curtain.

Space A

The first space was where the live audience was tested and divided into different groups of the *Positive Vision Movement*. The live audience took part in a series of abstract exercises to assess their 'visionary potential', and was assessed by watching performers and given coloured capes to denote their personality type. The online audience could watch them, chat about them, mock them and choose which camera to switch to in order to track particular audience members or activities.



Space A In Use

Source: Coney

Space B

The second space had a collaborative drawing exercise and magic elements. The live audience was pulled together to draw a vision for Gavin, set to the rhythmic pulsing of lights and sounds controlled by mouse movements of the online audience. A genuine magic illusion was at the heart of this space, with the aim to fool the live audience with an actual moment of trickery. This was the first moment where the online audience was able to actively influence the atmosphere of the physical space, altering the light as the séance-like scene played out.



Space B In Use

Source: Coney

Space C

The final scene was a dramatic stand-off between Shipra and Gavin about the future of the movement, which culminated in the selection of a new leader. Candidates were nominated from the live audience, and the online audience used a form of interaction and light manipulation we dubbed the *Ouija Board Mechanic* in order to vote for their chosen candidate. This was a moment of deeper engagement between the two audience groups as the live audience realised that their agency had

been removed and that the faceless online audience were now in control.



Ouija Board Mechanic Still

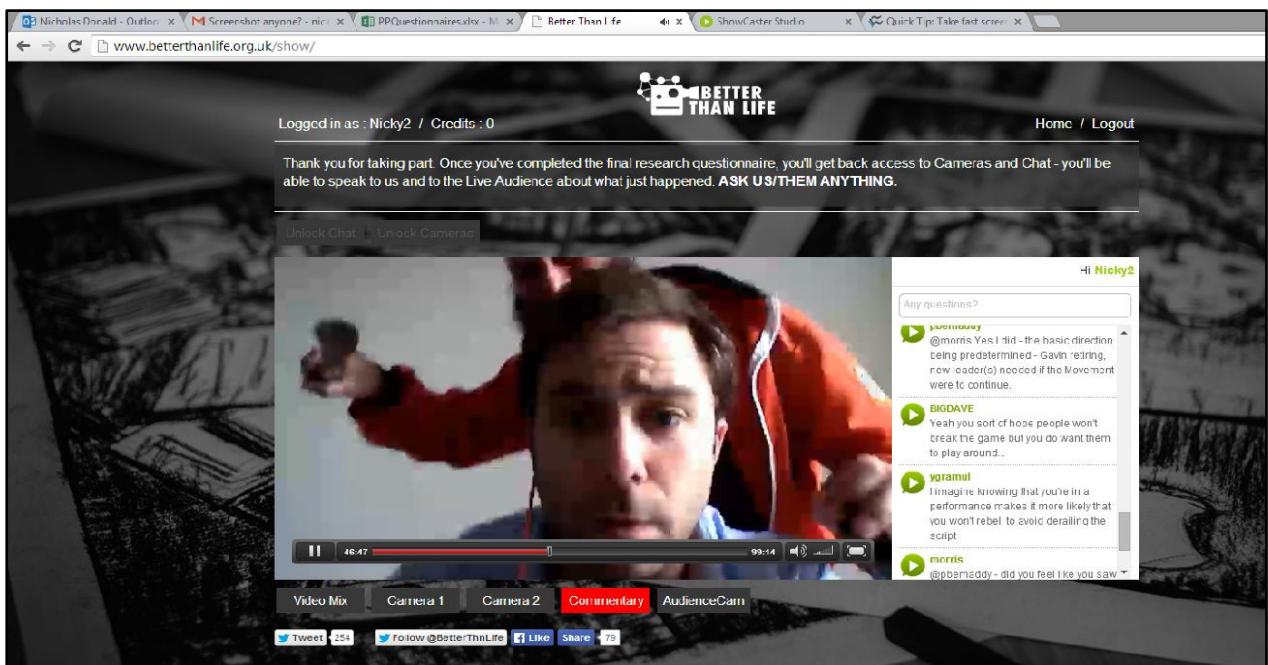
Source: Coney

The Online Platform

The online audience viewed and interacted with the show via a web interface shown below. The online audience could interact with the experience in three ways:

- 1 **Chatting.** The ability to chat with other users, directly with actors, online characters and with an ‘in-world’ technical support team.

- 2** **Switching.** The ability to move between streams (camera positions) at their own will.
- 3** **Controlling.** The ability to directly influence the narrative and the set by controlling its lighting and using the control of light to make group decisions about what should happen next in the physical space.



Webpage Screenshot

Source: Coney

The centre of the screen features an embedded video element, showing the live streams of the show. Below, there are a number of tabs used to select different video streams. A chat element features on the side, where online participants can talk to each other via short text messages.

Chatting

The chat stream was a conventional text chat interface similar to Twitter but designed for live interaction. Audience members could post comments and interact with each other, adding a strong social dimension to the experience. This feature was already available in the ShowCaster platform. The platform was augmented for this particular performance and, at certain points in the show, the audience could speak directly to cast members, while at others, some of the chat messages were relayed to the actors in the physical space. The chat

stream also provided a means for the show team to provide support to the online audience.

Switching

Participants could choose between a number of different camera views/videos streams. This feature was something that ShowCaster had previously implemented for conferences but never for a piece of theatre taking place in a single location.

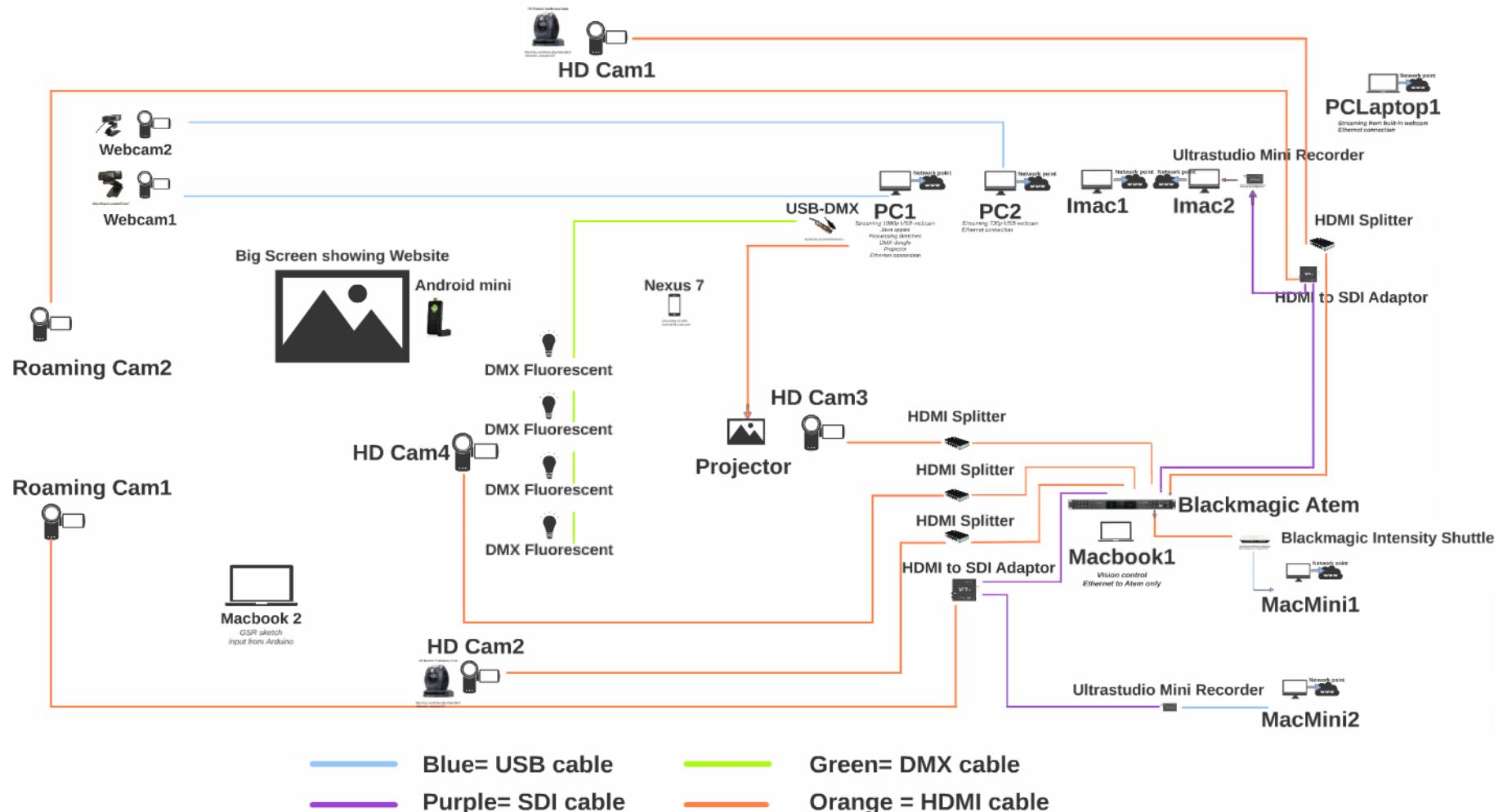
The first one was “Video Mix”, a live mix of all of streams. The other streams were from specific cameras: “Camera1” and “Camera2” were operated by roaming camereapeople. The “Commentary” was fixed on a character who provided a live, often droll, commentary on the events. “AudienceCam” was a mobile camera given to an audience member to use as they pleased. Participants could also unlock a sixth “Secret” camera. In order to do this, they had to click on a secret sign on the screen (inside the logo, at the top of the window). The secret camera showed Gavin prior to his entrance and gave online participants an opportunity to chat with him and provide content for his speech.

Controlling

As the show progressed into Space B, the online audience were asked to join the physical participants in a breathing exercise, and to move their mouse up and down, in sync with the group’s breath. The average mouse height of all participants controlled the overall light level. This was known as the “Breathing Lights”. In Space C, the online audience decided the future of the *Positive Vision Movement*. Each online participant controlled his or her own spot of light, projected onto the floor of the physical space (the *Ouija Board* mechanics). The projection and video stream were aligned so that the spot of light appeared under the participant’s mouse in their video window. The online participants ‘anointed’ the new leader by lighting him or her with their mouse.

These three interactions – communicating directly with the actors, switching through the different cameras to learn secret or alternative information and having visible influence in the space through light – were designed to empower the online audience and give them the feeling that they were able to affect the narrative.

