

# Interaction Design for Audiences: A Proposition for Building Resilience and Recovery for COVID-safe Independent Cinemas

Polina Zioga<sup>1, 2\*</sup> and María A. Vélez-Serna<sup>1</sup>

<sup>1</sup> *Division of Communications, Media and Culture, Faculty of Arts and Humanities, University of Stirling, Stirling, Scotland, UK*

<sup>2</sup> *Interactive Filmmaking Lab, Scotland, UK*

\* *Correspondence: polina.zioga@stir.ac.uk*

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# Interaction Design for Audiences: A Proposition for Building Resilience and Recovery for COVID-safe Independent Cinemas

Polina Zioga<sup>1, 2\*</sup> and María A. Vélez-Serna<sup>1</sup>

<sup>1</sup> *Division of Communications, Media and Culture, Faculty of Arts and Humanities, University of Stirling, Stirling, Scotland, UK*

<sup>2</sup> *Interactive Filmmaking Lab, Scotland, UK*

\* *Correspondence: polina.zioga@stir.ac.uk*

## Abstract

As in the broader cultural sector, COVID-19 has created unprecedented challenges for cinema exhibitors in the UK and worldwide. Venues have been forced to close for months, operate with substantial uncertainty, or re-open with reduced capacity. Still, their position remains precarious and the challenges to the sustainability of the sector are ongoing: changing restrictions and associated increased costs, reduction in production and distribution pipelines. The British Film Institute highlighted that the pandemic poses an existential threat, especially to independent exhibitors and those operating in remote or deprived areas. Thus, COVID-19 has also highlighted existing inequalities, the digital divide, and the need to expand the audiences' diversity. Meanwhile, in sectoral events, panels have reflected on how exhibitors and audiences have become more accustomed to accessing media experiences online, and how this new digital literacy will support cinemas' efforts to attract cinemagoers in their reopening. Prior to COVID-19, the use of interaction design for new cinematic experiences had attracted the interest of festivals, filmmakers and researchers. In this position paper, we argue that interaction design and technologies can help independent cinemas to engage and galvanise new audiences to patronise COVID-safe venues. From low-end online platforms to high-end immersive experiences, new technologies are transforming connectivity across society, and have the potential to support access for D/deaf, neurodivergent, and disabled audiences, but adoption by exhibitors is so far limited. We outline the research needs and priorities in this field. These include identifying facilitators and obstacles to industry adoption of interactive forms, and mapping experiences and attitudes across the sector. Together with directions for immediate practical solutions, it is crucial to gather critical data for future research use, in order to pave the way for long-term solutions and design innovation, so that the sector can build resilience, recover and reach underserved audiences.

**Keywords:** COVID-19; Independent Cinemas; Audiences; Interaction Design; Accessibility.

## 1. Introduction

As in the broader cultural sector, COVID-19 has created unprecedented challenges for cinema exhibitors in the UK and worldwide. Venues have been forced to close for months, operate with substantial uncertainty, or reduced capacity. Although some venues reopened with social-distancing measures, changing restrictions and market conditions have affected their viability (Independent Cinema Office, 2020), while existing inequalities and the digital divide have been highlighted (Bakhshi, 2020). Therefore, their position remains precarious and the challenges to the sustainability of the sector are ongoing – physical spaces closed for months, changing social-distancing restrictions and associated increased costs (Scottish Government, 2021), reduction in production and distribution pipelines (UK Parliament Committees, 2020c). The British Film Institute (UK Parliament Committees, 2020a) highlighted that the pandemic poses an existential threat, especially to the independent exhibitors and those operating in remote or deprived areas. Under lockdown restrictions, in Scotland alone ‘cinemas are losing over £250,000 (in aggregate) of box office revenue per day’, translated as 70-80% anticipated cut to income (UK Parliament Committees, 2020b). At the same time, there is a call for the lessons learned during the COVID-19 pandemic to be used to rethink cinema exhibition and cultural practices in more inclusive and sustainable directions (Koljonen, 2021; Stolz, Atkinson and Kennedy, 2021).

