Cancer Alley

Impact Evaluation Report

Figure 1. Title still from the immersive hologram film poem, *Cancer Alley*. Credit: Jane Glennie.

Introduction

This report evaluates the impact of *Cancer Alley*, an immersive hologram poetry film created by poet and Professor of Creative Enterprise and the Spoken Word at Bath Spa University, Lucy English, US filmmakers Pamela Falkenberg and Jack Cochran of Outlier Moving Films, working in partnership with Simon Luscombe from the digital media effects company Holotronica. The film was screened to the public at the Watershed, Bristol, during the Lyra Bristol Poetry Festival this year (18-21 April 2024).

The film spotlights the socio-ecological crisis occurring in an area known as 'Cancer Alley', an 85-mile strip of land along the Mississippi River in Louisiana described as the heart of the Global petrochemical industry in the United States, home to over 200 petrochemical plants and refineries. *Cancer Alley* draws attention to the impact of extreme pollution on both the environment and the largely poor and Black communities living in the area and is thus a clear example of environmental injustice and racism. The film seeks to communicate the value and importance of the natural world while emphasising the need for multinational corporations to take responsibility for environmental injustice and ecological devastation.

The film uses a double (front and back) projection with a 'hologauze' screen. The film poem is projected onto a flat screen, while lines from the accompanying poem, in addition to visual effects such as smoke, light and rotating objects, are superimposed on a silver, translucent hologauze screen to give the viewer an impression of depth. The film, lasting around 9 minutes, was shown on loop in a darkened room in the Watershed throughout the duration of the festival.

This report evaluates the impact of *Cancer Alley* by paying particular attention to its use of immersive technology to emotionally and ethically engage the public in the issues raised. The focus of this investigation was to understand how members of the public responded to the film, as well as its impact on a small group of poets and filmmakers invited to the screening. It is vital to evaluate not only how the immersive experience shaped an audience's responses to the film's messages, but how poets and filmmakers themselves – including those involved in the creation of *Cancer Alley* – articulated and evaluated its impact. In doing so, the project aims to gather feedback from creative practitioners in poetry film, providing a space to exchange ideas to improve best practice when using immersive technology to engage audiences.

In recent years, there has been rapid evolution in immersive technology and expansion into healthcare, education, corporate training, heritage and museum spaces, and the arts and entertainment industries. Despite this, critical evaluation of the wider impacts of immersive experiences – positive and negative, intended and unintended – on audiences and stakeholders is often still lacking, or otherwise remains focussed on limited quantifiable measures such as visitor footfall or ordinal survey questions, which are unable to capture the detail and nuance required to evaluate the true impact of immersive experiences.

This report examines data collected before, during, and after the screening from multiple sources through in-depth qualitative analysis of questionnaires, interviews, focus group, and journals. The overall design of the evaluation plan was intended to be co-creative and inclusive by inviting poets and filmmakers – including those involved in the making of the film – to participate in the process of evaluating responses of the audience in addition to their own as both members of the audience and as creative practitioners. While the data sample is small and confined to a specific group of people – namely, poets, filmmakers, and audiences of a poetry festival – this report seeks to demonstrate an adaptable working methodology for evaluating immersive experiences to better understand wide range of impacts.

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Executive Summary

Affect: *Emotionally engaging audiences with socio-environmental issues*

- A variety of emotional responses to the film were recorded, the most common being a sense of fear or anxiety about the scale and harm the petrochemical industry was causing to communities living in the area.
- The film was a source of creative inspiration for other poets and filmmakers in the audience, with some responding by writing poetry or expressing the desire to create their own poetry films.

Ethics: *Raising awareness and cultivating attitudinal and/or behavioural change in audiences*

- The film increased audience's awareness of wider issues raised around climate change, environmental pollution, health and social inequalities, to the specific context of the socio-ecological crisis unfolding in Cancer Alley. Global issues such as these were made more tangible and present in their everyday lives.
- The complex interaction between social and ecological issues was communicated to the audience by showing how largely poor and Black communities are affected by environmental pollution, providing a clear example of environmental injustice and racism – concepts which remain peripheral to mainstream environmental discourse.
- While the specific context of the film was unfamiliar to the audience, many connected the issues presented in the film with those affecting communities in their local area or to those occurring in other parts of the world.

Developing Best Practice: *Exchanging ideas to improve best practice when using immersive technology in poetry film*

- The use of immersive technology arguably shaped the audience's ethical and emotional engagement with the film's ideas and messages in new ways and has the potential to attract new audiences. The film showcased an unfamiliar form of immersive poetry film among a wider group of poets and filmmakers.
- Mixed responses both among the audience and a wider group of poets and filmmakers demonstrate that immersive technology needs to be appropriate for the venue size and layout in order to mitigate against technical issues which may disrupt the immersive experience.

- A reciprocal exchange of ideas about best practice in using immersive technology in poetry film led to both a new appreciation of the possibilities of immersive technology to engage audiences among the wider group of poets and filmmakers, while those involved in the project gained insight into how to develop the prototype of *Cancer Alley* for different venues and larger audiences in the future.
- A wider 'behind-the-scenes' network of relationships between the stakeholders in the project significantly determined its success, illustrating how the impact of immersive experiences requires evaluative methods which take into account a wider ecosystem of actors involved in creative production.