Technical Implementation - see next page



An Overview Of The Technology Used In The Space

Source: Coney

For a detailed interactive view of the installation and equipment, please see <http://prezi.com/k0m7owaniulz>

The Physical Space

The Orangery is a large Victorian greenhouse that has been converted into a teaching and rehearsal space. It has excellent network connections and a small garden surrounding it. We installed a huge amount of cabling to provide up to seven separate video feeds from webcams, Handycams and HD conference cams, 7-channel audio playback and a lot of lighting.

Technical implementation elements included:

- The Pepper's Ghost vanishing trick required considerable control of ambient light, which meant Space C had to be blacked out.
- We successfully tested streaming video from various Android tablets, but this was largely dependent on stable Wi-Fi. The Orangery is a large ironwork box, which acts as a Faraday cage, cutting off Wi-Fi very effectively as soon as one steps outside. The Secret Camera was the only camera that moved outside, so the Android option was abandoned. As 4G networks and apps such as Meerkat or Periscope become widespread, live streaming from handheld devices will become a crucial and affordable tool in the very near future.
- One of the key innovations was the ability of the online user to switch cameras and explore the space, but we also needed these streams to go to live edit, so the camera signals were split in two: one to capture and stream and one to the edit suite. We found that two kinds of cables were needed, HDMI and USB, both in 20m lengths.
- A powered USB extension lead was used, which gave us webcams in position, but the HDMI signal from Handycams was too weak until splitter/boosters were applied.

The Online Platform

The online platform was developed collaboratively by ShowCaster and Goldsmiths.

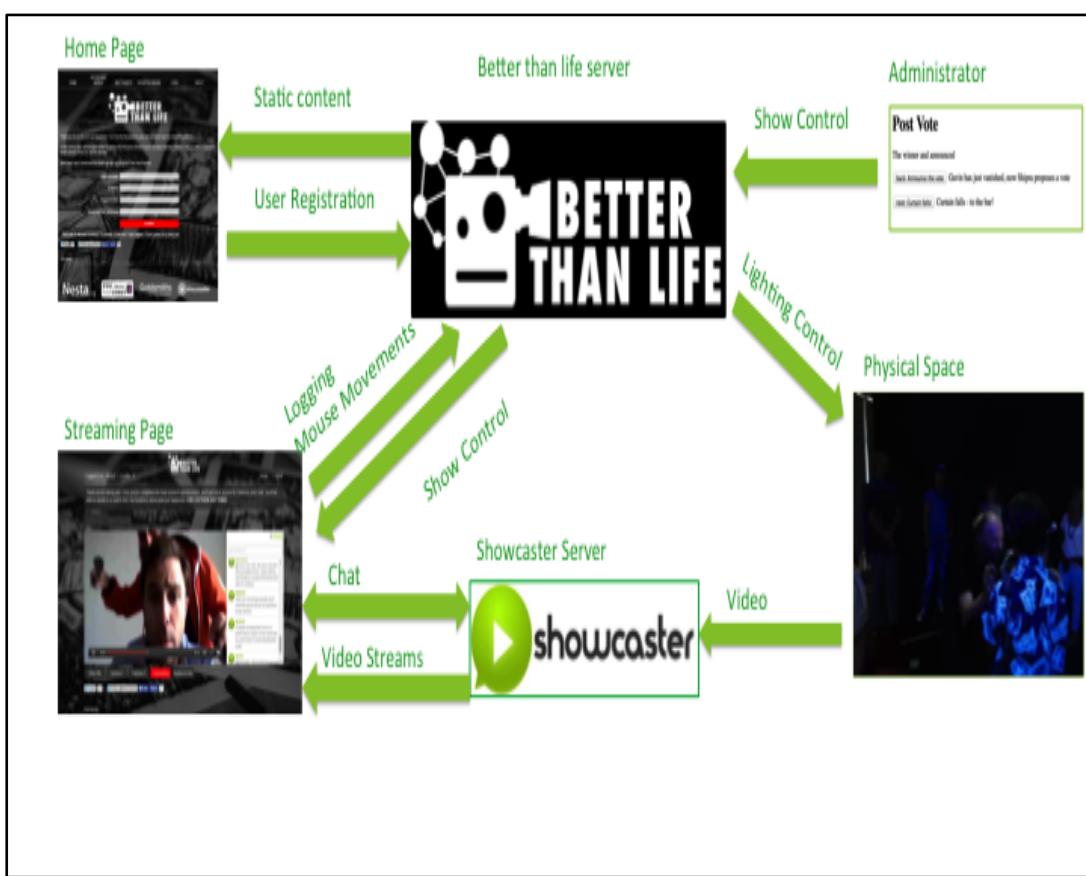


Figure 2: The Online Platform

Architecture

Source: Better Than Life

The major software components were the ShowCaster platform, which handled the chat room and the streaming video, and a custom built *Better Than Life* server, developed by Goldsmiths, which managed other aspects of the show, including participant registration and data logging.

Both of these communicated with the streaming page described above, which was developed by ShowCaster.

The online audience's experience began by registering on the *Better Than Life* website. We employed a fairly standard user registration system requiring email address, username and password. This would enable us to log individual user behaviour within the show. Once users were registered, they could log on to the site whenever they wanted. They would be presented with a consent form and an initial questionnaire when logging in. (see [results section](#) for more details about the questionnaires).

Once logged in, users were able to access the streaming page, containing video streams, a chat stream and a number of controls. The video streams and the chat rooms were provided by the ShowCaster platform and embedded in the streaming page. The controls communicated with the ShowCaster platform in order to switch video and chat streams.

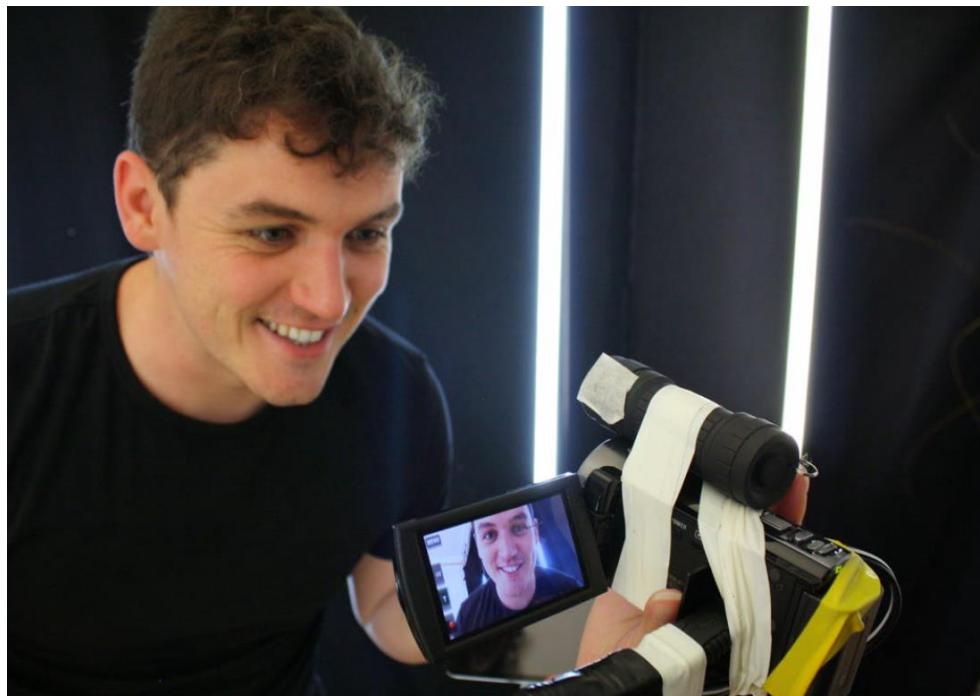
Users also interacted with the *Better Than Life* server in a number of ways. All interactions with the streaming page resulted in a message being sent to the server so that they could be logged for research purposes. When the lighting controls were active, the streaming page would also send mouse movement information to the server, which would store it individually for each user. Finally, the server would send information to the streaming page that would enable it to adapt the interface to different sections of the show.

For example, in the sections of the show where lighting control was possible, the mouse movement tracking interface was enabled. This adaptation of the interface was controlled by one of the *Better Than Life* team via a simple administration interface as shown in Figure 2, above. The show was divided into a number of phases, each of which was associated with a number of user interface capabilities. The role of the administration interface was to allow us to transition to a new phase based on cues from the live show.

In Space B, the software controlled the overall lighting of the space (the "breathing lights"). This used DMX (Digital Multiplex) to control the levels of a number of lights. The software aggregated the mouse positions of

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all online participants and used the average height of the mouse to calculate a DMX value. Participants were invited to join in a breathing exercise, collaboratively working to control the lights by moving all their mouse up or down at the same time.



Lighting Control: 'Breathing Lights' & 'Ouija Board'

Source: Better Than Life

In Space C, a separate piece of software was used to control an interactive projection (the “Ouija Board”). A projector was mounted on the ceiling and projected a large white spot of light for each online participant. That participants’ mouse position controlled the movement on the spot of light. The online participants could see the projection via a camera mounted next to the projector. The software was calibrated so that the projection and camera view corresponded: participants could see their spot of light under their mouse position in the video stream and thus move their own point of light around the physical space.

Results

Here we discuss the outcomes of the project. First, we approach the lessons learned by the creative team from the process of creating the actual work. After that, we will provide an analysis of the data we have collected from the audience, initially in terms of their responses to the experience and then in their willingness to pay for similar experiences. Finally, we explore the potential of new business models.