With the future of the sector at stake, panels at events, which bring together film exhibitors, creative practitioners and academics, have reflected on how exhibitors and audiences have become more accustomed to accessing media experiences online. Rather than being simply a competitive threat, this new digital literacy can support cinemas’ efforts to attract cinemagoers in their reopening. Meanwhile, prior to COVID-19, the use of interaction design for new cinematic experiences had attracted the interest of festivals, filmmakers and researchers. These developments hold an underexplored potential to support the recovery and future-proofing of the independent exhibition sector.

In this position paper, we present in Section 2 the impact of COVID-19 and the targeted needs of independent cinemas. In Section 3 we discuss the use of interactive technologies and tools by independent cinemas during the pandemic, the emerging new digital literacy, and how interaction design can create new cinematic experiences. In Section 4 we outline the research needs and

priorities in this field. These include identifying facilitators and obstacles to industry adoption of interactive forms, and mapping experiences and attitudes across the sector. Together with directions for immediate practical solutions, we propose it is crucial to gather critical data for future research use, in order to pave the way for long-term solutions and design innovation. This way, as we argue in Section 5, the sector can build resilience, recover and reach underserved audiences.

## **2. COVID-19 Impact and Targeted Needs**

As mentioned previously, in the film exhibition sector, COVID-19 had a greater impact on independent cinemas, particularly in ‘remote and culturally underserved areas’ (UK Parliament Committees, 2020a). Although some venues reopened for brief periods with social-distancing measures in place, changing restrictions and market conditions have affected their viability (Independent Cinema Office, 2020), while existing inequalities and the digital divide have been highlighted (Bakhshi, 2020).

According to Comscore and the UK Cinema Association (2021), total revenues and admissions in 2020 were down by 76% and 75% respectively, compared to the previous year. This impact, however, has been unequal. For instance, when asked by the Independent Cinema Office (ICO) at the start of the pandemic, independent venues said they were less likely to be able to function under social distancing restrictions. When cinemas were allowed to reopen for a short time in the autumn, the ICO predicted that there would be a 50% reduction in capacity (Independent Cinema Office, 2020) but, in an interview with Sight and Sound, Allison Gardner from Glasgow Film Theatre reported that they were limited to about 14% of their capacity, due to the size of their auditoria (Gant, 2020). The long-term impact of the last year of closures (and however much longer they are to continue) is yet to be known, as furlough schemes and rates reductions have postponed definitive closures.

Against this background, the commercial sector is more optimistic, with the Film Distributors’ Association (FDA) citing research which suggests that the cinema is one of the most missed activities, besides seeing friends and family (Cinema First, 2021). The commercial sector’s promises to audiences depict a ‘covid-safe’ cinema experience characterised by online booking, reduced capacity, mask-wearing, social distancing and enhanced cleaning regimes (LoveCinema, n.d.). They argue that no demonstrable cases of transmission in a cinema have been registered (Snow, 2020). However, the unequal impacts of COVID-19 on different sectors of society, and therefore different

parts of the audience, mean that the reopening of venues is likely to reflect and reproduce these inequalities, unless they are acknowledged and addressed directly.

To focus only on two intersectional dimensions of this, disabled people and people from BAME communities have indicated in surveys that they would be more reluctant to return to venues, and there are sadly very real reasons for this. As reported by the Office for National Statistics, COVID-19 has killed a disproportionate number of people with disabilities in the England: 60% of deaths from 24 January to November 2020 were of people with disabilities, compared to disabled people making up 17.2% of the study population (Office for National Statistics, 2021). People with learning disabilities were over six times more likely to die of COVID-19 (Clegg, 2021). The pandemic has also foregrounded the impact of systemic racism. Writing in the *BMJ*, Razai et al. (2021) found that ‘the mortality risk from covid-19 among ethnic minority groups is twice that of white British patients after potential confounding factors such as age, sex, income, education, housing tenure, and area deprivation have been taken into account’. For all these reasons, it is hardly surprising that disabled people, as well as Black, Asian and Minority Ethnic audiences, can be less confident about returning to non-essential social activities.