1 Methodology

A proposed set of Key Evaluation Questions (KEQs) were first communicated to Professor Lucy English based on the initial description of the project and its aims. After further consultation and having made minor adjustments to the questions in line with her feedback, the KEQs were then finalised in an Evaluation Plan, which also included the proposed Data Collection Methods (DCMs) and Data Analysis Methods (DAMs) in reference to the KEQs. This was to ensure the operational strategy of impact evaluation remained consistent with the overall aims of the project.

The KEQs guided the design of the DCMs and DAMs. The KEQs also provided focus when devising questions for the pre-screening survey (Appendix A), semi-structured interview with audience members (Appendix B), and semi-structured focus group with poets and filmmakers (Appendix C).

1.1 Key Evaluation Questions (KEQs)

KEQ1: What are the perceived advantages and disadvantages of using immersive experiences to engage audiences?

KEQ2: How effective is *Cancer Alley* in its aim to engage audiences cognitively, emotionally, and ethically in the issues it raises?

KEQ3: How effective is *Cancer Alley* in its aim to promote pro-environmental behaviours?

KEQ4: How has *Cancer Alley* shaped understanding of and/or attitudes towards the use of immersive experiences to engage audiences among poets and filmmakers?

1.2 Data Collection Methods (DCMs)

DCM1: *Pre-screening survey* (KEQ1)
Online survey was circulated among the invited poets and filmmakers in order to scope (a.) prior knowledge of, (b.) experience with, and (c.) attitudes towards use of immersive experiences to engage audiences among research participants, including (d.) expectations of *Cancer Alley*. The survey was a mix of open, ranking, and multiple-choice questions.

DCM2: *Interviews with audience members* (KEQ2; KEQ3)
A series of 20 five-minute audio-recorded interviews with audience members was conducted immediately after the screening, lasting between 3 and 12 minutes. Semi-structured interview questions focussed on (a.) cognitive, (b.) emotional, and (c.) ethical aspects of their engagement.

DCM3: *Journal observations/notes* (KEQ4)

The invited group of poets and filmmakers were asked to record their notes and observations in journals both during and after the screening.

DCM4: *Post-screening focus group* (KEQ1; KEQ2; KEQ3; KEQ4)
Data collected during the screening analysed and summarised in a report, which will be circulated among research participants. Research participants will then be invited to an audio-recorded online focus group to share their views on the effectiveness of *Cancer Alley* in relation to their own observations in journals and report on audience responses. Facilitator asked participants a series of semi-structured questions aimed at understanding what their overall impression of the screening and its wider implications in their respective professions/organisations.

1.3 Data Analysis Methods (DAMs)

- Thematic coding of responses to open questions in pre-screening survey (**DCM1**), transcribed journal entries (**DCM2**), and transcribed focus group (**DCM3**) to identify common patterns and cluster key ideas in responses in relation to relevant KEQs.
- Thematic coding of responses in interviews with audience during the festival (**DCM2**) will be synthesised and written up in summary report circulated among research participants before focus group (**DCM3**).
- Results synthesised and written up in final report in which thematic clusters form structure and focus of discussion.

2 Impact Evaluation

Transcripts from interviews, focus group, journals and answers to the pre-screening questionnaire were coded into four main themes: **(2.1) Affect**, exploring audiences' emotional response to the film and its subject matter, including the sense of immersion in the viewing experience, **(2.2) Ethics**, examining the extent of ethical engagement with the ideas and messages of the film to inspire attitudinal and/or behavioural change, and **(2.3) Developing Best Practice**, describing how creative practitioners viewed the relative success of the immersive technology to emotionally and ethically engage audiences, and the wider set of factors involved in determining this success which need to be considered when using immersive technology in poetry film.

I will now discuss each theme in relation to the data gathered from interviews with audience members immediately after viewing *Cancer Alley*, and the poets and filmmakers responses before, during and after viewing the film.

2.1 Affect

It is clear that the affective response from the audience was varied in both type and intensity. A large proportion of respondents described the film as 'powerful', and only one or two respondents were expressly unaffected by the aesthetic experience or socio-environmental messaging of the film. The pie chart (Fig. 1) can be split approximately into two broad groups. A spectrum of negative emotions (68%) ranges from mild anxiety, unease or upset to more intense feelings of anger, shock, and fear. Positive emotions (32%) included a sense of being immersed or creatively inspired by the film.