Creative Learning

Point of View & Divergence

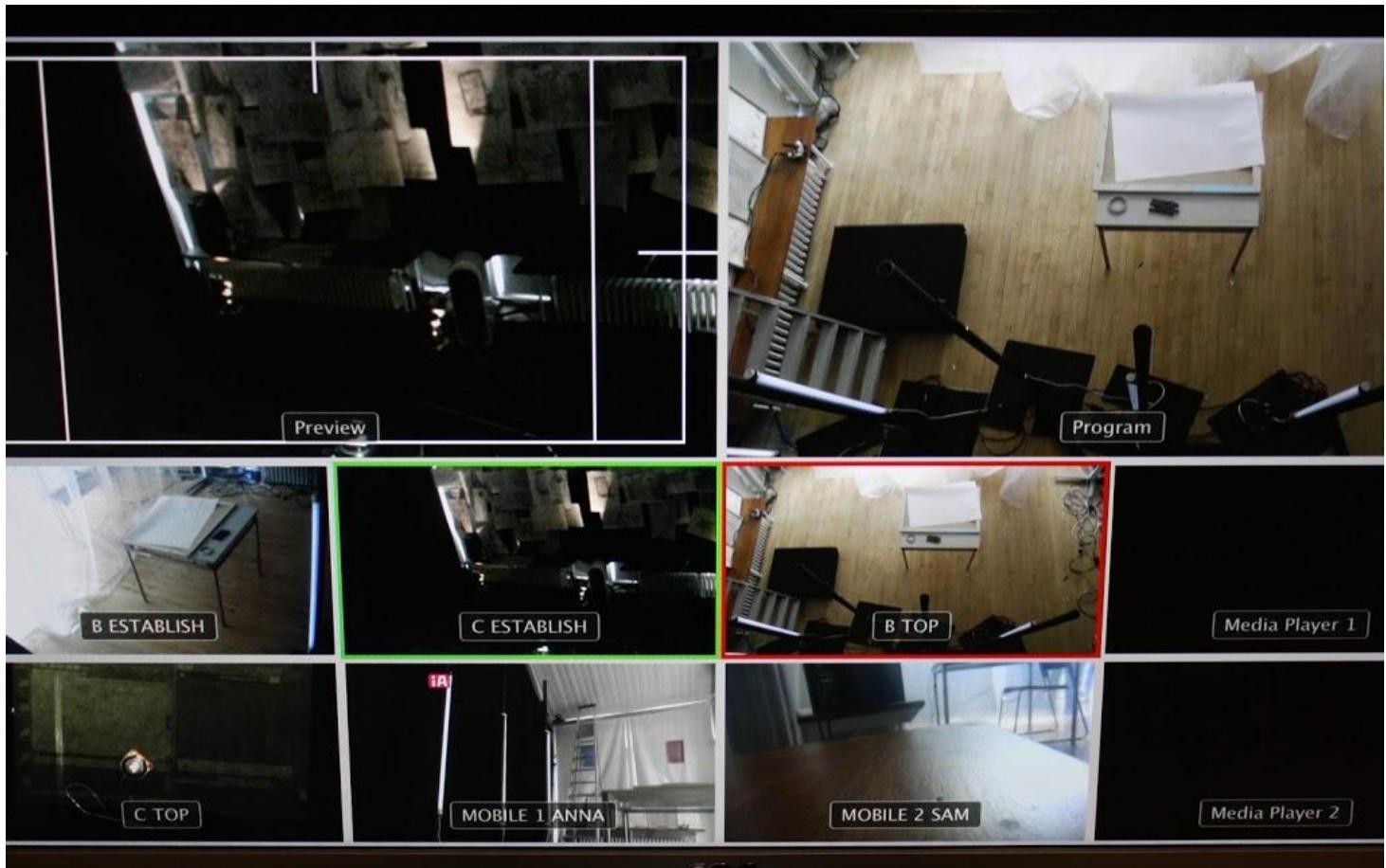
The starting point for the creation of *Better Than Life* was the desire to play with the notion that the live audience and the online audience had, literally, a different point of view. They could see different things; action, characters, spaces at different times, and had different levels of knowledge about what was going on. This was extended by the multiple camera views that were available for the audience online.

During the performances, we always offered one dedicated screen to a live-edited stream. This edited feed told the story in the most conventional way – cutting between characters, wide shots and close-ups, following the main action interspersed by direct addresses to the online audience from the three characters – Shipra, Gavin & Tommy. In essence, an online audience could simply sit back and watch this single feed, as if watching television.

However, the option of switching to any of the other cameras at any time created opportunities for massive divergence in terms of what each person could see, hear, and the kind of interactions they could have with the characters and with each other.

We quickly discovered - by monitoring camera switching - that most people would stick to the main live-edit screen for most of the time, unless they were pretty sure something interesting was happening elsewhere. If they switched and found nothing of interest, this discouraged any further moves away from the main narrative screen. We quickly learned that different cameras needed to show widely divergent information to make the switching interesting enough. We also

recognised the need for different cameras to indicate when they were live and showing new actions.



We quickly learned that different cameras needed to show widely divergent information to make switching interesting enough.

Source: Better Than Life

As the show developed, we expanded the divergent interludes more and tried to make sure that each live feed we offered had a ‘reason for being’ in terms of narrative content or deeper engagement. We became less secretive about the ‘secret’ camera once we noticed the audience’s appetite for interacting with Gavin online before he entered the main narrative in the physical space.

The online audience not only received Gavin’s opinion on the other characters and the action unfolding, but could also ask him questions and help him plan his entrance into the live space. The secret camera

also had its own chat channel to give audiences separate and different experiences. In short, the more content and interaction we placed in other views, the more audience divergence took place - which then created opportunities for online audience members to feel they were getting a privileged and/or unusual view into the live space.

Onboarding

Onboarding - the business of luring people into the online storyworld, securing a registration and ensuring their arrival in time for a live show - proved vitally important. So, too, did the addition of guide characters in the online space. The advance emails were a good way to root audiences into the narrative and some aspects of the technology. However, we found that the time we allocated to get the online audience acquainted with the platform and its options wasn't quite enough.

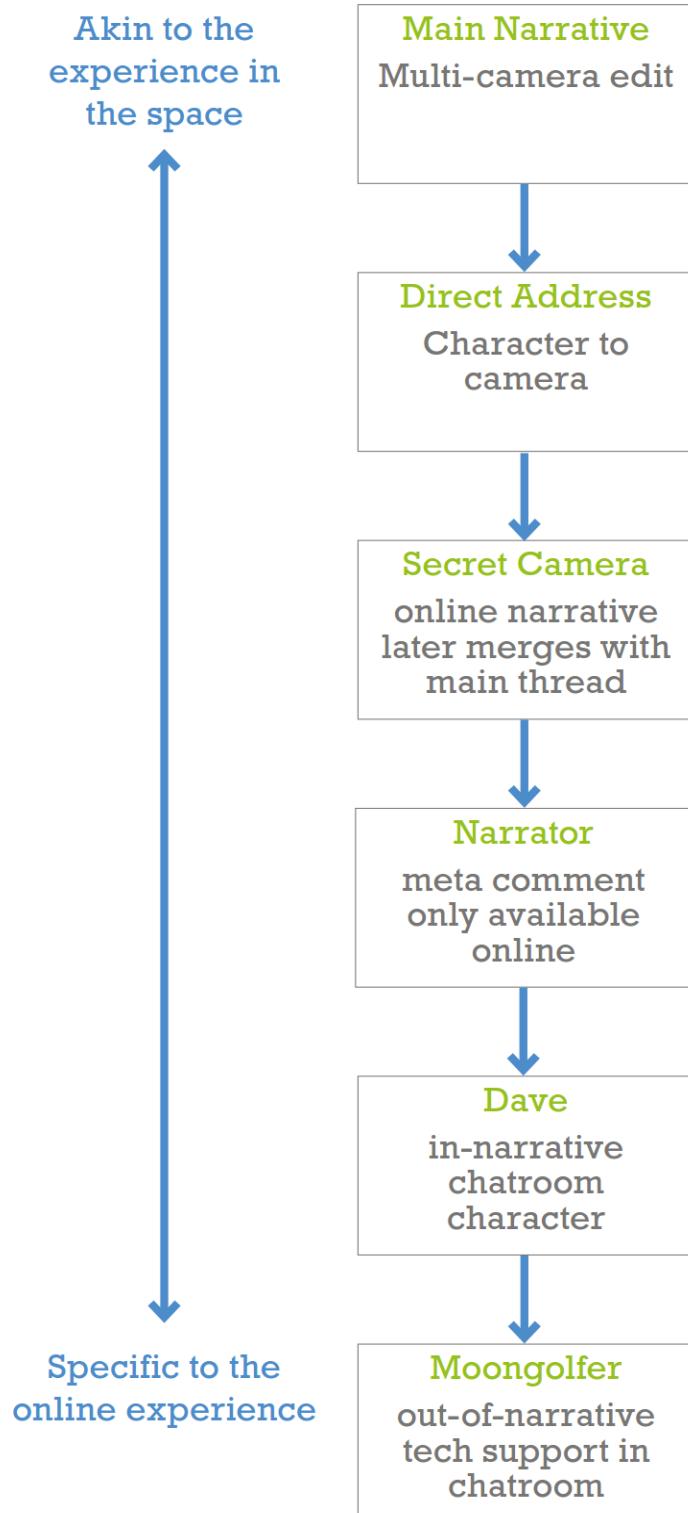
Due to the R&D nature of the project, there was quite a lot of technical and operational information to divulge. Online users who turned up at the last minute did not have enough time to get acquainted with the ShowCaster platform and understand some basic details of the storyworld.

We developed six separate strategies to explore how an audience could best be supported.

- 1 In the run up to the show, the audience was emailed by Shipra, one of the lead characters of the show, giving insight into the back-story, as well as links and advice about how to prepare for the show.
- 2 We created the character of Dave, an online persona who could offer support via the chat room. He could point out narrative developments, guide discussions and explain the technical possibilities of the platform.
- 3 The online experience started 15 minutes before the live audience arrived. During this time, the online audience could log in and explore the platform.
- 4 After holding open rehearsals, we added a new character: Austin Milne, a scientist who commented on the story as it unfolded.

This character was similar to the “director’s comment track” found on DVDs. Austin could help audiences remain engaged with the story.

- 5 In the final performances, we added an additional out-of-narrative support in the form of Moongolfer, who specifically helped audiences deal with the technical difficulties of a fragile platform that was still in development.
- 6 When the live show started, the first thing that would happen was a direct address from a character, Tommy, to the online audience, which explained the set-up of the story. Throughout the 45 min performance, Tommy had four such direct addresses that formed the backbone of the dramatic storyline for the online audience.



Over the three weeks of rehearsals & performances, we developed a sliding scale of in and out of narrative devices, which offered quite separate & divergent views into the show for both audiences

Source: Better Than Life

Magic and Trickery

The differing points of view led naturally to a question of what is true and what is untrue. We played with the concept of unreliable narrators and used stage magic to see how the different audiences reacted to true, false or ambivalent narrative points. We worked with magic consultant Jon Armstrong to create a few tricks and illusions that spanned the live space and the online space.

Character Interactions

The audience experienced direct addresses by the characters within the main narrative structure and were sometimes asked for their input. The secret camera stream allowed for a more direct and intimate interaction with characters. They took place away from the main action and allowed for sustained dialogue between a character and a smaller subset of the audience that chose to break away from the main narrative. We discovered a great deal of enthusiasm amongst the audience for this type of interaction.

One participant verbalised the magic of the show lay partly in that it didn't just "break the 4th wall, it opened a 5th window".

Profiling & Grouping

We experimented with sorting the online audience and the live audience into colour-coded groups, based on some pseudo-scientific questionnaires and activities. It was interesting to note that a lot of the audience wanted to quickly identify themselves with a particular audience 'colour' - an example of how powerful the drive was towards social interaction and establishment of relationships between audience members and groups.

