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Designing structural participation in an interactive film on mental health

Simona Manni
Digital Creativity Labs, School of Arts and Creative Technologies, University of York
simona.manni@york.ac.uk

Marian F Ursu
Digital Creativity Labs, School of Arts and Creative Technologies, University of York
marian.ursu@york.ac.uk

John Gray
Digital Creativity Labs, School of Arts and Creative Technologies, University of York
john.gray@york.ac.uk

Migle Markeviciute
Digital Creativity Labs, School of Arts and Creative Technologies, University of York
mm1679@york.ac.uk

Andrew Walter
Digital Creativity Labs, School of Arts and Creative Technologies, University of York
andrew.walter@york.ac.uk

Joanthan Hook
Digital Creativity Labs, School of Arts and Creative Technologies, University of York
jonathan.hook@york.ac.uk

ABSTRACT

The practice of interactive documentary can provide participatory opportunities thanks to its capacity for making space for audiences to leave their marks in a film. However, participants' inclusion has often been limited to an a-posteriori contribution of materials rather than a structural involvement in the film design. What happens when we treat participants as authors and let them imagine and design their own interactive film? This paper explores how design processes from participatory filmmaking can be adapted to achieve this goal by presenting the design process that led to the production of an interactive participatory film on mental health, *Stepping Through Interactive*. Five participants with lived experience of mental health problems explored, designed, and produced a non-linear film form to effectively represent their personal accounts of mental health. We review the challenges faced and the strategies deployed in the design process in view of supporting similar forms of production in other contexts.

CCS CONCEPTS

• **B7; Human-centered computing** → Interaction design; Empirical studies in interaction design.

KEYWORDS

Participatory filmmaking, Participatory design, Interactive filmmaking, Mental health

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1 INTRODUCTION

Interactive documentary film has become a topic of increasing interest in the HCI community in recent years [8, 21, 22, 53]. As technical innovations reveal new opportunities for film storytelling that includes elements of interactivity, personalization, and non-linearity, the lines between films and interactive digital experiences become increasingly blurred. A particularly compelling property of interactive documentaries, previously explored in HCI, is the opportunities they pose for creating polyvocal forms of storytelling where multiple, potentially conflicting, viewpoints are represented and fully accounted for within a single film text [21]. Moreover, interactive documentaries often include the possibility for audiences to input their own viewpoints into the film in form of images or footage. Expanding the documentary film form to create spaces where non-professional filmmakers can exercise their voices has the potential to facilitate forms of self-representation that can counterbalance the inevitable misconceptions arising from the power imbalances between documentary producers and their subjects [48].

These intents resonate closely with the practice of participatory filmmaking, a form of linear filmmaking where video is used as a tool for individual and group development [51, 61] and where the role of filmmaker is devolved to community members who can shape their own film productions. The value of participatory filmmaking resides precisely in empowering community members, often from marginalised groups, to decide how to represent themselves and articulate their experiences, producing authentic accounts of their viewpoints [51, 61]. This is particularly important when representing highly stigmatised and sensitive issues, including mental health [11], a field where participatory filmmaking can support the production of media pieces capable of reducing stigma and counterbalancing the often-stereotyped representations of mainstream media [4, 13, 24, 50, 60].

Intrinsically polyvocal as practiced in community settings where every participant should have an equal authorial voice in the film [17], participatory filmmaking could benefit from the plasticity of

interactive documentary by taking advantage of the narrative possibilities afforded by non-linearity. Layering multiple storylines, remixing content according to themes and points of interest, presenting diverse viewpoints over the same scenario, are some of the narrative devices typical of interactive documentary that could support the polyvocal aims of participatory filmmaking [35]. However, the involvement of non-professionals in making interactive documentaries has most often been limited to providing content that populates a pre-existing film design created by professionals. This approach turns audiences into contributors, but not yet film creators who can author the overall structure of the film [21]. The increased technical complexity of these forms, paired with the audiences' unfamiliarity with the aesthetic and structural possibilities they can take, introduces new barriers to participation not found in traditional filmmaking. However, to produce interactive films that are authentically participatory, participants must be involved into the design of the film structure and its agenda, not only its contents, and should retain overall authorial control. It is not enough to simply let them populate a structure created by professionals who are outsiders to the community participants belong to.

In this paper we explore how participatory filmmaking processes can be adapted to support the production of interactive films, taking into consideration both the requirement of structural participation typical of participatory filmmaking, and the technical and authorial complexities involved in the creation of novel interactive narrative forms. We present a case study where five participants with lived experience of mental health problems designed a participatory interactive film to discuss recovery. Through this case, we review a series of challenges faced and strategies deployed for expanding participatory filmmaking processes to support the production of interactive narratives. Our work contributes an articulation of the challenges of making participatory interactive films as well as workflows and design strategies that participatory filmmakers can use to merge these two forms of practice. This knowledge can be of value to HCI researchers and practitioners intending to experiment with novel interactive media forms in participatory projects, and projects and can more broadly contribute to informing HCI's approaches to participatory design, especially when applied in creative, expressive and artistic projects [7, 27].

2 INTERACTIVE DOCUMENTARY AND PARTICIPATORY FILMMAKING

2.1 I-Docs and their participatory potential

Interactive documentary (i-Docs) is a film form that expands traditional documentary filmmaking thanks the non-linear narrative possibilities afforded by interactivity. It allows audiences to interact with the documentary content in several ways, including, but not limited to, "reading, watching, commenting, sharing content, talking to others, filling in a quiz, playing, and clicking" [42]. Some films, like Gaza/Sderot (Muzayyen, Elmaliah, 2009) or Amb Títol (Ballús, 2016), present parallel viewpoints on the same issues, allowing viewers to move between one and the other, and encouraging them to make comparisons. In other examples (Terminal 3, Malik, 2018; Asylum Exit Australia, SBS, 2011; The Choice is Yours, Open Your Eyes to Hate, 2016), viewers are assigned a narrative role and asked to make choices on behalf of characters, increasing their level of immersion in the storytelling and their understanding of the characters' motivations. Some projects, like HighRise (Cizek, 2010) and 18 Days in Egypt, (Metha and Elayat, 2011) ask viewers to populate a film structure with their own footage, creating new forms of large-scale co-productions with the active collaboration of audience members. Other productions (Prison Valley, Brault, Dufresne, 2009; The Space We Hold, Hsiung, 2017) embed discussion forums in the film and welcome written debate from viewers as integral part of the film text.