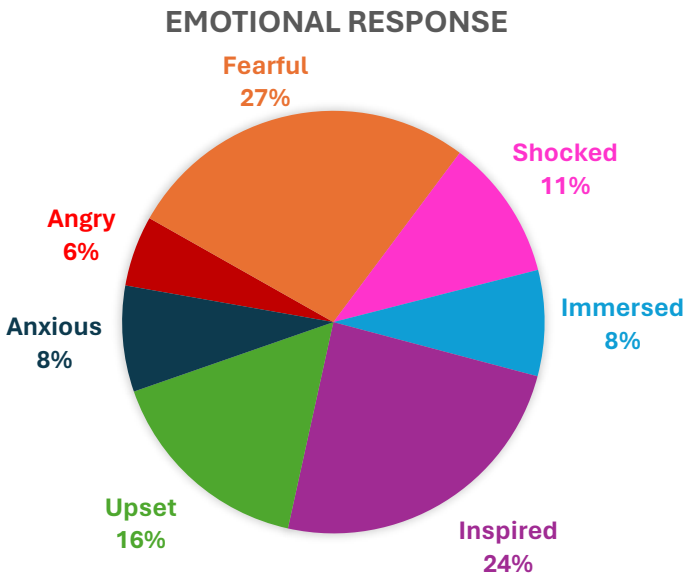

Figure 2. Pie chart showing audience's emotional response to the film.

The most common emotional response was evidently fear, with respondents describing the subject of the film as 'terrifying', 'scary' and 'frightening'. For example, one respondent described the film as 'a terrifying reflection of the current apocalyptic state of this probably declining world' which gave them a sense of 'impending doom. Yeah. But like, like, *oww* - that's the noise. Like, on edge. A bit anxious. Yeah, slightly emotionally constipated, like holding your breath. Kind of a shit feeling.' Another described the film as a 'terrifying picture of industrialization of an area of the states'

which included ‘a chilling, chilling poem. Kind of reflecting our times’. While this sentiment from the audience member clearly relates to the level of industrialisation and environmental pollution, poet and filmmaker Marius Grose linked the prevalence of fear as a reported emotional response more generally to anxieties about public health and specifically ‘to the pandemic, to COVID, that we're much more aware of, you know, just how dangerous the world can be. And it’s sort of playing into that kind of, you know, our memories of the pandemic.’ While the filmmakers involved in the project, Jack Cochran and Pamela Faulkenberg, both stated that they were initially ‘surprised’ by the fact that the audience reported feelings of fear or anxiety. However, Pamela stated that, on reflection, such an emotional response was ‘appropriate’ because of the ‘traumatic’ nature of the subject matter: ‘I guess it should. It should.’ Jack agreed, replying that ‘Yeah, I think we're not doing our job if we if we didn’t get that across.’

Such feelings were at least in part an aesthetic response to the industrial scenes of the petrochemical plants and refineries and the sense of scale or ‘relentlessness’ the film communicated, as artist and filmmaker Jane Glennie described it in the focus group. This was seen as a powerful juxtaposition to the woodland scenes depicted at the end of the film, described as like ‘paradise’ which invoked feelings of ‘calm’. One audience member felt uneasy about the title: ‘I kind of know what it's going to be about, but of course that's not true. It's, it's my fear, probably fear of the future that makes me think, do I really want to go to a film like that?’, but went on to state that they were glad they watched it. A couple of respondents raised the question as to whether shock was a productive emotion to engage viewers: ‘it just sort of slightly shocked, shock theory. Yeah, I'm a bit counter suggestive on that. I don't, I kind of don't like to feel like being manipulated. I kind of more just be engaged and be allowed to sort of just think for myself’, though they admitted that ‘sometimes you need it’. This resonated with Phillippa Johnston, a PhD student invited to the focus group, who responded in the pre-screening questionnaire that ‘There is the possibility of overload, or over-dramatization - shock for shock's sake - if not curated sensitively or thoughtfully.’

Surprisingly, few respondents described the experience as ‘immersive’ when asked how they felt during the film. For example, one stated that ‘I got very lost in it, very immersed. I think that's the word. [...] I got absolutely immersed in it.’ When asked directly about the effectiveness of the hologram technology, a large proportion of the audience did respond positively, but it is significant that the term ‘immersed’ and ‘immersion’ and related synonyms were not a common feature of audience responses when they were asked to describe the film and their emotional response to it. It is possible that the audience did not recognise the film as immersive and/or using immersive technology. In the case of the second question regarding their response to the film, one explanation is that the term ‘immersion’ is not generally considered an emotional state, and more of a perceptual experience associated with specific technologies such as virtual reality (VR) headsets. To enable the poets and filmmakers invited to the screening to articulate in their own words what they regard as an ‘immersive experience’, in addition to finding out what prior experience they may have had with immersive experiences, the pre-screening questionnaire asked ‘Have you attended an immersive experience event before? If so, what kind of event was it?’ Their answers (Fig. 4) were revealing in that all but one

Have you attended an immersive experience event before? If so, what kind of event was it?
No
Art exhibitions with film or light, including holograms. Also VR poetry film
Yes: VR immersive experience of a rainforest in an exhibition on landscapes in London
A technological museum in Germany
Yes. VR used for promoting fostering children.
Yes. The Van Gogh immersive exhibit
Yes -- Van Gogh immersive art exhibit, touring version. We saw this at the Chicago Art Institute.
Yes, gallery immersive art exhibitions... immersive theatre experiences.