The Potential Power Of The 'Ouija Board'

We were looking for a way to research aggregate interaction and/or group agency.

One approach was to aggregate interaction in the manner of the famous *Loren Carpenter Mass Pong Experiment* at SIGGRAPH in 1991 (further experiments into Mass Continuous Controller interaction are ongoing, known as Swarm Gaming, Human Murmurations, etc.) This takes input from many users and produces a single value, perhaps the height of a

Pong “Paddle” or, in this case, a single DMX value, namely the brightness of the “Breathing Lights”. Taking this a step further, we asked if we could mass-control a moving light. This wouldn’t work unless we simulated a light for each user and that’s how the ‘Ouija Board’ was created, as a way for the online audience to manipulate spots of light on the live space by moving their mice over the video stream window.

The initial idea for implementation was to mark the words YES and NO in big letters on the floor and give the online participants an overhead view. In response to questions from live actors and participants, the online users could move their mouse over the response they wanted and their little light would move visibly in the live space. This would create a collective “Tinkerbell Effect”, where signs, objects or people favoured by the online group would become illuminated. In this way, the online participants would be collectively represented in the live space as an entity that could be questioned. We see great creative potential in this device.

Through this mechanism, an online audience can expose a traitor, vote in a new leader or influence the progression of a particular emerging storyline.

Technical Outcomes

The major challenge in developing the online platform was the real time nature of the interaction. Web technologies were originally designed for relatively slow interactions: a user would download a page, read it and then possibly request another page several minutes later. This is still the model for most web platforms, but it is not suitable for very real time interactions of the kind we have been developing, as a participant moves their mouse on a web page and it instantaneously moves a point of light in a remote space.

This new form of interaction has a number of challenges, which made development difficult. The online platform was developed using a fairly traditional web server platform called Django, with a MySQL database. Interactions were implemented using standard http requests.

This means that sending or receiving mouse positions or other data was equivalent to loading a very small web page containing data. This

worked at small volumes, but the considerable computational overhead involved in the web request if large numbers of people were using it, would significantly slow the system down.

With careful tuning of the software, we were able to get the platform running reliably, but it was at the limit of what is possible to achieve with the kind of web software used in the project. A more robust platform would require the use of real time web technologies, which have only just emerged in the last year or two, such as Websockets and Node.js.

Latency

Another technical challenge was latency in video streaming. The lighting control interface aimed to create a tight interaction loop in which online participants move their mouse, which results in a light moving in the physical space and the participant sees this move in their video stream. Ideally, this would be instantaneous, so that the light would appear to move directly under the mouse in the video stream. However, this was not possible. The mouse movement data is small and so can be transmitted very quickly. However, video data is large and at the limit of what can be transmitted in real time using the current Internet.

Transmitting smooth video requires sophisticated data compression and large buffering. Both of these are relatively slow processes and can introduce a significant delay, or latency between when events happen in the live space and when online participants see them in the video feed. On our platform, this latency was several seconds, which is typical of current video streaming.

Video streaming technology is constantly developing and low latency streaming is likely to be possible in the next few years.

Audio

Audio was also a challenge. We suspended microphones from the ceiling and gave wireless microphones to the actors, sending a carefully mixed signal to the editing suite and hence to the live edit stream, but even so, many online users commented on poor audio quality. This was down to three factors: devices, bandwidth and compression.

Lighting

The levels of lighting required for a broadcast such as *Better Than Life* are very different from those used in conventional theatre, especially one where a ‘Pepper’s Ghost’ magical disappearance is in operation. The ideal lighting requirement in the physical space can conflict with the one needed by the online users. Where the show itself demanded sometimes dark and moody lighting, online users wanted bright and clear images. The team played with the use of gauzes and gels on camera lenses and lights. It became clear that, in order to overcome this, there was a need to experiment with an aesthetic that was not theatre and not broadcast, but had its own specific look and feel. Very specific high-end equipment and a lighting team with experience of both online and live performance will be needed to deliver high quality experiences like this in the future.

Bandwidth

Once everything was covered in cabling, it became apparent that we were facing some serious challenges when it came to bandwidth at either end. Since we were up against the World Cup and Wimbledon, there was a great deal of pressure on ShowCaster’s and Goldsmiths’ provision and even more on the consumer’s connections across the UK and worldwide. This meant that servers and streams were capricious at best and downright surly at match times.

Working out who the competition is online for both audience attention and bandwidth is an important piece of homework for organisations looking to work in this space.

Data Analysis

Behaviour logs

Many aspects of participants’ behaviour online were directly recorded. These included the choices and interactions made (for example, the selection of a particular video stream). [Table 10 in Appendix 3](#)

All online chats’ text has been analysed qualitatively with thematic analysis and grounded theory. Participants’ choices about interaction (e.g. controlling the lights, decision to join chat, selection of different video streams) have been analysed mostly in a quantitative way, using

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statistical analysis on counts of users behaviour. This data has also been manually cross-referenced to specific participants' responses in questionnaires.

Questionnaires

Participants filled out questionnaires at various points during the experience. When they first registered, they were given a questionnaire about their background and reasons for attending the show.

After each phase of the show, the online audience filled out a short questionnaire about their responses. They also filled out a longer questionnaire about their experience at the end of the show.

The physical space audience were also given similar questionnaires at the beginning and at the end of the experience. This data has mostly been analysed statistically.

Interviews

Participants were also interviewed. At the end of each show, a group interview of all online participants was conducted in the chat stream.

Following this interview, the online audience had an opportunity to chat with members of the physical space audience. In these chats, both sets of audience members asked each other a number of questions.

A small number of online participants took part whilst being in the same building as the physical show. These participants were given a more in depth interview, as were a number of audience members in the physical space.

Finally, a number of online participants were given an in depth interview some weeks after the end of the show, to gauge their long term responses. This data has been analysed qualitatively with thematic analysis and grounded theory.

Audience Profile

A total of 67 people attended the live show, paying £3.99 per ticket. Out of 206 registered users, 173 took part in the show online for free. Of these 173 online participants, data was collected on-the-fly and they could opt to skip the surveys rather than fall behind on the action, so the

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level of completion varied widely from one user to the next. We gathered detailed demographic information for 46 of the total online participants.

A breakdown of age, gender, ethnicity, level of education and income can be found in [Appendix 3 \(Audience Profile\)](#).

The audience was asked a range of questions in order to identify how familiar they were with traditional theatre formats, and how fluent they were with new forms of online entertainment.

Most respondents regularly attended live arts events (Table 2) and 40% had watched a live streaming performance (Table 3). Those who attended in person (PP) were more likely to be very frequent attendees, some going to shows more than twice a week.

Online users spent more time on Social Media (Table 4) than on gaming (Table 5), with only 20% paying to play online (Table 6). Physical participants were considerably less likely to play video games, but 90% of both groups had bought tickets to shows and performances online (Table 7).

Online Consumption

All but three of the online participants had purchased tickets to performances online, however we did not ask participants why this was the case.

Participation in live arts events was not significantly affected by income, age or education, and a surprising number of them have watched live streams from theatres, opera and museums from across demographics.

Types of Online Interaction

This section aims to give an overview of the audience's response to the three modes of interaction: chatting, switching and controlling.

1. Chat Rooms

The chat room was well implemented and widely used; between 73% and 100% of all users chatted across the three shows. There was a large amount of chat activity, with a total of 3,726 chat messages being exchanged across the 8 shows.

This is a form of agency unavailable to traditional theatre or television audiences, mostly used to talking to family and friends in one's living room while watching television or talking about a theatre show at the bar during an interval or after the show. After the end of each performance, online participants were able to post chat messages to a screen visible to live participants, who took it in turns to answer questions on camera. These sessions were very lively and sparked some of the most interesting interactions, where both groups of participants helped each other to piece together a wider picture of the show.

Chat Room Data

	Post-Show Chat Messages	Total Chat Messages	% Of Chat t Messages Exchanged After The Show
Show 1	145	267	54.31%
Show 2	226	554	40.79%
Show 3*	277	643	43.08%
Show 4*	0	136	0.00%
Show 5	19	188	10.11%
Show 6	160	639	25.04%
Show 7	234	644	36.34%

*

	Post-Show Chat Messages	Total Chat Messages	% Of Chat Messages Exchanged After The Show
Show 8	158	655	24.12%
	1219	3726	32.72%

* Technical difficulties with the online platform during these performances made chatting difficult and, at times, impossible

Overall, nearly a third of all chat exchanges took place after performances had ended. We conclude that these kinds of interactive offline/online experiences encourage discussion and debate.

2. Switching

Initially, we had four fixed cameras giving a wide and an overhead shot of each of the two performance spaces, two roaming cameras which followed the action closely, and a single secret roaming camera where actors spoke directly to the online audience. The fixed cameras and roaming cameras all fed to a live edit, which could be viewed like a normal television programme.

We quickly found that, after exploring the space for a while by flicking through the cameras, most of the online participants settled down to watch the live edit.

The secret camera was accessed by clicking on the logo at the top of the screen, and, whenever there was some action on the secret cam, this was signalled by the fictional moderator, Big Dave, posting an "O_o" in the chat window.

Many users (up to 63%) were never able to find the secret camera and expressed frustration, but this led to a useful tension, where some of the online users felt that others had access to greater content and insight. Users frequently tried to help each other find the secret camera and told each other what had happened there.

After the first week, it was decided that more content had to be introduced on different streams, if the online participants were to use them. Users generally looked for an immediate content reward for switching. If nothing was happening in a particular screen when first visited, it was unlikely to be switched to again.

The additional content was plentiful and a commentator figure was introduced, an actor playing an anthropologist who spoke directly and exclusively to the online audience via the Commentator Cam, which was a separate stream. This actor also took part in the online chat room, responding to questions and occasionally posting comments in real time. Additional secret cam scenes were also introduced, where the 3 original live actors shared information that they withheld from each other and the live participants.

Overall, camera switching activity was driven in large part by the narrative with most participants moving to the live edit for important moments in the narrative, while lulls resulted in increased switching to alternative content, including searching for the secret camera. The audience was also drawn to the alternative camera streams, particularly the secret camera, when they showed important events. The latter activity was largely driven by the chat room stream as one or two participants discovered some interesting activity and signalled it to the rest. Appendix 2, table 10 gives a detailed example of the sort of camera switching activity for one particular show.

3. Controlling

The “breathing lights” effect was implemented and was moderately successful; some users were convinced that the “breathing lights” were responding to their mouse movements. One set of online participants even organised themselves through the chat room (circumventing the latency of the video feed) and observed the lights fading when they all moved their mice upwards.

The “Ouija Board” mechanic was less successful. People couldn’t understand what was required and the poor latency on the network meant it took too long for the live space to respond to their mouse movements.