In a survey conducted in summer 2020, We Are Parable found that Black audiences expressed much more uncertainty on the prospect of returning to the cinema, citing the lack of information on social distancing, lack of trust in other audience members to maintain distance, and fear of carrying the infection as their main concerns (Andrews, 2020). Indigo Consulting’s Act 2 national audience survey in June 2020 found that disabled audiences considered themselves much more at risk, and 26% of those who responded would not consider returning to venues until there is an effective vaccine and treatment. In his response to this survey, consultant and broadcaster Andrew Miller (2020) says:

*it's clear that Coronavirus poses a major new barrier for disabled people to engage with the arts. The virus threatens all the progressive work that the sector has undertaken over decades to make venues accessible and to attract disabled audiences.*

The (meagre) financial support that has been made available to exhibitors has sought to protect this equalities work by explicitly prioritising inclusion as a criterion for the allocation of funds. This was the case when, in December 2020, the British Film Institute (BFI) awarded nearly £760k to over 140 film exhibitors ‘to boost cultural programming and activities to engage diverse audiences as lockdown restrictions ease’ and ‘re-engage audiences with collective, big screen film experiences’

(BFI, 2020). Meanwhile, the Culture Recovery Fund for independent cinemas in England demanded that cinemas demonstrated ‘a commitment to increasing their organisational diversity and the diversity of their audiences’ (The Bigger Picture, 2020). This centrality of diversity and inclusion seems promising, but does this really equate to more justice in access to film culture?

There is also a concern that the rush to reopen and re-start the cultural economy will further leave disabled audiences behind, by withdrawing, for instance, the online access options that were implemented during lockdown. This return to an exclusionary status quo is frustrating, but experiences of online access are also full of contradictions. For some disabled people, as well as other audiences marginalised due to geography, poverty, caring responsibilities and other factors, the sudden availability of a myriad of events, festivals, screenings, discussions, museum visits and so on, was both exciting and painful as a demonstration that these options had always been viable, they just had not been given due consideration. For others, the shift online was yet another barrier to access, due to digital poverty. As Miller notes, ‘a recent survey by the Glasgow Disability Alliance found that just a third of disabled people had access to home broadband during the pandemic’. Given that so many of the projects funded by the BFI awards (which tend to be in the region of £2k-£5k) are to curate and present online programmes, the reality of inclusion is bounded by such contradictions. In relation to D/deaf and disabled audiences in particular, this ambiguity over online participation is a clear example of the importance of thinking through the social model of disability, rather than assuming technological ‘solutions’ to access barriers.

Having said that, technologies do offer potential for the unfolding of audience experience into a wider multiplicity of forms of engagement to suit different needs and preferences. For instance, captioning and audio description can make a genuine difference, and initiatives such as Inclusive Cinema (n.d.) have been leading on a significant rise in awareness and provision of these technologies in cinemas. Inclusive practices such as British Sign Language (BSL) interpretation and captioning have, however, been used only inconsistently by cinema exhibitors on their digital platforms.

The UK Disability Arts Alliance (2021) have promoted the #WeShallNotBeRemoved campaign with ‘seven principles for inclusive recovery’. In this statement, they outline the requirement that, first of all, cultural organisations ensure that their reopening plans are properly assessed in the terms of the Equality Act, and that they are co-produced with disabled people at every stage. They call for a thorough understanding of audience data and for clear communication with audiences, where ‘[t]he

customer journey for disabled audiences and visitors should be thoroughly mapped'. In this scenario, aspects such as free tickets for companions, appropriate seating spaces, and well-trained staff have a bigger role than specific technologies. What could interactive technologies have to offer then, and what can interaction design for audiences involve?