Figure 3. Table showing responses to question in the pre-screening questionnaire completed by the group of poets and filmmakers invited to the festival and subsequent focus group.

(who did not report having attended any immersive experience event) described either 'VR' or digital 360-degree art or museum exhibits, with one also mentioning 'immersive theatre experiences' and another 'art exhibitions with film or light, including holograms'. Clearly, 'immersive' is a term that is more readily associated with certain types of technology which were not used by *Cancer Alley*, such as VR headsets and 360-degree projections.

Due to the number of filmmakers, poets and creative writers attending the festival, it is perhaps unsurprising that many of those interviewed stated that they felt inspired creatively by either the poem, the use of the immersive technology, or a combination of the two. Indeed, as one respondent articulated, 'words and pictures being all together are very powerful.' One respondent wrote a poem in response to the film, which they read during the interview (Fig. 2). Several others responded to Q4. ('What is your main takeaway from the film?) by recalling a line from the poem that struck them. For example, one respondent quoted 'when I put my head in the fridge, I can breathe. That is the line that really captured my imagination. Such a kind of everyday image but, but and yet so horrific and poetic.' Another stated, in spite of the frightening subject matter, that what struck them was the line 'we are the forest I think there's a line there, I think I might take that one away as my, my little synecdoche. I think it's a good line. We are the forest, it's quite like, it's quite a nice feeling, isn't it? Yeah, being a forest or parts of the forest.'

We step inside a box theatre of a poem. The poem has a ceiling littered with buildings, a smoke hologram makes Brownian motion, yet it's flat. It's like the it's like the screen is stopping us from getting cancer. Decay is everywhere. Invisible chidikis[?] are choking. The chemicals fall in yellow raindrops ['that's from Lucy's poem'], yellow sun. Yellow, chemical raindrops. A trio of dead crows, third time lucky. The marching heat, the marching beat of doom. All her family are dead. This shit this shit is in mustard. Mouthwash. People's brains and bodies. I want to breathe behind the screen just for a taste of cancer. Just once, then breathe or spit it out again. Some of the clouds are white. Or are they from the past? We're on a train to nowhere. Dreams are evaporating. Chemical nightmares on earth. If we are the forest... why do we cut ourselves dead?

Figure 4. Poem written by a member of the audience in response to *Cancer Alley.*

2.2 Ethics

Almost all audience members interviewed were engaged ethically in the socio-environmental issues raised by the film. Ethical engagement is understood in terms of both an increase of awareness of the issues raised around climate change, pollution, health and social inequality, but also by empathetic responses to the residents of Cancer Alley and wider communities facing environmental injustice and/or racism.

None of those interviewed appeared to be aware of Cancer Alley, though several connected socio-environmental issues to different and more familiar contexts. For example, a respondent from Germany said that 'I'm from a town which is one of the biggest industrial industry in the world. Maybe 50,000 people working at the BSF. And my hometown, so industrial landscape at this town is really similar to the landscape of this film, so I recognised a lot of things when I saw the first time this short film or poetry film. So I feel it. Yeah. And I can smell it. Because what you can't smell in the films of, of course, all this different, ugly smelling smells and gases for example. But I can imagine what it means to live there really directly next to this industry.' One respondent was reminded of issues impacting 'South Wales communities', another of plastic pollution in Ghana, while one related it to the issue of river pollution in the UK:

> 'it's the same thing. [...] it's another one. Are we just gonna get overwhelmed by finding out specific instances of things have gone past the tipping points, where you would assume that regulations and agencies that are there to keep corporations in check - so Environmental Protection Agency, you know, the waters agency, where you think: OK, they are meant to be in place to stop things like this getting out of hand. But it's just happening. Why? Why are we not stopping ourselves? You know? Because where are we now? This is gonna be the second summer where they're just gonna be throwing sewage directly into the sea all around the UK. You know, into the rivers, untreated. That's too long. If I didn't sort out a problem in what I was doing in my job for two years, yeah, I would be fired. Yeah. And this isn't individuals, this is entire agencies whose job is to enforce these regulations or to work something out with them. You know like Thames Water has gone massively bust, just from borrowing money to pay the shareholders. So, like, what's going on?'

Pamela, the filmmaker involved in the *Cancer Alley* project, stated in the focus group that a concern of hers was that the subject matter of the film is a 'very specific, you know, place in the US. How is that gonna translate internationally' but that she was 'very encouraged' that 'it really could reach out to audiences that had no idea what the American South is like, [...] you didn't have to know what Cancer Alley was necessarily for it to speak to you.' The messaging of *Cancer Alley* resonated with poetry filmmaker Helen Dewberry, who likened it in the focus group to local issues in Bristol regarding air pollution concentrated around areas of social housing and socio-economic deprivation. She stated 'I don't live in Southern states, so it seemed a bit removed', but that 'I did equate it to what do we do here [...] if we're going to build a motorway or extend motorway, we don't, we don't move people away, we just move the poorer people in.'

It is worth noting that one audience member interviewed reacted negatively to the socio-environmental messaging. They argued the subject of the film was merely 'a popular theme of the day. It's about poor and black people. And I don't, I don't... it's just about people.