Despite these setbacks, audiences responded very positively to the idea of being able to manipulate lights and affect events in the live space.

Questionnaire Responses: Agency

The first two levels of Agency, Chatting and Switching, were used very well and the level of perceived agency results gave us some very interesting data. We asked the following questions of the Online Participants after each Act, responses being on a Likert scale from 1 (strongly disagree) to 5 (strongly agree):

- I felt that my own decisions changed the show
- I felt that the decisions and suggestions of the online audience changed the show

We asked the following questions of the Physical Participants at the end of the show, which gave us a baseline response for comparison to the online experience, responses on a Likert scale from 1(strongly disagree) to 7 (strongly agree).

- I felt that my decisions changed the show
- I felt that our group decisions changed the show

Statistical analysis was carried out comparing the online experience with the live one as the show progressed. Variation from the median value was used to compare the responses from the two groups.

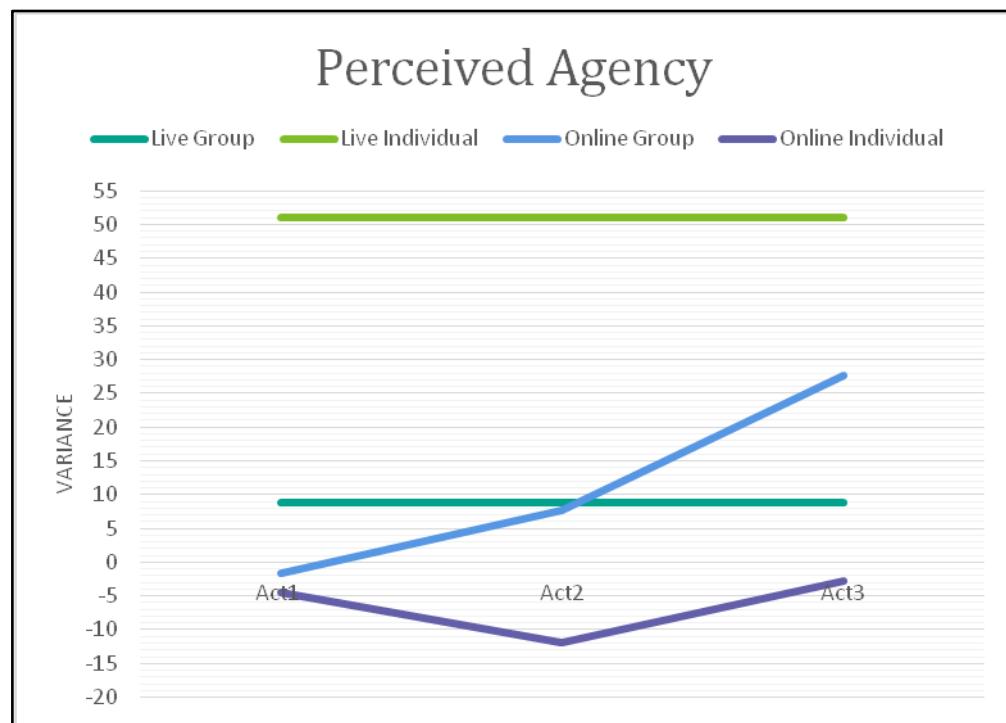
Perceived Sense Of Agency 1- Physical Participants

	All Live Shows	
	59 Responses	
	Group Agency	Individual Agency
	Range 1-7	Range 1-7

Average	3.81	5.29
	var +8.9%	var +51.1%

Perceived Sense Of Agency 2- Online Participants

All Online Shows					
69 Responses		85 Responses		75 Responses	
Act1		Act2		Act3	
Group	Individual	Group	Individual	Group	Individual
Range 1-5					
2.46	2.39	2.69	2.2	3.19	2.43
var -1.6%	var -4.4%	var +7.6%	var -12%	var +27.6%	var -2.8%



Perceived Agency

Over the course of the show, we saw a small increase of 7.2% in the sense of individual agency experienced by the online users and a very significant increase of 29.2% in the sense of collective agency, which was in fact much stronger than the one experienced by the live participants.

Our conclusion would be that the tools offered to online users of chatting, switching and control were working over time - increasing the online audience's sense of agency.

Questionnaire Responses: Social Presence

The first two threads of the initial agency research became more focused on presence, and on social presence as distinct from tele-presence.

We asked online users whether they:

- Felt a bond with the actors
- Felt a bond with the studio participants
- Felt a bond with the other people watching online

And asked the physical participants if they:

- Felt aware of the online audience members
- Felt myself to be interacting with the actors

The latter questions, though different, form a rough baseline for the purposes of comparison. The real interest here is the comparison between responses to the online questions over time.

Presence responses

	Live Responses			Online Response s						
				Act 1			Act2			Act3
	60 Responses			70 Responses			85 Responses			75 Responses

	Live Responses			Online Responses							
Bond With	Actors	Online	Bond With	Actors	Live P	Online	Actors	Live P	Online	Actors	
Range 1-7			Range 1-5								
AVG	4.15	4.36		2.23	2.1	2.63	2.24	2.2	2.84	2.37	
VAR	18.60%	24.60%		-10.80%	-16%	5.20%	-10.40%	-12.00%	13.60%	-5.20%	

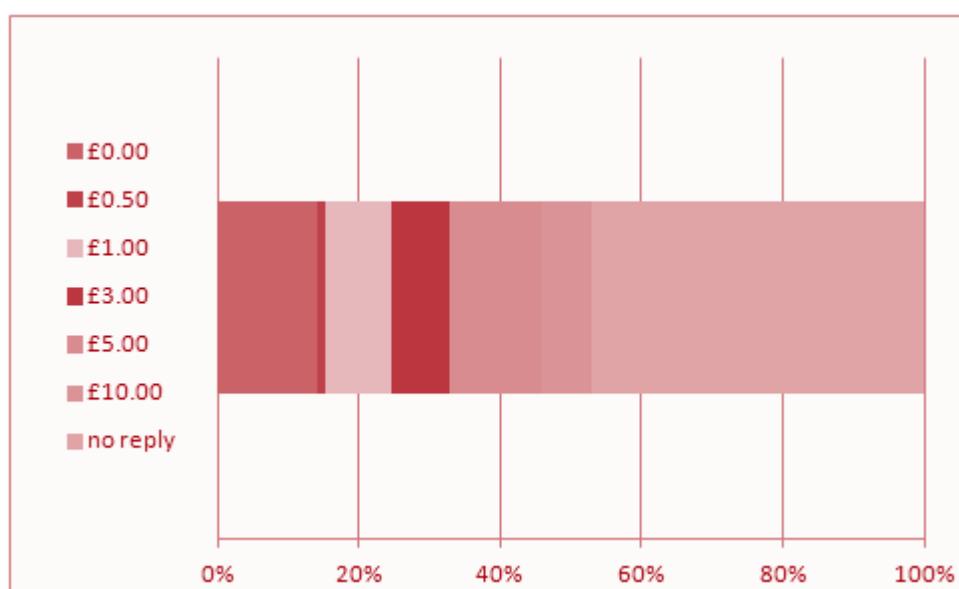
We see that online users had a poor perceived bond with actors and physical participants. However, their bond with other online users increased significantly over the course of the show to match the live participants' awareness of the online dimension. In the end, both audiences were interested in each other.

This confirms that the strongest part of the *Better Than Life* experience was within the collective agency and the online social presence, and both of these forces were increased by the interactions offered over the course of the show.

Willingness To Pay

A key research question of the project was whether a sense of agency for online audiences would translate into a financial spend or business model; this clearly depends on the types of audiences attracted to the performance (both in terms of willingness and in ability to pay).

What price would you say represents a reasonable amount to spend on a more polished version of this online experience?



A total of 32% of the audience would pay an average of £3.61 for a ‘more polished’ version of *Better Than Life*. Most people declined to suggest a price or expected the show to be free.

We were keen to explore whether there were possibilities of new revenue being generated aside from ticket income, for example from selling data about the audience, sponsorship, micro-payments and donations.

While digital consumption of theatre is increasing through streaming initiatives, these reflect passive viewing in different venues: NTLive, and the streaming of smaller scale performance arts through the Combined Arts Network show the demand for group viewing outside the theatre.

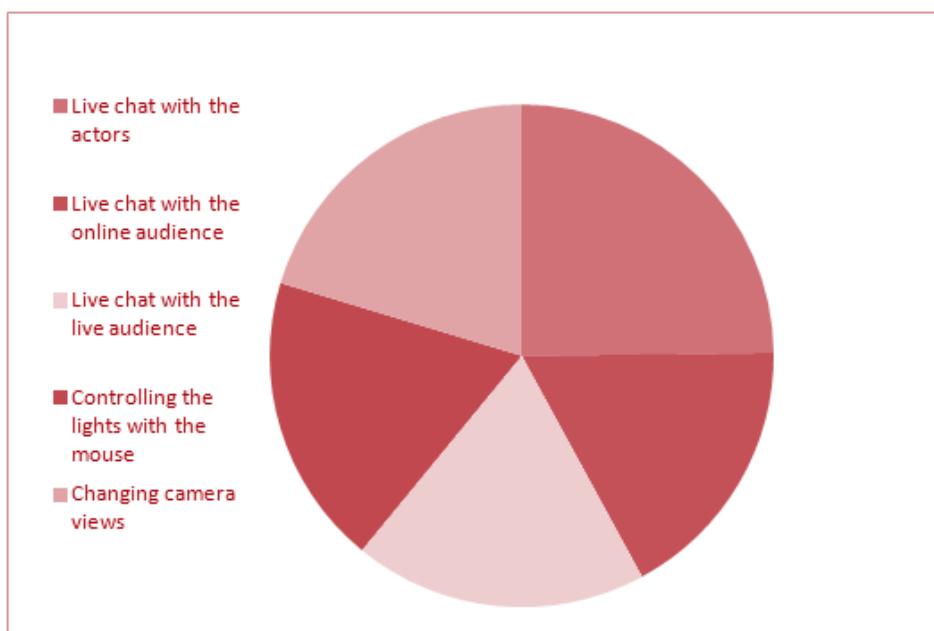
Digital Theatre has enabled people to view when and where they want, removing barriers of time and geography and taking it outside the traditional “theatre” or “receiving picture house”. These viewing experiences remain, however, inherently passive: productions are closed, they are contained systems that remain the same regardless of audience profile or participation.

Better Than Life’s focus was agency and audience engagement; this type of show represents a different art form, separate from the forms of current digital theatre. We can see it as an evolution of offline immersive and responsive theatre, where traditional dynamics between audience and actors break down.