### **3. Interactive Media**

From the onset of the lockdown restrictions, new initiatives, research and innovation have aimed to map and alleviate the impact of COVID-19 on the creative industries, including film and cinema, by focusing for example on city-specific ecologies in England (UKRI, 2020g), the UK-wide experience economy (UKRI, 2020e), and implications for policy (UKRI, 2020a). New innovations have concentrated on broadcast video production (UKRI, 2020b), virtual sets (UKRI, 2020d) and fast-tracked animation production (Target3D Limited, 2021); together with talent booking marketplaces (UKRI, 2020c), and improved digital marketing for small cinemas (UKRI, 2020f). Meanwhile, industry bodies, like Independent Cinema Office (2020) and Regional Screen Scotland (Thomson, 2020), have focused on the impact of COVID-19 and the challenges posed for independent venues regarding reopening. Others, like We Are Parable (Andrews, 2020), reported on different ethnic groups' audience confidence; as well as COVID-19-training (BFI, 2021b; UK Cinema Association, 2021). These efforts have included guidance on the use of existing digital technologies for online communication and engagement of audiences and stakeholders alike, as well as the introduction of new tools and systems that can augment the digital experiences and communications by introducing new interactive features. At the same time, from the onset of the restrictions, audiences have reported that they 'would be interested in online culture, and [...] are willing to pay for' it (Raines, 2020).

The term 'interactive' itself can refer to a variety of media and technologies, from video games to Virtual Reality (VR) films. According to one definition, it is the ability of media 'to let the user exert an influence on the content and/or form of the mediated communication' (Jensen, 1998). Accordingly, in this paper, we will use 'interactive' to refer to media and technologies that enable a two-way communication between an audience and their film-viewing, thus enabling the audience to have control over certain aspects of their experience. As we will see in Section 3.2, this might also involve cinematic experiences whereby the audience can control aspects of the moving image, including the narrative.

#### **3.1 Interactive technologies and tools**

During the COVID-19 pandemic, independent cinemas across the UK have been using a variety of interactive technologies – from low-end platforms to high-end immersive technologies – to maintain audience engagement and increase accessibility.

### *3.1.1 Online and social media platforms*

One of the first steps that independent venues took right after the announcement of the first lockdown in 2020, was to organise their communication with their audiences using existing platforms, such as their websites, blogs and social media accounts. These technologies and tools are commonly based on the use of HTML – that is Hypertext Markup Language – a ‘publishing language used by the World Wide Web’ that enables the creation of online documents with headings, text, multimedia and other elements, hyperlink features that allow the retrieval of online information, as well as ‘conducting transactions with remote services’ (Raggett, Le Hors and Jacobs, 1998). They organised or re-oriented regular (e.g. weekly) blog posts; recommendations for ‘television or online viewing’, including streaming; #ThrowBack social media posts looking at the history of their venues and inviting audiences to share their memories; and #Follow social media posts promoting and supporting other local businesses (Film Hub South East, 2020). These are fairly accessible strategies that entailed simply an intensification of the online presence of the venues.

Alongside these possibilities for asynchronous viewing, they have attempted to maintain also a sense of liveness and simultaneity for some of their activities. One example is the development of ‘stay-at-home’ film clubs and watch parties, using social media like Twitter, or dedicated platforms like Netflix Party (now Teleparty), to facilitate online audience interaction (ibid.). The proliferation of livestreamed Q&As or panel discussions has been made possible through the introduction of new features and the extended usability of existing platforms, from YouTube (n.d.), to Facebook Live (2021), Instagram (2021) and Vimeo (2021), becoming a common way to enhance the liveness of a programme and enable audience interaction with new film releases (The Bigger Picture, n.d.). At the same time, relevant guidance was also shared, especially regarding online film clubs (Cinema For All, 2020b). These practices have been associated by the organisers themselves as an opportunity to ‘take risks’ by screening films that they would not necessarily include in their regular programme; increase the interaction with their audiences by providing them with the option to vote for their preferred screening through social media polls, therefore giving them ‘some ownership’; reach audiences beyond their local community and raise the profile of community cinemas (ibid.).