And often you find these things have a political message focused on the issue of the day. And that's particularly about racial minorities, about women and children, about immigrants. It's not the point. It's about… I don't think anyway. It could be anybody. It's almost like in order to gain traction you have to focus on the fact that it's mostly poor and black.' Despite this, several respondents clearly felt engaged with the environmental injustices the film was communicating, or expressed wanting to find out more about 'environmental racism'. For example, one described the film as about 'low socioeconomic groups and kind of racial minorities living… And they're being adversely affected by the plastic pollution or the chemical pollution that's coming out of the industrial plants and it's causing cancer. And then because of their economic situation, they're not able to leave.' Another described it as a picture of 'post-slavery exploitation of black population of the region'.

Whether or not attitudinal changes characterised by an increased awareness and empathy for those living in Cancer Alley and the wider relationship between climate crisis, industrial capitalism, and socio-economic and racial inequalities led to long-term or meaningful behavioural change is beyond the scope of this report. Nevertheless, the film was demonstrably effective in showing familiar consumer products which arguably brought the issue tangibly into some of the respondent's personal, everyday lives. As one stated, the film was 'chilling in the fact that a lot of those products that I saw, I use. So, we're all implicated in this.' Another articulated that, despite being 'a sustainably-minded person', they asked themselves 'do you always necessarily need to use, you know, certain mixtures of these chemicals? and it – for selfish reasons because I thought well, I'm breathing that, so. Yeah, that was kind of stuck in my in my mind for part of this movie was like, it touches my skin, my lungs.' The possibility of positive or meaningful change was questioned, with the respondent arguing that the focus should be on 'corporations' rather than 'individuals'. Jane Glennie, artist and filmmaker participating in the focus group, stated that the issues the film are 'massive and in some senses, we are all connected to that. The minute that we're using plastic products and all any other things that are manufactured in there, we're connected to it.'

One audience member felt 'galvanised' after watching the film but left frustrated that there was no clear direction or positive actions they could take to help the residents of Cancer Alley beyond 'not buy[ing] plastic, which is obviously quite hard'. They argued that 'if there was like a petition to sign that might have been slightly more effective.' Reflecting on this statement in the report given to the invited poets and filmmakers before the focus group, the filmmaker Pamela Faulkenberg pointed out that there were 'links' provided at the end of the film for the audience to find out more about the issues raised by the film. However, she stated that there was more they could have done to encourage audiences to actively engage with the issues and find out more information, such as providing 'monitors' for 'when you come in or when you come out […] so that you could watch some of these [interviews with those living in Cancer Alley],' but argued that 'there wasn't space for that.'

2.3 Developing Best Practice

Cancer Alley aimed to introduce a wider community of poets and filmmakers to the use of immersive technology in poetry film in order to exchange ideas in order to improve best practice in how these technologies are employed to engage audiences. To do so, a report given to those invited to participate in the focus group following the screening featured a summary of how audiences responded to the immersive technology used by the film. In the focus group, the poets and filmmakers reflected on audience responses in relation to their own observations and ideas surrounding the success and limitations of this technology, and the wider set of factors which need to be considered when using immersive technology in poetry film.

When asked about the effectiveness of the hologram technology (Q3), audience responses were generally positive. However, roughly a quarter had either mixed or negative feelings about the use of immersive technology in the film. It is important to understand the various ways in which audience members characterised the immersive experience and how this might have shaped their emotional and ethical engagement with the film and its message. It is also vital to identify how and why the use of immersive technology was received negatively by other members of the audience. The table (Fig. 5) illustrates the variation between members of the audience in how they responded to the same qualities or attributes of the immersive experience.

Attributes	Positive responses	Negative responses
Novelty	Many of the positive responses to the film's use of technology highlighted the novelty of the experience. 'I had no idea what to expect', as one commented, while another stated that they enjoyed it because 'it was a little bit different'.	One respondent questioned whether the main attraction to immersive technology was superficial in that it came from the novelty of the experience or the technology used to create it: 'I don't know whether in a way I'm feeling there's a spectacular quality to it as a spectacle, as in, you know, the theory of the spectacle versus the situation. So situation is said to, well everything has become a spectacle, what we need is situations. It's more like we want people to be able to interact. And the thing about spectacles is that they bamboozle you, you get infatuated, you end up sort of infatuated with the kind of techniques, the technology, just the sort of wow factor. Which is fine. And maybe when, if we become more used to this, that would have receded…'. The respondent later stated in the interview that 'I think overall I wasn't that convinced that they were really using it for the right reasons.'
Multi-modality	Another common response was that the text, image, and sound	Whilst the multi-modality of the experience was generally received