An essential challenge and ultimate ambition of this evolving aesthetic and art form is to translate and scale the participatory foundations of immersive theatre to an online audience as large as those of traditional productions like NTLive and Digital Theatre (NTLive has been experienced by over 1.5 million people in 500 venues worldwide, 250 in the UK. Digital Theatre Plus has reached over 800,000 students, with

viewers of Digital Theatre increasing by 20% each month since 2009). Large viewer numbers allow these enterprises to reclaim their initial investment in the technology and ongoing costs of filming and distribution. Therefore, from a theatre perspective, the next research frontier should be the monetisation of the show's tech-laden user engagement.

Which of these features would make you more likely to pay for the online experience?



25% of the online audience was most likely to pay for direct communication with the actors. This was the most highly valued type of 'agency'.

Many games-based platforms have already succeeded in this field, creating user experiences that range from aggregate social agency (like

Twitch Plays Pokemon) to parallel solo-social narratives (seen in this 2015's Defence of the Ancients 2 [DOTA2] tournament called The International) that have generated record-breaking audience numbers (75,000 concurrent viewers and 800,000 registered users, respectively) and revenues (DOTA2 generated tens of millions of dollars from pre-tournament signup fees and in-game credit purchases within a few months).

While the art form of these games and *Better Than Life* differ in many respects, they do share narrative structures, desired dynamics and experiences, and they both aspire to monetise participation.

We therefore believe that there is great potential for theatre to adopt and adjust monetisation and engagement strategies, technologies, and audiences from the gaming world. Crossing this conceptual threshold could hold the key to a future of self-funded, sustainable, immersive digital theatre productions like *Better Than Life*.

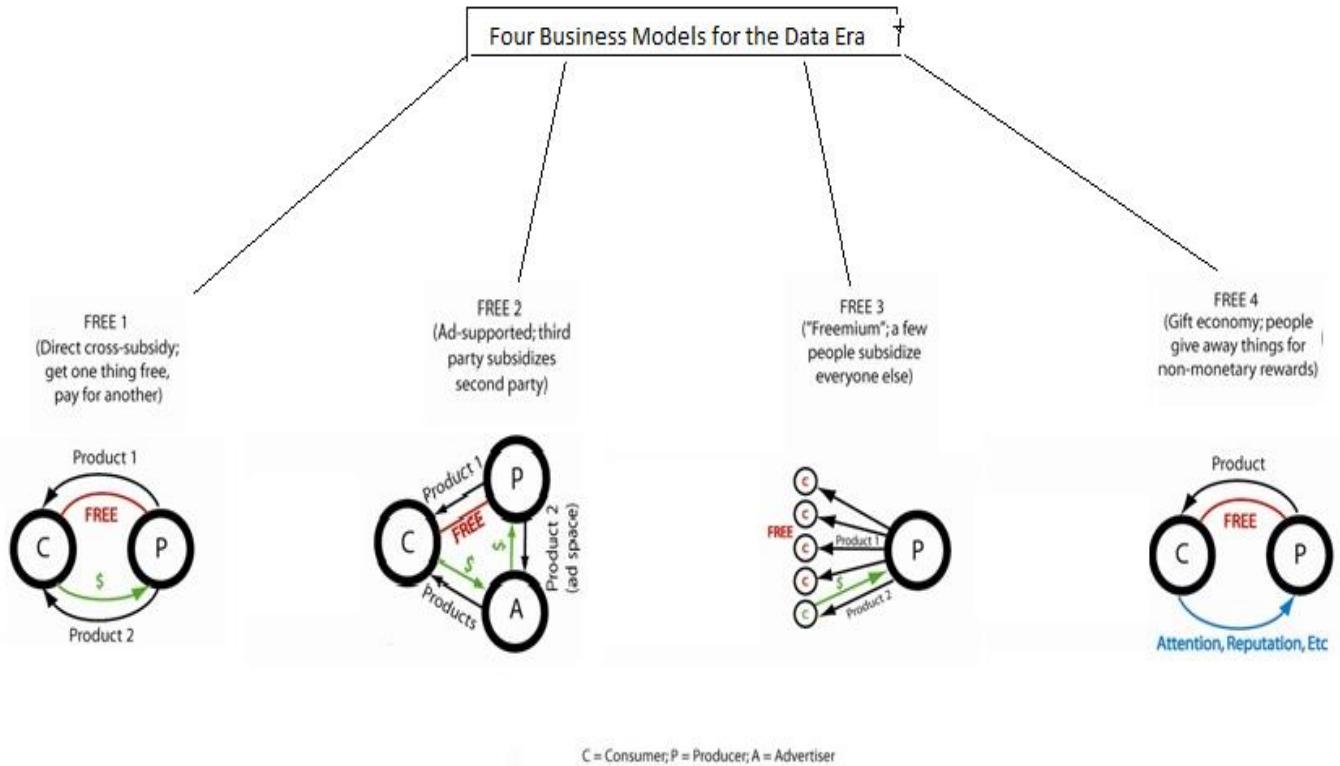
New Business Models

Four potential business models were reviewed for *Better Than Life*: Direct Cross-Subsidies, Three-party Markets, Freemium and Non-Monetary Markets (Free Anderson, C 2009).

The initial findings are a hybrid of a Freemium and Third-Party Market model which could provide the most stable future for digital immersive theatre. The product could be offered free of charge to audiences, while sponsors and advertisers could pay for opportunities to sell and to communicate with the audience members.

Moreover, sponsors and advertisers might want to purchase insight into the user behaviour of potential customers in the audience, thereby “selling” audiences to advertisers in a three-way relationship.

Four Business Models For The Data Era



Businesses most likely to engage with this sort of three-party market model are the ones engaged with digital innovation or those who recognise their customers are consumers, or highly active in community engagement. Additionally, a Freemium model could create opportunities for audiences to purchase access to additional features that deepen their agency.

With regards to potential payments, an interesting divide in attitudes begins to emerge and may be worth further investigation. It appears that audiences who already go to the theatre, prefer to see payments as “donations”, whereas gaming audiences and, potentially, those new to theatre might be more likely to see payments as “micro-credit” (buying

access to new features). Ensuring that the language suits both the narrative and the audience will be essential for any potential payment system.

Attitudes appear to be less rooted in the debate whether people will or will not pay for online content (plenty of evidence shows that they will) but more on what they will pay for.

Somewhat unsurprisingly, narrative remains key, and the inclusion of micro-credits (donations) during the performance would need as much dramaturgical input as business research in order to ensure that it would heighten the experience, rather than break the feeling of engagement and agency.

Additionally, a minority of audience members stated that they would not be willing to pay more for something that they had been told was free, so any future payment model would need to be clearly explained to ensure that audiences did not feel “tricked” or manipulated in to paying for what had been advertised as being without charge.

Potential for revenue could also be gained if audience members could exchange registration with advertisers/sponsors for additional credit or agency in the show. This, again, may alter the audiences’ relationship with the show and further investigation into this would be worthwhile. It is likely that some corporate organisations would not be suitable to approach for a relationship like this, as it would weaken the audience member’s relationship with the show. Some suggestions are included in the Business Model Canvas.

Speculative Business Model Canvas

<p>Partners</p> <ul style="list-style-type: none"> For future productions: <ul style="list-style-type: none"> Audience engagement agencies (eg MHM) Funding bodies interested in extending artforms and audiences For consultancy: <ul style="list-style-type: none"> Content Providers/Media Production companies Brand development agencies (M & C Saatchi) wanting to develop skills and understanding of new ways to develop connections with audiences/clients/ customers Performing Arts Companies and venues (including the CAV Network) 	<p>Key Resources</p> <ul style="list-style-type: none"> Annette's list of Coney's inputs from flipchart/via AM Technical knowledge and experience of streaming live events and engaging audiences Understanding of how to develop audience members' agency Knowledge of emergent revenue streams in digital transactions/enterprise <p>Key Activities</p> <ul style="list-style-type: none"> Strong narrative developed with two different paces and sets of information/support for audiences Marketing to the digital gaming and wikimaniacs/those engaged in digital sharing and creative content 	<p>Costs</p> <ul style="list-style-type: none"> Development Time Marketing Strategy & implementation Creative Staff Theatre Staff and resources Digital & AV Computer & interface equipment HD broadcasting Live Streaming Social chat functions Project management Analytics 	<p>Value Proposition</p> <ul style="list-style-type: none"> Coney>ShowCaster/ Goldsmiths Seeking new ways to understand agency, engagement and intimacy in on and offline audiences Ways of increasing reach; Developing an understanding of how to create sustainable and new income streams for theatre of this type Develop new forms of narrative and communication tools to engage audiences and develop stories <p>Key Activities</p> <ul style="list-style-type: none"> Strong narrative developed with two different paces and sets of information/support for audiences Marketing to the digital gaming and wikimaniacs/those engaged in digital sharing and creative content 	<p>Customer Relationships</p> <ul style="list-style-type: none"> Future Productions: <ul style="list-style-type: none"> Existing interactive theatre audiences "Digital-Media Junkies" (McKinsey 2010) Gamers Prosumers <p>Additionally public/private funders of the arts interested in engaging new audiences.</p> <p>Channels</p> <ul style="list-style-type: none"> Future Productions: <ul style="list-style-type: none"> Existing mailing lists Use of tech/community forums such as Wikimania 2015; Games Festivals Digital communications channels (Facebook Consultancy) Speaking at events such as Oxford Media Convention 	<p>Customer Segments</p> <ul style="list-style-type: none"> Future productions: <ul style="list-style-type: none"> Existing interactive theatre audiences "Digital-Media Junkies" (McKinsey 2010) Gamers Prosumers <p>Additionally public/private funders of the arts interested in engaging new audiences.</p> <p>For Consultancy:</p> <ul style="list-style-type: none"> Branding Agencies Content Providers/ Media agencies Social Innovation agencies wishing to increase agency of community members <p>Revenue</p> <ul style="list-style-type: none"> Direct Income <ul style="list-style-type: none"> Ticket income (offline/in the space audiences) Commercial sponsors: corporates interested in community engagement or association with 'digital' (eg Phillips Research, Photobox and Overthrow Digital, Scottish Friendly Assurance, Samsung) Micropayments/donations from online audiences (Pre-run & pre-show) Indirect Income <ul style="list-style-type: none"> Consultancy/Earned income from specialist knowledge/insight: <ul style="list-style-type: none"> Audience engagement/agency Pacing narratives for on and offline viewing Building communities (on and offline and integrated)

For more information on the canvas please visit its creators website: www.businessmodelgeneration.com

Business Model Canvas

Source: www.businessmodelgeneration.com

Overall, the set up and distribution costs for *Better Than Life* were high, and in any business modelling exercise we would look at whether the costs could be lowered, whether the price should be increased or whether more tickets should be sold. Future explorations should attempt to balance the cost per performance with potential income generation.

