

CO-CREATING A COMMUNITY VR OPERA: AN ANALYSIS OF THE FINAL OPERA WITHIN THE FRAMEWORK OF A CO-CREATION PROCESS

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ABSTRACT

This article presents the main outcome of a co-creation processed developed in the project Traction, namely a VR opera. The article puts the focus on the evaluation process of this community VR opera using a map of indicators as its framework. The analysis presents data from various evaluation instruments, such as an audience questionnaire, an experts' assessment form and semi-structured interviews with professional and non-professional artists involved in the co-creation process and final VR opera. It highlights how the learnings from Traction can inform future co-creation processes and stresses the potential of VR as a new artistic medium.

Keywords: Co-creation; Opera; Virtual reality; Evaluation.

Out of the Ordinary/As an nGnách is a new virtual reality (VR) community opera by Irish National Opera (INO) that tells the tale of a community forced to flee their barren homeland. Nalva, the protagonist, has built a boat to escape from a land which can no longer sustain them due to their own destructive actions. The audience becomes Nalva and embarks on a journey to find a new home. *Out of the Ordinary/As an nGnách* has been produced through a co-creation process involving both professional and non-professional artists across three different communities in Ireland. This opera is an outcome of the Europe-wide Traction project. The two other project outputs include a co-created opera at Barcelona's Liceu opera house involving neighbours from Raval, an inner-city district, and a co-created opera led by independent music school SAMP at a young inmates' prison in Leiria (Portugal).

At the core of this project resides the relationship between community members, a cultural organisation, and professional artists. Though collaborations of this sort are not uncommon in the performing arts (examples include Dance United at Sadler's Wells and Open Stage Project at Theatre Royal Stratford East, amongst others), fewer examples of opera co-creation exist. Co-creation is here defined as in the Traction project: "the creation of a work of art by professional and non-professional artists" (Matarasso, 2021, p. 32). Amongst available examples of this type of work are Streetwise Opera, an opera company based in London that enables people who have experienced homelessness to find inspiration and empowerment through the co-creation of new work and reimagining of classics while they rebuild their lives and identities (Streetwise Opera, 2018). Similarly, Birmingham Opera Company operates a model which integrates professional and non-professional artists in the development of work, which is often performed in non-traditional settings (Birmingham Opera Company, 2022). Whilst opera performances in unconventional physical spaces are not unusual, an increasing number of companies are beginning to innovate within new mediums such as VR. The narrative and experiential potentials of this emerging technology are vast, the capacity of the format to interact with the user and the nature of the story is constantly evolving (Taborda-Hernández, Rubio-Tamayo & Fernández, 2022). Works of this type include *Current, Rising* at the Royal Opera House, London (Oliver, 2020), *Tosca VR* (Relative Motion, 2020), *V-Aria* (Bayerische Staatsoper, 2018), *WELTATEM* (Nederlandse Reis Opera, 2019), *Miranda: A Steampunk VR Opera* (Tri-Cities Opera, 2020) and *OrpheusVR* (re:Naissance Opera, 2022). It should be noted that none of these works are co-created with communities, highlighting the novelty and innovation of this INO production.

Whilst the need to evaluate artistic performance in opera companies, including co-created works, is relatively well recognised (Boerner & Renz, 2008; Chiaravalloti, 2015; Boerner, 2004), it is also true that these frameworks for evaluation must be expanded to include new operatic mediums such as VR. It is notable that there is no academic literature

evaluating the above examples, nor any other VR operas, despite their innovative nature. Examples of the application of evaluative frameworks for VR artefacts from cultural heritage (Economou & Pujol, 2008; O'Dwyer et al., 2021; Pierdica et al., 2020) are numerous, and should be considered as a starting point for this case study. The framework devised below outlines a novel approach to the triangulation of data from VR artefacts and may be of use in the development of evaluative models for cultural organisations in this space.

To this end, this article presents the results of the evaluation of the INO opera considering different perspectives and participants: the professional and non-professional artists involved in its creation, alongside audiences and external experts. Section 2 contextualises this evaluation process in the context of Traction and Section 3 reports on the evaluation instruments used, with a focus on a map of indicators that has guided the evaluation. Section 4 discusses the main findings, looking at the results of a series of interviews, an audience questionnaire and an external expert's assessment. Finally, Section 5 draws some conclusions from the findings. The results of this evaluation can inform future community processes and should be considered within the context of the value of community art and by extension, cultural outreach programmes.

2. TRACTION AND THE INO TRIAL

Traction is a 3-year project (2019-2022) funded by the European Commission which aimed to investigate opera co-creation as a vehicle for social transformation. Traction's main objectives were: a) to use new ideas of participatory art to involve citizens in opera co-creation; b) to empower communities in three trials (Raval's neighbourhood, Leiria's youth prison, and rural communities in Ireland); c) to implement new technologies allowing for the exploration of new artistic formats and media, and d) to investigate the relationship between opera and digital technology. The project resulted in 3 lengthy co-creation processes leading to 3 different artistic outputs. INO's virtual opera *Out of the Ordinary/As an nGnách*, Liceu's *La gata perduda (The Lost Cat)* and Leiria's *O Tempo (Somos Nós)/Time (As We Are)* constituted the final opera performances.