	interacted to create a 'multi-dimensional', 'multi-modal' or 'multi-textural' experience. In particular, several commented on the use of 'smoke and steam in the background' as well as the 'soundscape', the 'vibrations through the bass sound', which made the film more 'powerful and enjoyable'.	positively, one respondent did comment that this resulted in feelings of being overwhelmed: 'You've got images coming in and various images and noise, and then there's smoke coming up and. Yeah, yeah, it's a very, very kind of all-round sensory overload, really.'
Depth	Several emphasised how the hologram screen gave the appearance of 'depth', which one respondent articulated as making the film 'certainly more engaging than just looking at one, flat two-dimensional screen. If it was limited to that screen then it wouldn't have been as involving as it was. [...] I thought that really helped get that involved feeling across.' The layering of text and image through 'three sets of images' allowed for 'juxtapositions and contrasts going on behind it. Then you had the screen in front with just a completely... which just allowed for effects such as the polluted air, which just emphasised the words and I really liked the words, it seemed to me, appearing on the on the screen. I thought it was a really effective visual poem.'	One respondent felt that 'there were too many things to look at one time. It's really different screens and sometimes they're split this way and sometimes they're split this way, and then you've got words coming in. It's like, whoa!' Rather than improving attention or comprehension this had an adverse effect on the viewer, requiring them to watch the film multiple times: 'So there, there was a lot of information taken in. So I watched a couple of times because I knew I'd missed bits before.' On the other hand, one was disappointed with the lack of depth in the viewing experience, stating that 'I'm not quite sure that added much, really. I thought it was more of a visual trick. The only depth I saw was the words in front and occasionally the plastic packaging.' Others argued the ways in which the film was being shown over multiple screens required some 'adjustment'. Several respondents noted that the layering is ineffective: 'if you're not sat in dead centre, it doesn't quite slightly quiet line up' and that the room in which it was being shown was unsuitable. One said 'I found it a little bit distracting because it looks like there was a reflection of a screen in the background' and also that the door hadn't been shut properly during the viewing so the room was not completely dark.
Movement	The appearance and disappearance of stimuli across these layers arguably required more active state attention from	

	the audience which may help comprehension of the information. As one respondent stated, 'it keeps changing the focus of where you're looking, and I think that engages you more. It certainly helped me feel more engaged because you're suddenly it's here, it's here, you know the information is coming in from different directions.' A sense of movement was also significant to a respondent who felt the film 'drives you in. It makes you feel like you're sitting in a car and you know you're sitting in a car, you're sitting, you're studying, observing. So when you're observing, and mostly you watch outside, you look at what is happening when you observe. Right. And so that's one thing I like about the film, even though it is, I was sitting in the chair and watching it, I was. I felt like I was sitting in the car, and it was moving. And when I'm sitting in the car, I watch around. And so it drove me in, it pulled me in to actually think and reason more about what the topic was.'	

Figure 5. Table showing audience response to use of immersive technology, both positive and negative.

The poets and filmmakers invited to the focus group described in detail the failures of the film to create a feeling of immersion. As poetry filmmaker Helen Dewberry states: 'I should be more immersed in it and by that I think I should… my emotions and me and my head ought to be more engaged with it.' While this statement appears to belie her earlier insights regarding the links between air pollution in Bristol compared to Cancer Alley, it is worth noting that Helen pointed out that she had viewed the film before 'on a flat screen' and felt that 'personally I was more engaged emotionally with it. […] I've seen it so in that way the sort of strings and stuff got in the way of the emotion.' Poet and filmmaker Marius Grose reported the opposite: 'actually felt more drawn into the film than just seeing it as a traditionally projected film […] I also did feel much more immersed in the subject'. Jane Glennie said she felt disappointed because the description of the film as a 'hologram' did not match her expectations: 'I wouldn't describe it as a hologram. […] I was expecting was something more 3D. […] It's not really surrounding me.' Poetry filmmaker and theorist Sarah Tremlett argued that while *Cancer Alley* was not fully immersive, the use of the text appearing and disappearing on the hologauze screen meant that you could 'absorb the text […] So, it's kind of like in between [immersive and non-immersive] in a way, isn't it?'

The sense of being ‘surrounded’, associated with the feeling of being immersed, was clearly restricted by the size of the screen, the size of the room, the fact that the room was not dark enough, and that although the soundtrack was ‘powerful’, the film would have benefitted from using surround sound. All these limitations were discussed at length in the focus group. Jane argued that ‘I'm not convinced entirely that there was enough [to] justify the two layers [...] there wasn't enough substance to that second layer to really make me feel really excited by it.’ This is reflected in her journal notes, where she writes ‘Feels like two separate things [the foreground and background projections] not coherent enough’. Jane went on to say that the immersive element only became apparent ‘when the projection sort of ends up on the ceiling above you, and then it starts engulfing you’ (see Fig. 6). The ceiling projections were also identified by Marius, who questioned ‘Was that actually supposed to have, or was that just down to the space it was being projected in? Cause, it didn't really sort of make a lot of sense to me, is why these images were on the ceiling.’ Again, this was something highlighted in the journal notes made during the viewing, where Marius writes that ‘Was not so much interested in the images that projected onto the walls and ceiling.’ In response to these comments, the filmmakers involved in creating *Cancer Alley* acknowledged these shortcomings but defended the film as a ‘prototype’ which would have been better viewed in a different venue and that they were restricted by the cost of equipment.