As most of these examples show, i-Docs generally allow audiences to affect how much content they watch, for how long, in which combination, and to even add their own photos or footage to the film [18]. As a consequence, the film moves from a static text into a relational object, which is much "more fluid, layered, and changeable" than linear documentary [18], and which does not just exist as a finished product, but as an evolving environment, continuously transformed by audience interactions [43]. This shift also affects the role of audiences and creators: on one hand, audiences are expected to exercise agency by actively taking part in the film consumption, becoming active "users" [42]. On the other, the role of the author as main narrator of the film loses ground compared to traditional documentary [19, 20]. In this sense, interactive documentary can allow new forms of communal authorship to emerge [18]. This openness as a film form has inspired literature and practitioners to envision i-Docs as polyvocal devices, capable of accommodating a plurality of voices [3, 21]. Narrative non-linearity could indeed open up space to "contain multiple worlds" [3], while the expanded agency of audiences could encourage more active forms of reception and even stimulate social change [37]. As a result of these qualities, i-Docs could, and often aspire to, invite participation from diverse communities in shaping films which are no longer the exclusive realm of one authorial voice, and which could result in well-rounded, more nuanced representations [21].

A closer look at the space that previous interactive documentary examples reserve to audiences, however, reveals that we cannot simply equate interactivity with participation [43]. Nash distinguishes maximalist participation, "characterised by moves toward greater equality in decision making in relation to all aspects of the documentary project", from minimalist participation, where "participation tends to be content focused rather than structural, focusing on contributions of content, but without inviting involvement in shaping the overall aims and direction of a project" [44]. An i-Doc experiment from Green et al in 2017 moved from similar considerations: drawing from Literat [33], they define 'structural participation' as the "ability to inform the context in which this dialogue occurs or allow users to initiate their own conversations", whereas 'executory participation' occurs when users like, comment, or upload content into a system [21]. We consider this distinction crucial for supporting participatory authorship: an interactive documentary is, in fact, not only defined by the footage it contains, and populating an existing platform with content does not necessarily equal authorship [41]. The interactive structure which holds and curates that footage is an integral part of the film. Therefore, being an interactive documentary author means shaping both the film structure and its contents. While the possibility of accommodating viewer-generated content does expand the role of viewers in comparison to traditional spectatorship, it turns them in creative

collaborators rather than authors. The authorial and editorial control of the interactive documentary still resides in the hands of producers that have carefully orchestrated the structure and the limits within which viewers can make their contribution.

2.2 Participatory filmmaking as a polyvocal practice

For participatory filmmaking, on the other hand, structural participation is non-negotiable. Participatory filmmaking aims to empower groups, especially disenfranchised communities, by using participant-led filmmaking to reflect on their circumstances and to articulate them to others. As such, participatory filmmaking involves both structural and executory participation, with participants involved in every phase of the film production. Akin to the practice of digital storytelling [14, 59], participatory filmmaking centres around similar concerns over empowering disenfranchised groups and increasing their agency through authorship. In fact, this approach to filmmaking is particularly effective to support communities in unpacking sensitive and highly stigmatised subjects, like mental health [11]. Mainstream media has traditionally reinforced stereotyped views on people with mental health problems [4, 13, 24, 50, 60], with tangible effects on public perceptions [4], and consequently discrimination [9] and phenomena of shame and self-stigma [10]. Participatory filmmaking, on the other hand, can provide opportunities for people with lived experience of mental health problems to disclose their views on their own terms, benefitting from the increased sense of agency this induces [51, 61] while also producing films through which audiences can build a bond with the participants' experiences and increase their awareness of mental health [40, 57, 62].

The first author has worked as a participatory film facilitator with communities of people with lived experience of mental illness for over eight years. Through her practice, she had the opportunity to witness how producing participatory representations of mental health could empower participants to create authentic forms of storytelling, to rewrite stigmatised experiences on their own terms, and to establish dialogue with external audiences. Yet, this type of practice also presents challenges, some of which relate to the attempt of sharing authorship amongst participants and of accommodating different voices and viewpoints, all of equal value, within a linear film structure. Participatory filmmaking is, in fact, a polyvocal form of storytelling where "no voice shouts louder than any other" [16] and facilitators need to carefully manage "tensions between building collective narratives and knowledge, and uncovering differences in a group, or across a community" [40]. In such a sensitive field of practice, where community members are creating representations of themselves, dismissing ideas or inputs often means dismissing a person's experience. In previous projects, the first author has attempted to find strategies to allow every voice sufficient space of expression (creating individual mini films, collaborative scripting, voting as an ideas selection method), and while these worked on some occasions, there were times where communities could not create a cohesive linear narrative without having to sacrifice some of their creative input [36]. If linear film might by its very structure limit polyvocal authorship, the openness and multilinearity of interactive documentary could offer advantages for participatory filmmaking. Some narrative qualities afforded by non-linearity (coexistence of multiple storylines, presenting materials in non-filming form, responsiveness, empathy, immersion, and audience involvement) could support participatory filmmaking in producing interactive pieces that fairly represent the complexity of viewpoints existing in a certain community [35].

While some interactive documentaries were inspired by participatory values and made an effort to include some forms of participation [21, 63], it is very infrequent for this kind of investigation to start from a participatory filmmaking context. In this study, we flipped the terms of the equation: instead of making space for participation in interactive filmmaking, we grounded the study in the practice of participatory filmmaking itself and explored how participatory filmmaking processes can be expanded to include interactivity, involving participants in every stage of the film design.

3 THE STUDY AND ITS CONTEXT

Our research project explored possible solutions to the challenge of incorporating interactive forms into participatory filmmaking by grounding the work in the practice of participatory filmmaking and setting out to expand it towards the design and production of non-linear interactive narratives. This aim was achieved through the practical production of an interactive film with five participants with lived experience of mental health problems. This study intends to answer the question: how do we adapt participatory filmmaking processes to allow non-professional participants to design their own interactive film, including both content and narrative structure?

3.1 Participants, previous film experience, and the overarching project

The participants taking part in this project were five men with lived experience of mental health problems who are part of Converge, an organisation, based at UK university, which provides free courses to people in recovery. All five participants are long term members of the organization, well-versed in storytelling techniques and in articulating their own experiences of mental illness and recovery for activism work, which made them an ideal group for the exploration of complex interactive storytelling techniques.

These five participants had taken part in a film course pilot run in 2016 by the first author as a participatory film practitioner. As a result of this first experience, they had produced a linear short film, *Stepping Through*, in which they used video poetry to discuss their views of the role of community in recovery. This film attempted to convey their different and multiple viewpoints on the subject by using symbolic images rich in inner references and personal meanings. Even if linear, *Stepping Through* thus contained an inner tension towards "more", something additional that participants could not fully articulate in its linear form. We decided to work again with the same group in 2018 to explore whether and how *Stepping Through* could be turned into a non-linear interactive counterpart. In agreement with the participants, we decided not to open the group to new participants: this was because the work involved in this research centred around the film previously produced and the authorial intentions of this specific group of participants. Recruiting new participants and adding new creative work was beyond the scope of this study. Participants were between the age

of 35 and 62, and they all had past experiences of mental illness and hospitalisation, even if specific diagnoses were not shared with the researchers.