Set Up And Distribution Costs For Better Than Life

Average price that 32% of the audience would pay	Estimated production budget	Total number of micropayments required to cover production budget	Total number of registered users to cover production budget
£3.61	£120,000	33,241	103,878

Based on the price of what an audience might pay for the *Better Than Life* experience, a production with a budget of £120,000 would need to attract over 100,000 online subscribers in order to be funded from user payments alone.

As online business models continue to evolve, the gaming community is pushing forward with new business and community models whose viewers and participants happily purchase heightened agency for themselves and others. Theatre groups should continue to follow this community approach to collaborative, real-time funding as it answers many of Coney's *Better Than Life* questions about audience engagement, experience and agency.

Insights

During this project, the team learn on many levels: creative insights into the kinds of stories, content and structures that work within this medium; technological development and possible business models. We also ran into limitations; some are temporary and will be solved by fast evolving technologies, digital literacy and perceptions, whereas others will linger on for longer.

What emerged over the R&D process, however, was the narrative of a new medium, which is something that excited the team, its collaborators, the advisory team and the audiences alike. The insights detailed in this chapter appear to be like the first steps of a much longer development path.

Theatre as Social Experience

Evidence suggests that it was an increased sense of social presence and the attendants' opportunities to socialise and engage with each other that excited audiences about the production, above all. Data suggests that the online audience was able to form strong social bonds, at least with each other, and that they favoured elements of the show in which they were able to connect and communicate directly with the characters.

Analysis of audience interactions also suggests audience perception of the show was one of social co-creation, as much due to the many conversations between themselves as it was due to watching the streams or engagement with the show itself.

Narrative Pacing for Online Audiences

Generally, the online audience needs a different, more 'baggy' timeframe than the live audience. The online audience needs to have space for online communication, orientation and collective reflection. Therefore, they need more time than the live audience and need to leave the live sequential timeline for their collective experiences.

Getting access to too much functionality and information in one go can be confusing. However, the online narrative can be built up over time

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allowing for storylines to be picked up and understood as they develop, rather than frontloading the experience. It can begin much earlier and end later, making use of serialised email interaction, social media, forums, video and sound files that can be engaged with well in advance of the live performance, and well after. The narrative timeline for the two audiences can be running parallel to each other, but it has to be asynchronous in its build-up, pacing and ending.

Mental Maps & 'Divergence'

The online audience enters a 'story world' rather than 'story line' - a storyworld they can explore and discover, where multiple storylines are intertwined and one can choose which one to follow. Online audiences need support building a mental map of the storyworld and the potential interaction paths.

The audience needs to be presented with a context to support them in order to step away from the main narrative path. We identified two possible models for managing 'divergence' from the main narrative path:

- 1 Character-based divergence: each camera feed is associated with a character. At any point in the story, one can switch to see what other characters are doing at that precise moment.
- 2 Space based divergence: each camera is associated with a space. At any point in the story, one can switch to see what is happening in another location.

It should be noted that increased divergence created differences in knowledge and experience amongst the audience, and this should be signalled by the narrative. As we added more divergence without adding signals to the narrative, we saw the rise of the so-called 'FOMO', a 'fear of missing out'. The narrative framing of a show in this medium needs to clearly signal that it is impossible to 'catch it all'.

Current Limitations in Technology

Current technology is not ready for tight, real-time interaction online, as there is an inevitable time lag between what happens in the online space and what online users can see and do.

Within the project, we developed a “dramaturgy of the lag”. Current technology works well in creating a conversational form of interaction where participants take turns to post information and reply to each other, whether in chat room messages between online audiences or interaction with the actors via video and chat. Any actions and interactions have a delayed response, whether that is in human dialogue or due to longer term cause and effect set ups.

During conversations, it is not unusual to find a pause between someone saying something and someone replying, but our expectations for physical responses are more demanding: when we throw a stone, it responds instantly. Therefore, it requires instant response in order to create the illusion of a physical interaction. This will not be an issue in the near future, and there will be potential for many additional strong narratives.

Industry Business Models

Many audience members expressed reservations about paying for the experience and different audience segments used distinct vocabulary to describe the hypothetical payments: theatre goers described “donations” while gamers referred to “micro-payments”.

A hybrid Third-Party Market/Freemium business model, as developed most successfully in the games sector, could be well suited to this type of performance, although care must be taken not to alienate audiences who are not used to forms of in-play micropayment or advertising-related material inserted into the storyworld. The other caveat is that creating this sort of experience is expensive and therefore having to pay for itself may be difficult, unless a sufficiently large online audience can be reached. Our calculation is that a production like *Better Than Life* would need to attract over 100,000 registered users across a run of performances, in order to cover the cost of production from audience payments alone. This is a very low number in television terms and therefore quite achievable with the help of a broadcast sector partner.

A New Multidisciplinary Hybrid Form: Is It Theatre?

The greatest success of the R&D process is that it genuinely worked on the edge of the knowledge overlaps of the three partners. It explored

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what is possible, proving that models like this can open up experiences that span beyond the geographic boundaries of a live performance. In debrief interviews at the end of the R&D process, the narrative of a new medium emerged.

The material in the R&D wasn't normal theatre, it wasn't quite broadcast and it wasn't a game. It was a cultural experience that built on the live-storytelling and visceral nature of theatre, but combined it with the social interaction of MMO and the delivery infrastructure of online broadcast.

Deep Analysis

One of the key insights that analysis of the user data brought is the role of three important narrative elements: divergent trajectories, information asymmetry and metalepsis. The ability to switch to different cameras results in different online participants having different trajectories through the experience, each seeing different versions of the show. This, in turn, results in an asymmetry in information between participants, with some participants knowing information that is unavailable to others.

Asymmetry or division of information is a primary driver of both drama and game playing. In *Better Than Life*, the carefully controlled information flow of a traditional narrative is transformed into an emergent network of knowledge distributed unevenly across the participants, with no one having access to all aspects of the performance, not even the writer and the director. There must be a certain abandonment of control, and this leads to metalepsis, the breaking of narrative boundaries. When a character or player asks for and receives help or advice from a live broadcast audience, the “fourth wall” is not just broken, it becomes a gateway to infinite paths and exchanges. *Better Than Life* offers more than a hybrid; it is a first step into weird and unknown territory.

Future Projects

In the immediate, we are looking to set up a consultancy based on our combined learnings.

In the short term, we are seeking collaborators for new applications for the technologies and platform that we have developed, particularly in the area of large-scale interaction with musical events.

In the medium term, a company is in the offing to create live adventure role-playing games for children and teenagers, set in heritage properties that are too remote or delicate to generate or sustain large tourist revenues. Based on the history and legends of the property, the games will feature a small roster of live participants who appeal to the “spirit world”, comprised of a large number of online viewers able to help or hinder players who impress them or otherwise.

In the long term, the advent of commonly available live video streaming from mobile devices has yet to disrupt traditional broadcasting or pre-recorded video-on-demand services, but it surely will. We are witnessing a transformation of the Internet into a live, mobile environment, and the impact on live performance is impossible to underestimate.

Further Resources

Further Project Information

You can read more about the *Better Than Life* project on the following websites:

<http://coneyhq.org/2013/10/30/better-than-life/>

<http://www.betterthanlife.org.uk/>

<http://www.gold.ac.uk/computing/>

<http://ShowCaster.com/>

Further Reading

Benford, Steve & Giannachi, Gabriella (2011), Performing Mixed Reality. MIT Press: Cambridge, Mass.

Boyd, Frank (2015) Immersive Media: To the Holodeck and Beyond, Knowledge Transfer Network blog post 06/06/2015

Donghee, Yvette Wohn. Spending real money: purchasing patterns of virtual goods in an online social game.

Dreyfus, Hubert L., Stuart E. Dreyfus, and Tom Athanasiou. *Mind over machine: the power of human intuition and expertise in the era of the computer*. New York: Free Press, 1986..

Ranciere, Jacques (2009) *The Emancipated Spectator*. Verso: London

Yee, Nick, Jeremy N. Bailenson, Mark Urbanek, Francis Chang, and Dan Merget. "The Unbearable Likeness Of Being Digital: The Persistence Of Nonverbal Social Norms In Online Virtual Environments." *CyberPsychology & Behavior* 10.1 (2007): 115-121. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems 2014.

Other Examples

These are example organisations using similar technology:

<http://www.parliamentlive.tv/Main/Home.aspx>

<https://www.london.gov.uk/mayor-assembly/london-assembly/webcasts>

<http://www.niassembly.gov.uk/Assembly-Business/Live-Coverage/Video-Live-Stream-1/>

http://www.westsussex.gov.uk/your_council/meetings_and_decision-making/webcasts_of_meetings.aspx

Appendix 1: A Typical Timeline for Each Performance

-24:00	Emails from show characters alert registered online users and ticket holders about the performances
-00:60	Social media posts alert people that the show is starting in the next hour
- 00:30	The web platform starts streaming video that helps the online audience catch up on character profiles, backstory and familiarize themselves with the user interface. A moderator/ online character is available in the chat room to welcome and guide people
-00:05	Coney director addresses the online audience and explains the project
00:00	Physical audience greeted by Shipra, whilst Tommy addresses the online audience via a roaming camera
00:05	Physical audience enter Space A and engages in a set of profiling exercises
00:10	Physical audience continues to play whilst online audience watches and comments using camera switches and chat rooms to focus on particular audience members and/or activities
00:15	Physical audience move into Space B, are issued with coloured capes that supposedly denote certain powers/ personality traits, and engage in synchronised breathing and automatic writing. Online audience encourages to control lighting in order to regulate the mood of the space
00:20	Results of automatic writing/ drawing are revealed and the online audience is asked to suggest what the resulting image might be

- 00:25 Physical audience moves into darker Space C. Online audience offered the opportunity to find Secret Camera and gain direct access to Gavin before the physical audience has seen/ met him
- 00:30 Physical audience dancing and chanting to summon Gavin. Online audience can control lights to heighten the experience. Gavin now addresses online audience in other cameras and acting on suggestions in a secret chat room in terms of clothes, actions, dialogue to be delivered in the next scene
- 00:40 Gavin enters Space C and his final vision is revealed and explained. Online audience made present via chat room read out by Tommy holding a tablet. Conflict between Gavin and Shipra heightened ending with Gavin's sudden 'disappearance'
- 00:45 Online audience asked to choose a new leader for the movement by pointing dots of light onto chosen person or they choose to have no leader at all and disband the PVM
- 00:50 Show ends and physical audience offered a drink – they can go to a big screen and see the online interface with chat rooms. The online audience can have a video chat with the physical audience over a drink, discussing what has just taken place
- 00:70 Online feeds cut off. Bar closes.