Screening films, however, posed different challenges. Over time, distributors have made more content available for online streaming. While many cinemas already had a virtual screen (like Curzon and the Queen's Film Theatre), these services have proliferated, through different arrangements between platforms, distributors and venues or festivals. Among the film festivals taking place online, new formats have also emerged, such as the 'We Are One' that was facilitated on YouTube, showcasing a selection of films and panel discussions from acclaimed international film festivals like Cannes, Sundance, Toronto International, Berlin and Venice (We Are One: Global Film Festival, 2020). Others have used dedicated platforms and services, such as Shift72 (2020), Eventive (2021), Filmchief (ThisWayUp, 2021) and Indy on Demand (Indy Cinema Group, n.d.) that have emerged into the market. However, due to the cost of their premium services, these platforms have not proven suitable for smaller festivals, which may instead use new and more affordable solutions like Sparq (Saville Group, 2021), that combines the functionalities of a website with a dedicated app for streaming.

Nevertheless, something remarkable about the past year of frenetic activity in the exhibition sector is that none of these platforms or models have become entirely dominant. Online exhibition is still a shifting object, somewhat reminiscent of the volatility of early cinema. For instance, venues and festivals have attempted to recreate the exclusive cinema experience with film streamings at set times and/or restricted to those with specific passes only; however, this practice raised discussions around the need for greater flexibility (BFI London Film Festival 2020, 2020). Others, like the BFI's Future Film Festival (BFI, 2021a), the Women X Film Festival (Rianne Pictures, 2021), and the Glasgow Film Festival (Glasgow Film, n.d.) made all their films available on their own player for 3 to 4 days, to enable audiences to watch them at their own pace/time, which seems to be a more popular preference. Interaction in these examples is mostly limited to the choice of time, place and pacing of viewing, but it can also enable choices such as the use of subtitles, captioning, or audio description.

### *3.1.2 Captions, audio description and BSL interpretation*

Alongside the aforementioned technologies, new tools have also emerged that can improve the experience of online audiences, such as browser extensions that allow exhibitors to add subtitles or closed-captions to videos online, thus making them more accessible. Relevant free examples are Substital (2021) and Otter (Otter.ai, 2021). This follows from streaming platforms by film providers like Netflix, to live streaming services like YouTube Live, that 'offer 100% captioning' (Mitchell, 2021)

and in multiple languages; venues and funders who have also developed a greater focus on accessibility, including initiatives by Film Hub Scotland and Matchbox Cineclub that ‘were able to caption 300+ films, shorts and features’, in partnership with exhibitors across Scotland (ibid.), and the BFI’s Inclusive Cinema (see also Section 2), guiding the adoption of digital tools for captioning, subtitling and interpreting.

### 3.1.3 A new digital literacy

Following from the previous examples, organisations have reported the need to provide audiences with guidance on accessing the different platforms and using the relevant technologies (Cinema For All, 2020b). Whilst, in events that bring together film exhibitors, creative practitioners and academics, like the ‘Live Cinema Conference III: The ReOpening’ (Live Cinema UK, 2020) and ‘Community Cinema’ conference (Cinema for All, 2020a), panels have reflected on how exhibitors and audiences have become more accustomed to accessing media experiences online. Rather than being simply a competitive threat, this new digital literacy will support cinemas’ efforts to attract cinemagoers in their reopening.

## 3.2 Interaction design for new cinematic experiences

During the last decade, the use of interaction design for new cinematic experiences has attracted the renewed interest of the film industry, seen in the popularity of productions like Netflix’s *Bandersnatch* (dir. David Slade, 2018) and an increasing number of festivals (e.g. Berlinale, Sundance, SXSW, Tribeca, Venice Film Festival etc.), filmmakers and researchers exploring new possibilities. A milestone towards acknowledging the role that the new interactive technologies and forms of filmmaking can play in contemporary cinema by opening ‘new doors of cinematic perception’ (Academy of Motion Picture Arts and Sciences, 2017), was also the special award given by the Academy of Motion Picture Arts and Sciences Board to Alejandro G. Iñárritu for his VR installation *Carne y Arena* (2017). In a parallel course, in recent years, terms like ‘live cinema’ or ‘experiential cinema’ have gained currency in industry and scholarship, covering a wide array of practices (Atkinson and Kennedy, 2018; Zioga et al., 2016). This overlaps with the conceptual terrain of ‘post-cinema’ (Hagener et al., 2016), longer histories of artists’ use of moving image in performative contexts (Balsom, 2013), and a growing interest in understanding cinema programming within permanent venues or festivals (Dickson, 2017). Of course, interactive cinema and filmmaking is not new. From the first well-known examples, like *Kinoautomat* (dir. Činčera,