Participants were involved in this research for over two years. The first part of the project [35] investigated whether the prospect of narrative non-linearity afforded by interactive media could unlock expressive needs that had to be sacrificed to streamline multiple viewpoints into a linear narrative shape. The result of the study demonstrated that participants did tend to privilege views they knew they had in common against their personal viewpoints in the linear film, and highlighted four expressive needs that non-linear narrative had the potential to accommodate more easily: the need to have multiple co-existing storylines with varying degrees of relevance to each participant; the need for contextual materials alongside the video poetry; the need for linking portions of materials together, which would highlight commonalities and diversity in participants' experiences; and the need for a more active audience involvement, in order to stimulate self-reflection and empathy [35]. These expressive needs related not just to the participants' desire to produce more authentic representations of their individual experiences, but also to their wish to reach specific audiences: people currently struggling with mental illness, who could find encouragement and support in the film, and general audiences not necessarily well-versed in mental health awareness, who could empathise with people experiencing mental illness through the film [35]. In fact, participants involved in this project have extensive experience in mental health activism and were highly motivated by the idea of experimenting with novel forms of storytelling.

Starting from an awareness of these expressive needs and authorial intentions, we then moved on to exploring how to design and produce a non-linear narrative structure which could support them. The practice-based design work with participants generated a wealth of findings on the nature and development of the design process that led to the production of non-linear film; and on the formal characteristics, types of interactions, and audience dynamics of the non-linear film produced. This study focuses on the former, while a detailed description, analysis, and audience evaluation of the interactive film can be found elsewhere [36].

3.2 Methodology

This study is a practice-led reflective case study [1, 23, 45], where we sought to come to an understanding of participatory interactive film design through the practice of making an interactive film. Frequency, content, and structure of the sessions were kept flexible and responsive to the needs of participants, resulting in an evolving process that grew organically. These elements were in fact informally agreed upon with participants as the project unfolded by discussing next steps in conclusion of each workshop. The first author acted both a researcher and a participatory filmmaking facilitator, guiding the group in filming activities and supporting them in articulating their narrative ideas. Due to the sensitive and trust-based nature of the sessions, we limited the presence of external parties to a student intern who helped with fieldnotes and behind-the-scenes filming. The participatory processes we describe came about during a fluid and rapidly evolving iterative process, in which methods were adapted in response to participants' level of interest and engagement as well as the first authors reflections as a facilitator. For this reason, it was not practical to formally evaluate individual sessions with participants (e.g. by conducting and analysing interview data) as they took place, in particular because this would have placed an undesirable time burden on participants whose interest was primarily in the creation of the film rather than an assessment of the process. Instead, we base our analysis on a set of data consisting of session plans, design sessions' transcriptions, writing created by participants for the film, film footage and behind the scenes footage, production diaries and reflective logs. Reflective logs produced after each session by the first author were a particularly valuable method of documenting and analysing the successive activities in the process as they unfolded. Discussions which took place in participants' workshops were audio recorded and transcribed. From this combined set of data, we were able to review the overall process after its completion, identifying key decisional moments and trends reported [32].

The overall research design is rooted in some principles of Participatory Action Research [12, 31, 38]: participants were central to the research design, with their needs shaping the content and frequency of the workshops and the range of activities; their communicative needs in the film held a central role in the design process; dialogue and reflection were key to both the research design and the film design; we adopted an iterative, rather than linear, approach to the work. The workshops were designed to be as similar as possible to the participatory filmmaking sessions participants were familiar with, so that the research was embedded into the normal flow of their daily lives. Alongside working directly with participants, other collateral activities supported the production of the interactive film: a student internship and a collaboration with software developers from our research lab.

This study was approved by the Ethics Committee of School of Arts and Creative Technologies at the University of York. Ethics approval was also achieved through Converge, gatekeeping organisation in this project, with a particular attention in providing support to participants in case any discussion taking place in the workshops might have proven challenging or triggering. While this did not occur in this study, possibly due to the familiarity and trust amongst participants, safeguarding measures were in place and support available at all times.

3.3 Workshops and collateral activities

3.3.1 Participants workshops. Participants took part in thirty-two workshops from October 2018 to February 2020. The workshops took place at a university and were scheduled to happen roughly once a week for a two-hour duration. However, workshops varied in length and frequency according to which activity was conducted and there were periods of breaks due to holidays or other commitments the participants had to respect. One participant dropped out of the project after the third workshop for personal reasons but allowed the group to use the writing and sound-recording he produced, and he is credited in the final film. The workshops were organized to be as similar as possible to the participatory filmmaking sessions participants were already familiar with. The specific workflow used for the production of Stepping Through in 2016 is illustrated in Figure 1.

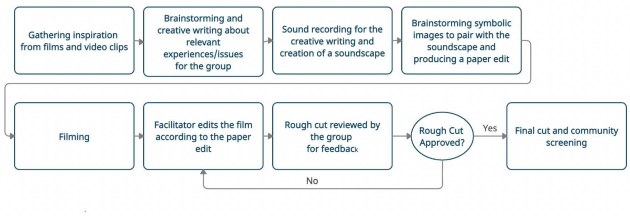

Figure 1: Linear participatory filmmaking workflow participants were already familiar with

This workflow, which took place over a total of nine weekly sessions, was particularly appreciated by participants, who enjoyed developing their work moving from keywords to sounds and footage. Since we were working with the same group and expanding on the film that resulted from this workflow, we decided to adopt a roughly similar structure: we started by proposing writing activities around key images first, producing sound recordings, brainstorming more symbolic images, to then move on to filming and reviewing sessions. However, this time we had the much more complex task of exploring and figuring out a non-linear narrative alongside working on content. For this reason, it was also necessary to dedicate a set number of workshops to design activities that could lead us to the development of a non-linear film structure. Following is a brief description of each main family of activities carried out in the participants' workshops. Some workshops involved combinations of activities.

Writing, sound-recording, imagery brainstorming. Nine sessions were dedicated to working out new film themes using a combination of writing and brainstorming. Participants used key images extracted from *Stepping Through* as starting point to develop new spoken word content which would cover the untold storylines emerged from deconstructing the linear film. The writing was then assembled in eight soundtracks and brainstorming sessions used the sound to ignite imagery ideas that were turned into rough filming plans. While these nine sessions sit at the start of the process, participants kept producing writing or recording lines occasionally while reviewing rough cuts later on.