Figure 6. Unintended projections of the film on the ceiling of the room. Credit: Jane Glennie.

It is possible that the reason for the lack of immersion felt by the poets and filmmakers and members of the audience were due to the visibility of the technical equipment in the room it was being screened. The ‘strings and stuff’ Helen referred to is repeated in her later response, where she described ‘seeing all the strings and [...] everything that was going on – it wasn’t immersive. It was like a technical experiment. [...] If there’s too much razzmatazz, then I’m not that immersed in it’. Such statements clearly support concerns raised by members of the audience about the focus being directed to the technology itself, rather than the subject matter of the film. Reflecting on immersive technology more generally, Helen states ‘that there must come a point, I think, where immersive technology generally kind of does a U-turn and turns in on itself and it and it's not actually that immersive anymore. So, if you have a VR headset on, you're so conscious that something's plopped on your head and somebody's walking around behind you and it's not really there. You tend to lose the story.’ This suggests the use of the immersive technology was a distraction from the film’s messages, rather than aiding it.

Whilst there are clear resonances between the responses from the audience members and from the poets and filmmakers participating in the focus group, it is important to note that

the technical aspects of the film were perhaps more of a focus for the latter group than the former given their specialist knowledge and expertise. However, clearly there were issues which limited the extent to which audiences felt immersed in the film, ranging from the appropriateness of venue to the use of the hologauze screen, to the lack of surround sound, which may have distanced or distracted viewers from the subject matter of the film rather than increasing their emotional and ethical engagement.

The discussion during the focus group often revolved around cost of the equipment, with many expressing concerns that this would outweigh the perceived benefits of using immersive experiences to engage audiences. Lucy informed the group that one of the biggest costs in the project was the silver hologauze screen, which Jane did not think was worth spending a large proportion of the budget on. When asked about the relative costs and benefits of using immersive technology, Helen pointed out that 'if you compared to how much arts organisations receive in grants, it's substantial amount of money.' However, Helen also stated that 'if you look upon it as an experiment for future development in the arts, it puts a different figure on it again. So, it's I find that difficult to answer.' The filmmakers in the project repeatedly argued that *Cancer Alley* was an 'experiment' and a 'prototype', and that the various technical faults and risks associated with collaborating with the immersive technology company were worth it if it led to further experimentation and development of immersive poetry film. Pamela also differentiated between themselves and 'high art people' with 'ginormously rich people with ginormous endowment' such as at places like 'MoMA' (The Museum of Modern Art, New York), the corporate world of 'egotistical CEOs' flying from New York to Australia to see a hologram of themselves in a meeting (thus defeating the point of a hologram to save flying in person) and the producers of the 'Van Gogh exhibition', which was argued to be 'gimmicky' and 'trivial' compared to the socio-environmental messaging of *Cancer Alley*.

A key point raised by Helen was around the creative process of making *Cancer Alley*. Initially a poetry film designed for a traditional format, it was then adapted by Simon Luscombe of Holotronica into an immersive hologram film. Helen suggested that if you were making a film and you knew it was going to be for a hologram. You'd probably start off differently. [...] you'd start off probably with a different storyboard, I would imagine.' This would, she argues, enable for a more effective use of the hologauze technology.

One key point raised in the focus group discussion was around the collaboration with the technology company, Holotronica, and whether the technical issues described above (i.e. ceiling projections, non-alignment between screens, white walls) could have been resolved if the project worked instead with a 'small theatre company' rather than Holotronica who are more used to working with 'Britain's Got Talent' and 'pop stars'. Related to this was the issue of how the funding of the project was distributed, with a large proportion being spent on hiring Simon Luscombe to adapt the film into an immersive format, compared to the filmmakers involved in the project. As Jack pointed out, 'if we're talking about the budget, if you build the hours that Pam and I put into that at Simon's rate, the film budget would have been astronomical.' It became clear that the wider discussion about the funding disparity across the arts and entertainment industry earlier in the focus group were associated with the perceived inequity in how the budget for *Cancer Alley* was spent. Jane Glennie argued that Holotronica could have done more to adapt the film for the room in the Watershed, and that a smaller

company may ‘not necessarily [be] the best, but they're the they're ones that can adapt to what your what your framework and you know time and money can work with.’ Helen then provided an example of how an alternative, smaller company may have solved the issue of ‘the back screen [which] seemed to be governed by the size of the actual screen, but if you were to remove that screen and use the wall or put something on the wall, which is what the theatre company would have done, then you could have made it the same size as the gauze and that would have, I think, got around that problem. So yes, experimentation and the willingness to do that that.’

Those involved in making *Cancer Alley*, including Lucy English, and the filmmakers Jack Cochran and Pamela Falkenberg, took this advice and feedback on board. There was a reciprocal exchange of ideas occurring in the focus group which led to both a new appreciation of the possibilities of immersive technology to engage audiences among the wider group of poets and filmmakers, while those involved in the project gained insight into how to develop the prototype of *Cancer Alley* for different venues and larger audiences in the future. The discussion illuminated how a wider ‘behind-the-scenes’ network of relationships between the stakeholders in the project significantly determined its success, demonstrating that the impact of immersive experiences requires evaluative methods which take into account the wider ecosystem of creative production.