Roháč and Svitáček, 1967), which is considered the world's first theatrical interactive film, to filmmakers, like Peter Greenaway, that have been advocating the new possibilities that interactive technologies can offer (Zioga, 2018a), interactivity has been seen as a means of actively engaging audiences with their film-viewing experience, thus empowering them and giving them 'ownership'. As we saw in Section 3.1, these notions have resurfaced and have been promoted in a similar manner during the pandemic, through the cinemas' efforts to engage their audiences in new forms of online communities.

The majority of interactive films and cinema experiences that have so far been produced and are currently available are created using HTML and 360° video, with the latter having also become a rather standard feature of social media. Other technologies commonly used for interactive filmmaking include Virtual, Augmented and Mixed Reality (VR, AR and MR respectively). AR in particular has the ability to superimpose computer-generated images (virtual objects) on a user's view of the real world that appear to co-exist in the same space (Azuma, 1997; Azuma et al., 2001). Similarly, MR allows the computer-generated elements to be integrated with the real world in a way that enables them to interact in real-time, for example through the use of Head-Mounted Displays, like Microsoft HoloLens (Microsoft, 2021). While VR, which is more well-known, 'lets users navigate and interact with a three-dimensional, computer-generated (and computer-maintained) environment in real time' (Pratt, Zyda, and Kelleher, 1995). The proliferation of these technologies and subsequent emergence of VR and Immersive Cinema since 2016 (The Virtual Reality Cinema, n.d.) have enabled among others, the 'complete breakdown of the "fourth wall"', which further pushes the development of motion picture that 'create "experiences" rather than "narratives"' (Daniel, 2016).

Other types of collective experiences in cinema theatres have been enabled through the use of dedicated apps installed in the audience's smartphones. For example, the interactive film *Late Shift* (dir. Tobias Weber, 2016) can be controlled by the audience's real-time majority vote, using their mobile devices, while the film itself is also available for home entertainment, for both single- and multi-player mode; and it can be downloaded as an app for iOS devices too (Late Shift, n.d.). Another technology that has started being used more widely in the film industry, including for facilitating interactive cinema experiences, is Artificial Intelligence (AI). Although so far there is no standard definition of what this involves (European Commission, 2020), we can use AI to refer to both 'systems that display intelligent behaviour by analysing their environment and taking action — with some degree of autonomy — to achieve specific goals' (European Commission, 2018), as well as the

theory and development of such systems. An early example of an interactive film created using AI is *Terminal Time* (Domike, Mateas, and Vanouse, 1998). The film is described as a ‘history engine’ that combines ‘historical events [...] forms of TV documentary, consumer polls and artificial intelligence algorithms’. Every six minutes questions appear on the screen, to which the audience are asked to respond and show their preference by applauding. An ‘audience response-measuring device (applause-meter)’ then ‘determines the winning answer’, thus creating a different cinematic experience every time (Terminal Time, n.d.). Other recent developments, albeit more niche, include the use of Brain-Computer Interfaces (BCIs) for direct single- and multi-viewer interaction of the audiences’ brains with a film or live cinema event – not just for home entertainment, or in pop-up spaces, but also in a cinema theatre, which can bring a new, engaging and collective experience and enhance the audience’s perception and engagement (Zioga et al., 2016; Zioga et al., 2018; Zioga, 2018b).