Designing interactive narrative. Four sessions were focused strictly on exploring and reflecting on non-linear forms of narrative. The first session took place once participants had gained a clear idea of the new content they were going to film and where this would roughly sit in relation to the existing linear narrative. During this first session, participants built a physical map using objects such as cards, tape, and small envelopes, each of which signified a segment of content or a link between content. A second session followed closely and focused on reflecting on the physical map and comparing it with some existing interactive films that mirrored some of the characteristics of the participants' map. The third session took place several weeks later, when the first author and an intern student working on the project presented a prototype of some of the interactive features envisioned by participants in order to collect feedback. Later in the process, a session was split between reviewing the video editing done up until then and reviewing the interactive structure designed, using an updated prototype. While these four sessions were specifically assigned to design activities, spontaneous reflection over possible non-linear film forms kept happening overall the entire process.

Filming. Twelve sessions were dedicated to filming, working on locations available on campus. As for the previous linear film, participants worked from a list of imagery and symbols to capture but were open to filming more content according to inspiration and ideas emerged in the moment. They took turns in using the camera and worked as actors too. One filming session involved working with extras and another with a choreographer who produced a dance piece for one the soundtracks. One filming session was dedicated to filming interviews of participants. These filming sessions were interspersed with reviewing sessions.

Film planning and review of rough cuts. Nine sessions were dedicated to organizing the filming and reviewing the video editing of the new clips. Each filming session was dedicated to one or two of the new storylines emerged from the writing activities and was preceded by a session to review the imagery listed for each storyline, which included listening back to the soundtrack to make any last-minute changes, writing down a list of locations to explore on campus, organizing props or any other requirements for filming. The filming sessions were then followed by reviewing sessions where the first author showed rough cuts of each storyline to collect feedback and worked on the editing with participants. As the process moved along, these workshops contained both reflection on the editing from the previous filming session and planning for the following one.

3.3.2 Student internship. Alongside the workshops with participants, a 12-week student internship was organized to collaborate with a first-year Interactive Media student who could support the first author and the participants in the design of an interactive narrative structure for the film.

3.3.3 Technical implementation. Once most of the footage was produced and a clear structure for the non-linear narrative was in place, a collaboration with software developers from the Digital Creativity Lab became essential in order to implement a final interactive film prototype, *Stepping Through Interactive*. While the lab is working on completing an authoring tool for interactive storytelling, Cutting Room[1], that does not require specialist skills to operate, at the time of conducting this research the tool was not yet ready to be handled by a filmmaker without programming skills. In February 2020, two software engineers from the lab took on the role of technical team working with the first researcher to put together a working film prototype.

3.4 Finished product

The final film prototype, *Stepping Through Interactive*, presents a multilinear structure where the original linear film has been broken up in segments and is interspersed with additional storylines related to personal experiences of mental health and recovery. The narrative structure encourages viewers to question their own relationship to the theme of isolation and mental health through empathy-based

[1]https://digitalcreativity.ac.uk/projects/cutting-room.html

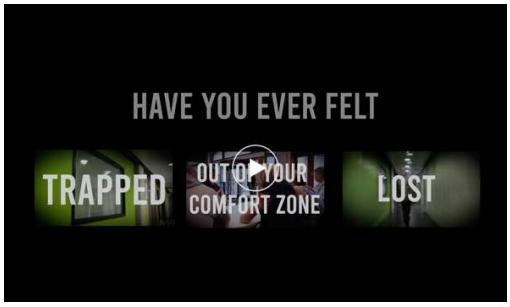

Figure 2: Examples of feelings' menu in the film

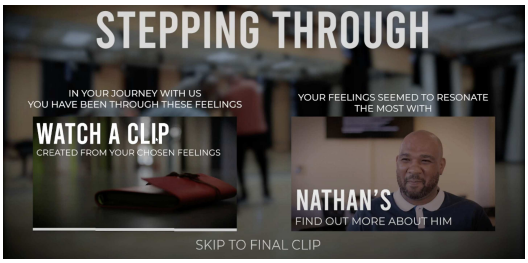

Figure 3: An example of recap menu in the film

questions (Figure 2) that guide the audience through an alternation of poetic film clips and documentary materials.

While viewers move through the film, their choices are automatically logged, and the film reassembles itself to only show unwatched clips that are relevant to the viewers' feelings. When all the possible combinations of content are exhausted, viewers are matched with the participant whose feelings they were more responsive to and can access documentary interviews detailing more of his story, and/or a self-generated clip that summarises the emotional journey of the viewer (Figure 3).

This structure was designed to encourage empathy and self-reflection and to personalise the viewers' journeys so that they could explore mental health themes that might be relevant to their feelings. The alternation of poetry content and documentary is also a key feature of the interactive film, which supports a process of gradual self-disclosure, where participants first express abstract emotional experiences through poetry, and then offer a more factual form of self-representation only to those viewers who have established enough of an empathic bond with them.

After completion, *Stepping Through Interactive* was evaluated by the participants themselves, and by a sample of audiences with varying levels of familiarity with the community the participants belong to, and with the topic of mental health in general. While this paper focusses on the design process that led to the film, details regarding the film's form, its user interfaces, and the results of the evaluation can be found in [36].

4 DESIGN STRATEGIES FOR PARTICIPATORY INTERACTIVE FILMMAKING

In the following sections we reflect on the process that was followed in creating the interactive film to identify and characterise challenges of incorporating interactive forms into participatory filmmaking practices and describe strategies that were employed to address them in the project. The strategies identified resulted from a negotiation between our initial plans and objectives and several adjustments made continuously according to reflection from the first author and feedback from participants.

4.1 Circularity and adaptability of the process

The process participants were already familiar with from their experience with Stepping Through in 2016 was a flexible linear plan with some iteration around the video editing stage (Figure 1). In our attempt to transform the linear film into an interactive film, however, we found that a longer and more complex process was needed, both because of the increased quantity of footage to capture and because of the time necessary to work out a non-linear narrative structure for the film. In this context, trying to enforce a linear production process as the one participants already knew would present several disadvantages. These included the risk of taking rushed decisions on narrative forms participants and first author were still unfamiliar with, the risk of overwhelming participants by not varying tasks, and the risk of not producing all the footage needed to fill in a non-linear narrative form. We observed that participants tended to become overwhelmed when several consecutive workshops focused on the same type of activity, with one participant in particular expressing tiredness towards activities that involved writing. We noticed that after repeating a certain type of task over several workshops the group would express curiosity towards different tasks and ask when these would be proposed. When varying tasks more often we recorded increased engagement from the group. Also, we often realised we needed more footage as film design and technical implementation progressed due to the increased amount of content required and the increased complexity of the structure, which made some combinations of content difficult to anticipate. As a result, we found that, instead of expecting the group to produce a finalised film structure before moving onto to filming, it would be more productive to let different stages of the work run alongside each other (Figure 4). Keeping the workflow open, scheduling filming sessions when the participants felt ready, and interspersing design sessions in different places resulted in better levels of engagement and reduced pressure around having to figure out each stage before moving to the next.