Appendix 2: Key Roles & Responsibilities

Live Performance Team

- Theatre Directors, Performers, Writers
- Production Manager
- Set Design & Build
- Interaction Design & Build
- Lighting & Sound
- Consultant Magician
- Front of House

Video Streaming & Interactivity Team

- Hardware, Cabling, Networking & Connectivity Specialists
- Vision Director
- ShowCaster Management & Support
- Online Director/Application Manager
- Camera Operators
- Computer Operators

Online Show Team

- Digital Producer
- Application Server Design & Build
- Audience Tracking & Questionnaire System
- Website Design & Build
- Online Writer/Chat Moderator/Actors
- Online Ticketing & Audience Management
- Social Media & PR Editor

Key Resources - Checklist

- Internet Connectivity
- Props & Resources for Magic Tricks, Activities, Games, Puzzles, etc.
- Pre-Recorded Video Production
- Wireless Access
- Computer Hardware
- Cameras
- Cabling
- Converters, Switches, Hubs, etc.
- Software Licensing

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- Video Editing Desk
- Air Conditioning
- Lighting
- Microphones

Appendix 3: Further Tables

Table 1 Audience Profile

Age	Physical Participants (67)	Online Participants
Under 16	None	5 (10.5%)
16-21	2 (3%)	1 (2.1%)
22-24	6 (9%)	2 (4.2%)
25-34	25 (37.5%)	18 (37.8%)
35-44	19 (28.5%)	8 (16.8%)
45-54	6 (9%)	9 (18.9%)
55-64	3 (4.5%)	1 (2.1%)
65+	None	2 (4.2%)
Prefer not to Say	6 (9%)	None
Gender	PP	OP
Female	24 (36%)	20 (42%)
Male	36 (54%)	22 (46.2%)
Prefer not to say	7 (10%)	4 (8.4%)
Ethnicity	PP	OP
Black British	None	2 (4.2%)
Black Caribbean	None	1 (2.1%)
Chinese	2 (3%)	1 (2.1%)
White & Black African	1 (1.5%)	None
White & Black Caribbean	None	1 (2.1%)
White British	36 (54%)	30 (63%)

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Age	Physical Participants (67)		Online Participants
White Irish	2 (3%)		None
White Other	13 (19.5%)		9 (18.9%)
Other Asian background	None		1 (2.1%)
Other Mixed background	3 (4.5%)		1 (2.1%)
Other ethnic group	3 (4.5%)		None
Prefer not to say	7 (10.5%)		None
Education	PP		OP
No academic qualification	None		4 (8.4%)
GCSE	1 (1.5%)		1 (2.1%)
A-Level	7 (10.5%)		2 (4.2%)
Degree/Equivalent	46 (69%)		30 (63%)
Professional Quals	5 (7.5%)		6 (12.6%)
Prefer not to say	8 (12%)		3 (6.3%)
Income	PP		OP
Less than £10k	6 (9%)		11 (23.1%)
£10-20k	11 (16.5%)		3 (6.3%)
£20-30k	15 (22.5%)		8 (16.8%)
£30-40k	8 (12%)		6 (12.6%)
£40-50k	3 (4.5%)		5 (10.5%)
£50-60k	3 (4.5%)		3 (6.3%)
£60-80k	1 (1.5%)		None
£80k+	2 (3%)		None
Prefer not to say	18 (27%)		10 (21%)

Table 2 - Live Events Attendance

Q: How many live arts performances have you seen in the last 3 months?

Amount	PP (57 responses)	OP (42 responses)
None	1 (1.8%)	5 (11.9%)
One	2 (3.6%)	5 (11.9%)
2 to 5	17 (29.8%)	16 (38.1%)
5 to 10	15 (26.3%)	11 (26.2%)
10 or more	22 (38.6%)	5 (11.9%)

Table 3 - Live Broadcast

Q: Have you ever seen any of the Live Broadcasts of Theatre, Opera Ballet or Museum exhibitions?

	PP (55 responses)	OP (63 responses)
Yes	21 (38.2%)	26 (41.3%)
No	34 (61.8%)	37 (58.7%)

Table 4 - Social Media

Q: How many hours do you spend using social media in an average week?

(Online Participants Only)

Hours	Online Participants (42 responses)
None	1 (2.4%)
Less than 1	11 (26.2%)

Hours	Online Participants (42 responses)	
1 to 2	7	(16.7%)
2 to 5	8	(19%)
5 to 10	10	(23.8%)
10 to 20	4	(9.5%)
More than 20	1	(2.4%)

Table 5 - Paying For Online Games

Q: Do you pay to play games online? (Online participants only)

Online Participants (47)		
Yes	9	(19%)
No	38	(81%)

Table 6 - Video Games

Q. How many hours do you spend playing video games in a typical week?

Hours	PP (63 responses)	OP (41 responses)
None	37 (58.7%)	2 (4.9%)
Less than 1	2 (3.2%)	27 (65.9%)
1 to 2	6 (9.5%)	1 (2.4%)
2 to 5	9 (14.3%)	5 (12.2%)
5 to 10	3 (4.8%)	5 (12.2%)
10 to 20	3 (4.8%)	0
More than 20	3 (4.8%)	1 (2.4%)

Table 7 - Online Ticket Purchases

Q: Have you purchased tickets to sports, music or theatre events online before?

	PP (62 responses)	OP (30 responses)
Yes	61 (98.4%)	27 (90%)
No	1 (1.6%)	3 (10%)

Table 8 - Online Audience

		Registered Users	Chat Posts	Channel Changes
Show 1 12th June 6pm	26	139	206	Average viewing time (mins)
Show 2 12th June 8pm	18	405	255	45
Show 3, 13th June at 1pm	33	603	550	67
Show 4 19th June 6pm	10	64	160	56
Show 5 19th June 8pm	14	136	324	33
Show 6 26th June 6pm	44	519	1050	55
Show 7 26th June 8pm	41	467	1171	52
Show 8 27th June 1pm	59	427	1422	53
	245	2760	5138	53

	Registered Users	Chat Posts	Channel Changes
Submitted Online Questionnaires			
Show 4	11		
Show 5	17		
Show 6	44		
Show 7	41		
Show 8	54		
Total	167		

Table 9 - Live Audience

Show	Attendees	Pre-Show Questionnaire	Post-Show Questionnaire
Show 1 12th June 6pm	6 people		
Show 2 12th June 8pm	5 people		
Show 3, 13th June at 1pm	13 people	13	9
Show 4 19th June 6pm	8 people	8	7
Show 5 19th June 8pm	9 people	9	9
Show 6 26th June 6pm	8 people	8	8
Show 7 26th June 8pm	11 people	10	11
Show 8 27th June 1pm	8 people	8	8
Total	68	56	52

Table 10 - Camera Switches Over Time in Show 8

Time	Events	LE	CC	SC	AC	R1	R2
		LE= Live Edit	CC= Commentator Cam	SC=Secret Cam	AC= Audience Cam	R1= Roaming 1	R2= Roaming 2
13:41 - 13:45		1	1	3	3	2	2
13:36 - 13:40		3		4			
13:31 - 13:35		1		1			
13:26 - 13:30		1		1			
13:21 - 13:25		1	2	2	2	1	2
13:16 - 13:20		5	0	2	0	2	0
13:11 - 13:15		1	1	3	2	1	2
13:06 - 13:10		2	2	0	2	3	3
13:01 - 13:05		3	3	3	3	1	1
12:56 - 13:00	Bar Room Chat begins	10	Increased interest in and search for secret camera when main narrative had ceased	12	4	7	5

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Time	Events	LE	CC	SC	AC	R1	R2
12:51 - 12:55	End of Show	8	3	6	1	0	0
12:46 - 12:50	Ouija Board' with voting	14 Increased switching to Live Edit - provided main view of the final edit	4	3	3	2	2
12:41 - 12:45	Gavin disappearance	13	7	9	2	4	4
12:36 - 12:40		17	15	16	10	9	8
12:31 - 12:35		20	4	6	6	7	6
12:26 - 12:30	Summoning of Gavin with 'Ouija Board'	32	21 Early access and interaction with both Tommy & Gavin in secret camera & audience	18	18	9	14
12:21 - 12:25	Performance moves to Space C	18	12	4	8	8	5
12:16 - 12:20	Automatic Writing & Lighting Control	26	24	1	8	12	15

Time	Events	LE	CC	SC	AC	R1	R2
12:11 - 12:15	Performance moves to Space B	25	34 15 mins into the performance increased reversion back to Live Edit screen - tendency to try to follow main narrative rather than explore	5	11	21	14
12:06 - 12:10		31	20 Commentator is active in the chatroom, encouraging people to visit his cam	5	12	19	18
12:01 - 12:05	Performance starts in Space A	32	14 Online audience offered the opportunity to focus on different audience groups in different cameras - encouraged switching	5	13	26	25
11:51 - 11:55		8	13	2	12	16	13
11:46 - 11:50		17	20	5	14	18	14
11:41 - 11:45		8	5	0	2	9	7
11:35 - 11:40		3	1	0	4	4	3

Time	Events	LE	CC	SC	AC	R1	R2
11:28 - 11:35	Live Audience gathering outside	10	7	1	7	10	12

Glossary & Abbreviations

Agency – the feeling that you can change the things around you, whether in a pretend world or in real life.

Aggregate – combining many numbers together in a set

Divergent – splitting up and taking different paths, like foolhardy teenagers in horror films

Dramaturgy – the study of dramatic composition and the way drama is represented on the stage or screen.

DMX – a communications protocol used mainly to control stage lighting

Immersion – the feeling that you are inhabiting a fantasy world, like when you are reading a book and lose track of time.

Latency – a delay between cause and effect, like the delay between lightning and thunder

Live Streaming – sending video to the Internet in real time, just like a live television broadcast.

Metalepsis – when a character breaks narrative boundaries, e.g. when Mammy talks to the camera crew in *Mrs Brown's Boys*

Pepper's Ghost – an astounding magic trick from 1863 whereby people appear and disappear in front of your eyes. Uses a sheet of glass

Rationalism – the belief that logic and mathematics can explain everything

Server – a computer that distributes data to many other computers

Streaming – receiving video or audio from the Internet. This can be live or pre-recorded, like the iPlayer.



Citation: Mees, A., Wright, T., Donald, n., Gillies, M., Prime, S., (2015) 'Coney: Better than Life: Research and Development Report' London: Nesta

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