Additionally, during the COVID-19 restrictions, the discussion on the role that ‘immersive arts’ can play in film exhibition has been renewed, looking at ‘how immersive a remote or socially distanced experience can be’ and what the current conditions might mean for the future (BFI London Film Festival 2020, 2020). This leads to a call for exploring how emerging forms and technologies of interactivity, from HTML-based platforms to immersive Virtual and Augmented Reality, can facilitate new audience experiences in film venues. Towards this end, audience and user experience research can identify creative/site-specific affordances, existing literacies, preferences and barriers to access that shape public reception.

#### **4. A Proposition**

New technologies are transforming connectivity across society, and the developments mentioned in Section 3 hold an underexplored potential to support the recovery of the independent exhibition sector. Independent cinemas can use interactive technologies – from low-end platforms to high-end immersive technologies – to maintain audience engagement and entice cinemagoers to return to venues when it is safe to do so. Thus, the use of digitally-mediated interaction for audiences within cinemas can bring together innovation and the ongoing struggle for fair access to culture. However, if such technologies are to have a role in the future viability of independent exhibition, their adoption needs to be part of a transformative ethos of access and inclusion, rather than a restoration of the status quo. Interaction design has the potential to support access for D/deaf, neurodivergent and disabled audiences, but it can also be inaccessible and exclusionary, or simply

unappealing for audiences. Therefore, adoption by exhibitors requires critical data on the technologies' impact on audience engagement and experience, and on-site attendance. Meanwhile, identifying catalysts and obstacles to the adoption of new technologies will help address the need to increase accessibility, developing route-maps for immediate practical solutions and future innovations that can help the sector to build resilience and reach underserved audiences. Towards this end, we propose to take an interdisciplinary approach, combining methodologies from the fields of interaction and user experience design, audience research, and film exhibition. The aim is to investigate how the use of interaction design and technologies can help independent cinemas to maintain audience engagement under a 'new normal' of shifting restrictions, both off- and on-site, increase their diversity, and future-proof them against new waves of infections and pandemics. To navigate this proposition, a number of questions need to be addressed:

- a) Which off-the shelf interactive technologies and design tools have proven suitable and were rapidly adapted during the COVID-19 crisis for maintaining a hybrid, off- and on-site engagement with audiences of independent cinema operators?
- b) How can these technologies mitigate the existing inequalities that COVID-19 has highlighted and the impact on the audiences' diversity, address the need for greater accessibility for D/deaf, neurodivergent, disabled or shielding audience members, and increase the confidence of BAME audiences in returning to cinemas after the COVID-19 pandemic?
- c) How can design strategies and interactive technologies augment the film viewing experience during social-distancing and reduced-capacity restrictions, retaining some of the immersive qualities of pre-pandemic cinemagoing, and what type of collective interactions can they facilitate?

## **5. Discussion and Conclusions**

The emphasis on interactive technologies in cinemas can play out either as a mainstream trend that may replicate the same exclusions embedded in the status quo; as an enrichment of audience choices to create more adjustable experiences; or as a radical departure from conventional cinemagoing that can open up spaces beyond those exclusionary norms. We endeavour that our proposition will lead to suggestions for immediate practical implementation. These will shed light on the use of interactive technologies and design – from low-end online platforms to high-end immersive technologies – that can allow audiences unable to return to film theatres to have a cinematic experience from home, for example by facilitating collective interactions and retaining

some of the immersive qualities of pre-pandemic cinemagoing. This will further lead to benefits related to the mental health and wellbeing of communities by helping alleviate isolation. This also presents a pathway for engaging diverse groups, and supporting access for D/deaf, neurodivergent and disabled audience members. Meanwhile, it can provide evidence on the impact of online engagement in increasing on-site attendance in cinema settings and outline key directions and practices for the sector. At the same time, critical data gathered for future research use can pave the way for long-term solutions and design innovation. Following the shift in consumption of digital culture, one of the social and economic benefits will be identifying future strategies to support revenue streams and alternative funding models. Thus, it will contribute to building resilience and helping the recovery of cinema venues, reaching underserved audiences, and offering a toolset to ameliorate the impact of COVID-19 on cultural provision.

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