After an initial block of writing and brainstorming, which was necessary to better define the expressive intentions of participants, we followed a circular workflow which saw an alternation of filming, reviewing, and design sessions repeated as many times as needed until the group achieved a sufficient level of satisfaction both with the filming produced and with the interactive structure. By placing the last two design sessions during filmmaking breaks, we allowed time for participants to look back at their structure ideas with the added awareness of the quality and amount of filming done up to that stage, which helped clarify how much extra content a non-linear structure could require. At the same time, new storylines brainstormed at the initial writing workshops were reviewed at different stages, so that participants could have the chance to rewrite or add ideas according to insight brought upon by recent

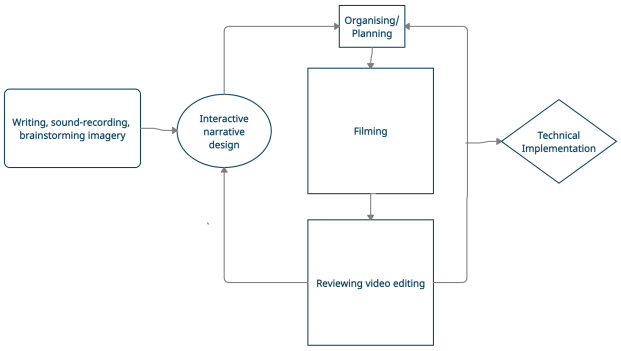

Figure 4: Non-linear participatory and interactive filmmaking workflow

developments in the design of the film structure. Varying tasks cyclically avoided participants getting overwhelmed with design work before being able to film, which they considered overall the most enjoyable, but also most tiring activity. Also, since the volume of filming was considerably higher than our first linear film, breaking up the filming sessions with regular reviews of rough cuts allowed participants to watch what they had produced regularly and adjust their filming objectives according to their level of satisfaction with their current footage, while gathering energy for the next round of shooting.

We found this strategy successful as this circular workflow created a fluid rhythm of different tasks and reflection, where each task informed the other, rather than being confined in a set linear development. In this kind of approach, filming and video editing activities are not consequential to the film design but played a supporting role as creative methods to clarify the film aims and its content placement in the overall structure. The flexibility and remixability of video poetry as a genre facilitated this modular approach to the process, making it possible for us to start filming while still working at defining the overall film structure. This could prove much more challenging for films that rely on more traditional forms of narration which need to respect stricter continuity rules.

4.2 Focus on expressive needs over form

Part of ensuring that structural participation was respected in the making of this interactive film consisted in allowing participants to inform the narrative structure of the film according to the expressive needs identified in the de-construction of *Stepping Through* as a linear film [35]. Moreover, keeping participants' expressive needs as focal point in the workflow was important as they closely related to the possibility of producing richer and more accurate accounts of the participants' experiences of mental health and recovery, which motivated this entire work. However, implementing this principle in the context of making an interactive film presented its own sets of challenges. With traditional films, participants are usually able to imagine and envision what a film concept, and different options for structuring it, might look like, by drawing on a familiarity developed by watching film and TV examples throughout their lives. This is not the case for interactive films, for which participants may have never seen, or only seen a very limited selection of, interactive films before. In the context of this likely unfamiliarity with interactive filmmaking, identifying the appropriate non-linear film structure for the expressive intention of this group presented two possible risks: to gravitate towards more obvious non-linear structures, such as hypertexts, due to participants' familiarity with the web; or to fall into the temptation of imitating the first examples of i-Docs viewed, due to fascination with the novelty of their features.

To allow the genuine expressive needs of participants, rather than a limited sub-set of existing examples viewed, to inform our narrative structure of choice, we decided to move into our first design session before having shown any interactive documentary examples to participants. Only once participants had already envisioned a rough interactive structure for their work and had formulated specific questions around their own narrative structure, the facilitator then presented them with a selection of i-Docs which contained interfaces and structures participants could draw inspiration from. In following design developments, we kept refining the structure looking for strategies to ensure participants' expressive needs were met. At first participants did seem to naturally gravitate to a database-style of interactive documentary. However, through further design analysis the group realised that a data-base model would satisfy two of their expressive needs very well ("presenting materials in non-filmic form to clarify context" and "linking portions of materials together") but would at the same time limit their ability to accommodate the level of audience' emotional self-reflection required and the capacity to show different degrees of relevance of mental health themes to each participant's stories. After several rounds of design work and discussion, the group opted for a quiz structure with intervals for viewers to reflect on their own feelings and a progression of clips based on commonalities between the viewers' responses and the emotional nuances inputted by participants.

Overall, we found that delaying the introduction of existing examples of i-Docs and focusing first on the expressive needs of participants facilitated the emergence of a novel non-linear narrative structure informed by the unique combination of experiences and viewpoints of this group.

4.3 Tangibility in the design process

Another design challenge emerged because of the participants' and the first author's initial unfamiliarity with the practicalities of producing interactive media: how to imagine unknown non-linear narrative forms without experimenting with dedicated software. With currently available tools and the pre-existing skills held by the participant group, it was not possible to allow them to explore different formal options through hands-on making like a skilled interactive filmmaker might. This is not an entirely new challenge for participatory filmmaking, where participants often need to be introduced to video editing without having access to an editing software. Addressing this challenge is, however, more difficult in the context of interactive film, where the tools for interactive film and the aesthetic and technical opportunities they pose are much more complex and depend on concepts that are far more distant from the prior knowledge of most people who do not have experience of interactive media design.

Figure 5: Strips of black and white paper represent segments from the original linear film

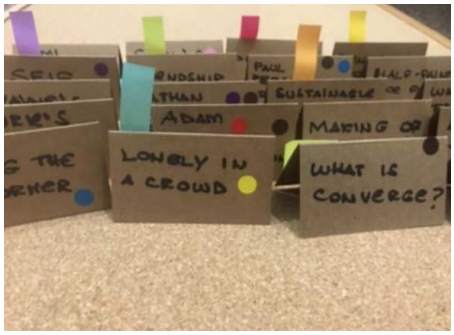

Figure 6: Cards present new film themes, tagged by colours corresponding to each participant

In previous projects, including the making of the original linear film which inspired this research, the first author found that, while exploring traditional video editing with groups who could not have access to a software, activities based on building sequences of physical photographs be particularly useful, thanks to the tactile nature of the props becoming a vehicle for cognitive understanding [47]. Inspired by boundary objects and tangible interaction design [26, 55], we extended the same approach to this study and designed two paper-based activities that would support participants in reflecting on the non-linear structure they were developing. The first activity consisted in using printed images of key shots from the original *Stepping Through* to assemble new combinations for each new storyline identified. This activity served to introduce the idea of responsiveness as the ability of a piece of interactive media to automatically rearrange the order to units of video or sound according to specific criteria. The same images were connected to keywords that mimicked the workings of tags. This activity was used during the first part of the work, in conjunction with writing tasks. The second activity took place during the first design workshop and consisted of creating a physical map of film contents represented by different materials. Strips of black and white images represented linear fragments from the original film (Figure 5); cards and envelopes represented new storylines not yet filmed (Figure 6); coloured tapes represented thematic lines linking portions of materials together; coloured stickers represented tags related to each participant to indicate which portion of material was relevant to whom. By placing all the materials on a map and physically moving them, participants were able to discuss the meaning of each location and decide according to which logics materials should be linked together (Figure 7). This map was later developed further and turned into a digital flowchart.