Conclusion

Cancer Alley was an experimentation in immersive poetry film that engaged audiences at the Lyra Bristol Poetry Festival and stimulated a rich exchange of ideas about how to best use immersive technology in poetry film.

This report proposes that the *Cancer Alley* project had three key impacts:

Affect: *Emotionally engaging audiences with socio-environmental issues*

Ethics: *Raising awareness and stimulating attitudinal and/or behavioural change in audiences*

Developing Best Practice: *Exchanging ideas to develop best practice when using immersive technology in poetry film*

These in turn respond to the four KEQs that have guided the project's evaluation:

KEQ1: What are the perceived advantages and disadvantages of using immersive experiences to engage audiences?

Positive:

- Increased emotional engagement with the film's ideas and messages
- Inspiring creativity and further innovation in poetry film
- Attracting interest from new audiences or engaging audiences in new ways

Negative:

- High cost of equipment and hiring of technicians
- Accessibility, particularly those unfamiliar with immersive technology who may find the viewing experience overwhelming or uncomfortable
- Risk of distracting audiences from issues raised by the film with more focus being paid to the technical aspects of its production

KEQ2: How effective is Cancer Alley in its aim to engage audiences cognitively, emotionally, and ethically in the issues it raises?

- The film was effective in raising awareness of the specific issues affecting communities in Cancer Alley among an international audience,
- The film communicated a wider set of issues from climate change, environmental pollution, public health and environmental injustice, which audiences were able to relate to on an emotional, intellectual and ethical level to more familiar or local contexts.

KEQ3: How effective is Cancer Alley in its aim to promote pro-environmental behaviours?

- While it is unclear what the long-term impact of the film will be on audiences' behaviours, it was clear it stimulated a desire for some members of the audience to find out more about Cancer Alley, the issue of environmental racism, or change specific lifestyle changes such as using fewer plastic products.

KEQ4: How has Cancer Alley shaped understanding of and/or attitudes towards the use of immersive experiences to engage audiences among poets and filmmakers?

- Screening the film during the Lyra Bristol Poetry Festival among an audience of fellow poets and filmmakers, as well as invited selected poets and filmmakers to participate in an in-depth focus group, enabled the project to showcase an experimental use of immersive technology in poetry film.
- Feedback from the group of poets and filmmakers about *Cancer Alley* stimulated a wider discussion about best practice when using immersive technology to engage audiences.

Appendices

Appendix A

Pre-screening online questionnaire for poets and filmmakers invited to the screening and focus group

1. I have read and understood the information provided. I agree to participate and I am aware that I may withdraw this consent at any later date if I wish. I am over 18 years of age. I agree that my responses can be used by the researchers on this project as research data, including processing and analysing the information to facilitate the research being undertaken. I agree that the study may publish anonymised quotations from my responses and that these may be used within publications on the internet, at conferences and academic journals. I understand that an anonymised transcription of my responses will be available to other researchers within the open access dataset created by the project. I agree that my permission will be for research and educational purposes and in perpetuity. *

- ◯ Yes
- ◯ No

2. Name *

3. Occupation *

4. Have you attended an immersive experience event before? If so, what kind of event was it?

5. How familiar are you with poetry events or arts festivals? *

- ◯ extremely familiar
- ◯ very familiar
- ◯ somewhat familiar
- ◯ not so familiar
- ◯ not at all familiar

6. What do you think the advantages will be of using this medium to engage audiences? *

7. What are your expectations of the event? *

8. Are there any issues or concerns you have about the use of this medium to engage audiences? *

9. How likely would you be willing to consider using immersive experience events in your profession or organisation? *

- ◯ very likely
- ◯ somewhat likely
- ◯ neither likely nor unlikely
- ◯ somewhat unlikely
- ◯ very unlikely

Appendix B

Interview questions for members of the audience

1. *How would you describe the film to a friend?*
2. *How did you feel as you were watching the film?*
3. *What do you think about the use of the hologram?*
4. *What is your main takeaway from the film?*

Appendix C

Focus group questions for poets and filmmakers invited to the screening

1. *To what extent do you think the film engaged audiences emotionally with the issues being raised? How/in what ways?*
2. *Were you surprised by the report which found that the most common emotional response to the film was fear?*
3. *Was there anything that surprised you about the way in which the audience members engaged with the film's message?*

4. *To what extent do you think the use of immersive technology shaped the audience's emotional and ethical engagement with the film and its message?*
5. *What do you think the long-term impact of the film might have on the audience?*
6. *Reflecting on your own response and the audience's, do you think the use of the hologram was effective and/or worthwhile for environmental messaging?*
7. *Did you observe any unintentional or negative consequences of using the hologram technologies to engage audiences? Good cost/benefit?*
8. *Was there anything that you wrote in your journals at the time which you would like to share?*
9. *Was there anything else that struck you about the audience responses described in the report?*
10. *Would you consider using immersive experiences to engage audiences in your own respective professions or organisations in the future?*