This approach was observed to allow participants to productively reflect on concepts typical of interactive film (points of access for viewers, links, tags, signposting content, guiding interactions, and more) without having to familiarise themselves with inaccessible software. Using paper-based methods made these concepts non-intimidating, facilitated the emergence of questions from the group, and created a baseline for further design activities.

Figure 7: A physical map of the interactive structure

4.4 Balance of process and final product

While recognising the utility of participatory films for dissemination and communication, participatory filmmaking has traditionally assigned a limited role to the final film products as opposed to the process of making those film, which is considered the essential place where the empowering effects of participatory filmmaking manifest [34], to the point where, at times, it does not matter if a completed film is achieved or shared with others. In interactive film, on the other hand, the role of the final product and how it relates with users/viewers is central and needs to be clearly accounted for.

In our study, we found that for these participants making an interactive film was not just motivated by being part of a process. They naturally gravitated towards reflection on the role of the audience: how will viewers move through the content, which choices will they make, when will they be expected to act and when to sit back, which message will they take away from the unique combination of content they will experience, have all been crucial questions that participants spontaneously generated during every stage of the design process. Since our very first study, participants clearly stated their objectives for the role of the audience: to be actively

involved in a process of self-reflection about which elements concur to their emotional wellbeing [35]. This consideration to the role of the audience assigns a strong focus on the finished product and its workings. Participants ended up considering the needs of both passive and active users and decided to create a structure where viewers could choose whether they wanted to lean forward or back: if no choice is made in the menus presented, the film still carries on, resembling more closely the original linear film produced in 2016; if a choice is made the film assembles itself around those choices. Menus have been built as clips, with music, images and spoken word. If no choice is made, menus still work as meaningful film sequences within the wider film text.

While we had a stronger focus on the final product and the viewers' role than in most participatory filmmaking projects, some attention still needed to be paid to the process to ensure that participants could benefit from those aspects that are traditionally associated with participatory filmmaking: establishment of stronger social bonds, development of confidence, self-expression, and critical awareness [51]. In order to ensure that taking part in the process would act as a support for the group well-being, we included plenty of time in the workshops for participants to talk freely about their views and experiences of mental health whenever they felt the need to; we kept checking in with participants on their level of enjoyment of the activities and took on their feedback on the frequency and content of the workshops; we allowed participants generous time to chat, catch-up and have fun. Participants found this element very important to the overall success of the project (participant 2: "I've actually come, participated, said stuff out to the people, had a laugh, and it's all you can do, isn't it?"; participant 3, commenting on the process while watching the completed film: "there were quite a few things that still made me smile [....] it just brings back memories, happy memories") and decided to embed it into the film through a behind-the-scenes section, running alongside the final credits, which shows the joyful and social side of the work.

Overall, we found that the nature of interactive film and the central role it reserves to viewers motivated participants to focus on the film as a product and to take part in a process which was longer and more complex than what they were familiar with. Balancing attention to the final product with ensuring that the process would be pleasant and enjoyable has helped keep levels of engagement high and consistent throughout the study.

4.5 New skills required

Participatory filmmaking is a collaborative practice, often taking place as the results of alliances between communities, practitioners, third sector organisations, funders, and at times academia. Working on a piece of interactive media brings in new players to this pool of collaborators. In this experiment, we needed to bring in expert skills that did not belong to participants nor the first author. Literature on the topic recommends that an interactive documentary designer should have at least an understanding of coding [28], but in our experience, most filmmakers still come from a humanistic or artistic, rather than a technical, background. Our case is no exception: in the making of *Stepping Through* in 2016 we had already faced a technical barrier, typical of many participatory film projects, that limited the ability of participants to edit their films by directly using video editing software, but this time we had to face the double barrier of working with a non-linear authoring software that was not accessible to either the participants or their facilitator. This led us to identifying a clear need for external support.

One way of achieving this support was through the student internship and the contribution of the Interactive Media student, who helped evaluate technical tools to use for prototyping, retrieve existing i-Docs which could be of interest to the group and identify a film structure that would convey participants' expressive needs. Towards the end of the film production process, we started a long-term collaboration with software developers from our research labs in order to turn the narrative structure into a working film prototype that could be presented to audiences. The first author acted as an intermediary between software developers and participants, communicating participants' plans and intentions to the technical team and providing regular updates on the state of the film development to participants. This happened in conjunction with the design workshops, where the first author regularly reported feedback from developers to participants and recorded their reactions. Here the ability of the facilitator to act as a mediator that could express the views of participants as closely as possible to their original intentions has been fundamental and was facilitated by the familiarity of the first author with this group of participants.

This additional layer of collaborative work also meant that participants could not have the same immediate and regular confrontation with the development of their project as we can usually provide in the editing process by showing rough cuts of linear films. In fact, it was not possible for software developers collaborating in the project to regularly export working segments of the film. This limitation was counteracted by using more accessible non-linear storytelling software, such as Klynt[2], a tool for the authoring of interactive narratives that has an accessible user interface. While Klynt could not support the quiz-based interactive structure that the participants designed, therefore it was not suitable to take on the entire film implementation, it proved very useful to produce quick partial prototypes that could be shown to participants to gather feedback on specific portions of the film. The first author used Klynt to reproduce interfaces that software developers were creating in the lab and to easily show them to participants during design workshops. The feedback collected was then used to inform more in-depth work from software developers on their software of choice, Cutting Room. While it was not possible to technically implement all the features that participants had imagined, the key structural design and fundamental interfaces were achieved, and participants found that the final product correctly and authentically represented their viewpoints [35]. However, even with these strategies and mitigations in place, participants experienced a wider distance between their input and the technical implementations these were turned into during the technical development of the film. In ideal circumstances, a direct collaboration with software developers in face-to-face settings could help fill this distance.

[2]https://www.klynt.net/

5 OVERCOMING THE CHALLENGES OF MAKING PARTICIPATORY INTERACTIVE FILMS

By comparing the process that led to the creation of the original Stepping Through and the expanded process deployed to turn the film into its interactive version, we found that, unsurprisingly, Stepping Through Interactive required a much longer and more complex process than that which led to the production of the original work in 2016. Some of this increased complexity was imputable to the fact that interactive filmmaking inevitably requires the production of a bigger volume of footage and media assets[3] than linear filmmaking. However, some additional time was also required to navigate non-linear storytelling through writing and design activities and adapting these to the pace of work of participants. As such, merging the participatory film process with interactive media production expanded the former both quantitatively (more workshops necessary to cover a higher volume of media assets needed) and qualitatively (new workshops, activities, and collaborators).

In its increased complexity, the process also presented a number of new challenges. Here we identify three main challenges that the operation of merging participatory and interactive filmmaking entailed and discuss how the strategies reviewed in the previous section allowed us to mitigate them. We believe that, while some aspects of the process deployed in this project were unique to the circumstances of this group of participants, other participatory film projects attempting to approach interactivity might face some or all these challenges.

5.1 Imagining the unfamiliar

In most participatory filmmaking projects, the majority of community members involved do not have direct experience in filmmaking before taking part in these initiatives, but they are usually well aware of the formalities of different film genres and TV formats as consumers of linear media. This shared familiarity with the medium facilitates the possibility of imagining film ideas and styles with the guidance of professional facilitators. In traditional linear participatory filmmaking, we usually work from a pool of established genres that participants are in most cases very familiar with: documentary, drama, horror, thriller, sci-fi, music videos and so on. Opening up participatory processes to include interactive media means guiding most participants through exploring a film format they are not familiar with. At the same time, participatory filmmakers who have solid experience in interactive media design are very few. This means that both participants and their facilitators find themselves in the position of having to imagine features and expressive modalities of a medium they are not very well-versed in.

In this project we could not count on a library of implicit shared knowledge amongst participants and facilitator due to the novelty of interactive documentary forms. Participants had not watched an interactive film before being involved in this study. Our work was motivated by a series of expressive needs related to what was left unexpressed in the linear film (see 3.1). We had an idea of what participants wanted to express but not which form could better express it. A risk in this sense was to retreat into what is the most familiar device in online communication and imagine film texts that strongly resemble hypertexts. While the hypertext or database model has been successfully applied to i-Docs [15], interactive documentary can assume a much richer range of formal possibilities [19]. In order to explore them though, facilitators need to find accessible ways to stimulate participants' imagination of unfamiliar narrative possibilities.

We found that using physical objects for design activities was a successful strategy to envision new narrative forms in a way that participants found enjoyable and easy to grasp. The use of boundary objects or other physical media can support experimentation with the concept of granularity as an affordance of interactive media [28]: that is, the possibility of building multiple relations amongst units of content through remixing, indexing, and spatial montage, and their effects on meaning-making. Working on a physical map helped participants envision their film tri-dimensionally, as opposed to the bi-dimensional structure of linear video editing they were familiar with. Looking back at the process of designing the film structure, one participant commented: "things were confusing at the time, but obviously we hadn't done it before, what we were doing was all fresh to us anyways, so it felt good to be confused and then actually do something, and then seeing it, and then you're not too confused".

Ensuring that expressive needs were clearly articulated before diving into the exploration of other examples of interactive documentaries was also important to keep space open for experimentation as opposed to imitation. This also helped respect the structural authorship of participants who were articulating a narrative form based on their authorial intentions, rather than trying to adapt their viewpoints to a required format. While this process can be more straightforward according to the needs of different projects, we believe practitioners working with participants who are still unfamiliar with this work should carefully consider how to prioritise communicative needs over form, in order to respect a fundamental requirement of structural participation: that the structure be shaped by participants' inputs.

5.2 Carving a personalized process

Both participatory filmmaking and i-Docs production are flexible practices that, unlike traditional filmmaking, have never been formalised in standard workflows. Participatory filmmaking is practiced within widely differing and at times overlapping contexts, ranging from rural development [6, 49], advocacy [17], health [5, 52] to academic research [28, 30, 39, 46] and policy [16]. While accounts of participatory film work are not lacking in literature, most projects' workflows vary greatly according to agenda, community context, size of participants' group, time and budget available. In this sense, participatory filmmaking tends to flexibly adapt each project according to its specific requirements, keeping as unifying criteria "a focus on skills and values rather than methods and techniques" [25]. The practice of interactive documentary, on the other hand, is not defined by a set of values but rather by a finished product which presents a set of characteristics: it is grounded in reality (non-fiction) and it presents some form of interactivity [2]. In terms of workflows, we find the same fluidity observed in participatory

[3] Audio-visual units, such as images, pre-edited video sequences, soundtracks, animations that are combined to produce the interactive film.

filmmaking: each i-Doc is very different from the next and there is not a set of standard practice applied in the production of interactive documentaries. Detailed descriptions of production processes are not easily available [29], unlike traditional filmmaking which presents a body of standardised practices.

In the attempt to merge participatory filmmaking with interactive media production, some guidance can be found in the framework of participatory design. Participatory filmmaking and participatory design share a focus on empathy [56] and on co-producing with communities that are usually excluded from the production of tools and systems [58]. Aspects of the iterative workflow typical of participatory design [54, 64] can complement the filmmaking process by inserting tasks and methods that are very well-suited for the design of interactive experiences. However, there are also important differences between participatory design and participatory filmmaking: in filmmaking, linear or interactive, the focus is to produce a work of art which encapsulates a worldview and allow authors to express themselves. While this often has also practical applications, the aim is not to design a system for utilitarian purposes, and space needs to be maintained for elements that might not be efficient or economical but that are necessary to express meaning for the authors. Likewise, the concept of end-user is different from that of audience: while designing an interactive film implies a much deeper reflection on viewers, their journeys, and their choices than traditional filmmaking, the focus has still been predominantly on the participants as authors and what they wanted to express to audiences, over the delivery of a product to be used.

Overall, to merge participatory filmmaking and interactive documentary is still a relatively infrequent endeavour and it required stepping out into uncharted territory. We met this challenge by keeping the process circular, modular, and responsive to participants' reactions. We found that trying to work through a linear process, as it normally happens in traditional filmmaking, would have not suited the level of complexity required and would have resulted in stressful workloads and possibly participants' disengagement. It was particularly important to consider the history, needs, and wishes of the group and take these into account in producing a personalised workflow, thinking carefully about their previous filmmaking experiences, their level of tolerance for repeated tasks, the time needed to absorb and elaborate new narrative ideas, the expressive needs they wished to fulfil as a result of this experience. We also realized that a certain design phase did not need to be concluded before we could engage the group into the next one and that working cyclically, rather than linearly, on different activities required more time than expected but added additional clarity to the process.

Part of personalising the production and design process to the needs of the participants also meant striking a balance between focusing on the benefits of the process itself and the achievement of a final product. While participatory filmmaking stresses the importance of the process over the final product, when faced with creating an interactive film, our participants demonstrated a much stronger interest in the product and how it would be experienced by its audience. For them it was important to enjoy the process as a catalyst for socialisation and creative expression, but they also wanted to achieve a functional final product that could support people experiencing mental health problems and increase awareness in those who do not have direct experiences. Overall, we believe a process of negotiation should take place between the attention reserved to the final product, as an interaction design input, and to the intrinsic value of the process, as a participatory filmmaking input. Reaching a satisfactory balance between the two means ensuring that the group can benefit from the participatory filmmaking process, while also producing a piece of work that authentically represent their viewpoints.

5.3 Forging new partnerships

In traditional participatory filmmaking, facilitators have direct experience in filmmaking and can pass on skills to participants. However, very few participatory filmmakers have the technical skills that would allow them to use coding to shape an interactive film in a non-linear storytelling software. While there is a considerable effort from R&D teams and research labs to create software that can support interactive media productions for practitioners with no programming skills, at the time of conducting this study most accessible tools do not offer the level of complexity required by a tailored interactive filmmaking project and external technical support can be necessary. A participatory filmmaking facilitator is able to manage participants' expectations of what is technically possible in a linear film, but in designing a participatory interactive film there is a risk of encouraging participants to imagine unfeasible features, or, on the contrary, overestimating technical difficulties, leaving possibilities unexplored due to the unfamiliarity of the facilitator with the technical resources available.

In our project, a portion of the design development work was conducted by the student intern and the first author, while all the technical implementation was carried out by software developers. This introduced a barrier which meant that some of these specialist skills were not passed on nor directly exercised by participants. One method we deployed to reduce this barrier was to use Klynt, a simpler non-linear editing tool to produce partial prototypes that could facilitate communication between participants and technical team. While the extent to which this approach could bring participants closer to interactive forms was limited by the smaller set of features that more accessible tools support, it does demonstrate rich potential for employing future tools that balance approachability with expressive potential as they become available. However, for now, we feel it is advisable to involve technical specialists in working directly with participants to encourage conversations, learning, and exchange and to involve participants in user testing with a variety of audience members, so that they can get a direct sense of how their authorial choices are received by viewers in response to different technical solutions. While this was not possible in our project due to the COVID-19 pandemic[4] restrictions, which forced us to carry out audience evaluations online, without the direct involvement of the participants who created the film, we encourage this practice whenever possible and intend to employ it in our own

[4]The COVID-19 pandemic disrupted only portions of this project. The pandemic started immediately after the conclusion of the participants' workshops, and lockdowns happened while software engineers were working on turning the rough prototype of the film into a refined version. The evaluation of the final film by the participants who created it happened in October 2021, at a time when, in the UK, small groups could meet indoors with precautions. However, restrictions impeded the possibility for participants to meet the software engineers in person and to conduct an evaluation screening in person with audiences, which was instead carried out online [62].

future projects. In suggesting this, we are mindful of the importance of building trusted relationships between participants and facilitators in participatory filmmaking contexts where sensitive topics are discussed and disclosed. Therefore, we recommend that such involvement must not be scant – and may need to be longitudinal, extending throughout a significant portion of the duration of a filmmaking process.

6 CONCLUSION

In expanding the participatory filmmaking process we were familiar with to include the design of interactive documentary, we have attempted to merge executory and structural participation in the production of a structurally participatory interactive film which would convey the personal experiences of mental health and recovery of our participants, respecting the plurality of their individual and communal viewpoints. We found that this process entailed several design challenges: the lack of a standardized body of practice, the fluidity of narrative structures of a new and still evolving genre, the need for specialist skills, are problems that most participatory filmmaking facilitators are likely to face when guiding a group in the production of their first interactive film. We identified strategies to overcome these challenges in ways that respect as much as possible the integrity of vision of the participants involved. We found especially useful to consider the needs and aims of the group in designing a tailored workflow that could support participants' work through numerous iterations and a modular repetition of activities; to establish clear expressive needs and let them inform the narrative structure of the film; to make use of physical objects and tangible interaction strategies; to balance a goal-oriented focus on the final product with attention to a participatory process that could benefit participants' wellbeing; to be willing to create new forms of partnership with interactive media experts that could bring the technical skills required. Through the application of these principles, we developed a process that we feel, while longer and more complex than usual participatory filmmaking processes, was overall effective in supporting the authorial needs of the participants without being overly demanding. This was confirmed by the fact that participants recognised their authorship in the final film, with three participants expressing the wish to work as facilitators in the future and to use the same workflow to support other communities in authoring stories of mental health using interactive films [35].

We are aware that by working with a group of participants who had already experienced a participatory film process, we were operating in exceptional circumstances compared to many small-scale projects: the first author had an established rapport with the group and group members were already familiar with each other; they were all experienced participants, well-versed in storytelling, theatre, and music; they were using a particularly flexible form of narration for their own experiences; the project had generous time and on-going technical support at disposition. We believe that working with a group like this was ethically the right choice due to the risks of introducing the unfamiliar concepts of interactive film *and* participatory film to vulnerable participants concurrently. We are confident, however, that the strategies developed in this project offer means to introduce concepts of interactivity to participants in a less overwhelming way, laying the foundation for the participatory production of interactive film with less experienced groups.

We anticipate that similar work taking place outside long-term academic projects will face considerable additional challenges that we did not, especially in terms of time and resources available. Some ways to overcome these could be to use simpler and more accessible non-linear storytelling tools which require minimum external support and introduce technical possibilities earlier in the process to better manage participants' expectations. Participants and possibly volunteers could also be involved in testing the films for bugs, a very time-consuming work if carried out by one person. While these strategies can shorten parts of the process, some phases of the work might require more time when working with a less established group: whereas participants do not know each other, time needs to be allocated to build rapport and a relationship with the facilitator as well as each other. Also, different idea development and brainstorming methods would be needed to develop a film idea from scratch in the most likely scenario of participants not having a previous film production experience to ground their exploration on. However, while the particularities of this experiment are unique to this group of participants and their specific requirements, we believe that the higher-level principles we deployed to ensure that the views and expressive needs of participants were respected in the making of the film (circularity and adaptability of the process, letting expressive needs shape the film form, tangibility in the design process, balancing process and product, forging new partnerships) could be of support and inspiration to similar forms of production in other community contexts. These can also support HCI research and practice in the field of collaborative, community, and expressive art-making [7, 27], where participatory design tools could be enriched by a stronger focus on self-expression over functionality, and by carefully considering the blended roles of participants as authors and end-users as audience.

We encourage future research and practical work in combining participatory and interactive filmmaking in other community contexts, towards a much-needed body of case studies that would allow the emergence of commonalities and best practices.

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