Co-creation, in the context of Traction, is understood as the interaction of professional and non-professional artists in participatory art. Focusing only on the INO co-creation process, 75 non-professional artists and 8 professional artists were involved in 14 workshops, with a total of 57 sessions. They were residents of Inis Meáin, an Irish speaking island community off the west Coast of Ireland, teenagers across rural Ireland and adults from Tallaght, a diverse urban community south of Dublin City Centre.

The co-creation workshops were facilitated by different professional artists and focused on writing, art, composition, and motion capture. The 14 workshops took place between February 2021 and March 2022, 9 of which were carried out online due to the COVID-19. They each lasted 2 hours. Towards the end of the project, participants from Tallaght

and teenagers from rural Ireland came together to participate in three extended face-to-face workshops. Aside from the co-creation workshops, four online discussions were held in October and November 2021 to keep the participants abreast of project developments. Finally, 23 choir rehearsals (composed of community participants) took place between January and May 2022 (19 in Tallaght and 4 in Inis Meáin). Results of the co-creation process are partially reported in Matamala (2022).

3. METHODS

Despite the diversity of trials, Traction developed a shared methodology which was flexible enough to adapt to specific contexts. The methodology was primarily qualitative with some quantitative inputs and aimed to gather information from the following participants: professional artists, non-professional artists, and audiences. Additionally, external input from experts was gathered to evaluate the performances.

3.1. THE MAP OF INDICATORS AS AN EVALUATION FRAMEWORK

To guide the development of the evaluation tools and the analysis, a map of indicators was created at the beginning of the project (Matamala & Soler Vilageliu, 2022). This map was gathered through a series of interviews with key stakeholders and discussed with partners from the three trials in a focus group. It can be seen as a roadmap for the analysis, and it includes both outcome and output indicators, the latter with an asterisk on Table 1. Output indicators help assess the activities generated by the project. Outcome indicators help assess the changes resulting from the co-creation process, if any.

Table 1
Map of co-creation indicators

PROCESS	ARTISTIC PRODUCT	PROCESS AND PRODUCT
Non professionals: Profile* Participation* Engagement Balanced contributions Mutual understanding Relationships Satisfaction Project Evolution	Artistic product* Quality Media impact Audience: Attendance* Profile* Response: Feeling represented Personal change Satisfaction Non-professionals response: Feeling represented Satisfaction	Community impact Non-professionals: Personal change (empowerment, relationships) Learning Professionals: Personal change (relationships, attitudes) Learning Institution: Institutional change (attitudes, programme, practice)

Focusing on the artistic product only, key indicators are as follows (Matamala & Soler Vilageliu, 2022):

- Artistic product (output): the fact that an artistic product has been created at the end.
- Artistic quality (outcome): questions of quality are considered separately from the fact that an artistic product is achieved. Traction follows Matarasso's proposal (2019, p.11) and breaks this indicator down into five aspects: craft, originality, ambition, resonance, and feeling.
- Media impact (outcome): media reviews and social media presence.
- Audience attendance (output): people attending the performances.
- Audience profile (output): diversity of the audience.
- Audience response (outcome):
 - * Feeling represented: audience feeling represented in the artistic output.
 - * Personal change: the artistic product produces a change in the audience (reaction and change, audience thinking about new topics, change of belief, etc.)
 - * Satisfaction: audience expressing appreciation and giving feedback.
- Non-professionals' response (outcome):
 - * Feeling represented: participants feel represented in the artistic output.
 - * Satisfaction: participants feeling satisfied.

As illustrated by Matamala and Soler-Vilageliu (2022), these indicators can be easily related to some of those identified by Matarasso (2013), Knell and Whitaker (2016) or Shared Intelligence et al. (2017).

3.2. EVALUATION INSTRUMENTS

With this framework in mind, the following evaluation instruments were developed to assess the co-creation output (see appendix): a) audience questionnaire, addressed to audiences attending a performance or VR screening, b) experts' assessment form, a template to guide the report writing of selected experts assessing the quality of the performance (based on the indicators by Matarasso plus technology), and c) semi-structured interviews with non-professional artists and professional artists, in this case evaluating both the process and the product. It should be noted that beyond brief consideration regarding its overarching role in the experiential outcome, this evaluation does not consider specific technical components of the VR opera (for example modes of capture or degrees of freedom). Rather, it examines their unified whole through the experiences of participants, audiences, artists and experts. Moreover, our analysis will not consider media impact but will focus on the experience of those involved and the evaluation by both the audience and external experts.

Audience questionnaires

Although more screenings have taken place since its release, the evaluation was based on audience questionnaires distributed at The Civic (Tallaght), on 7 August 2022, and at Kilkenny Arts Festival, between 9–14 August 2022. A total of 6 screenings a day took place in both locations, with a total of 36 screenings being evaluated. The first screenings in The Civic were attended by an invited group of individuals including the professional and non-professional artists involved in the co-creation. The INO also presented the new work at the Kilkenny Arts Festival, where the public could purchase tickets and some journalists and key stakeholders were invited to view the piece. The facilitators conducted on-boarding for audience members, meaning that they were fully aware of the procedures for the VR experience prior to their participation. In total, 33 individuals experienced the opera in the premiere in The Civic and 193 people attended the run in the Kilkenny Arts Festival. 185 replies were collected (81.8%), but two will be excluded as they were minors. Therefore, the total number of questionnaires under analysis is 183. There were 88 women (48.1%), 58 men (31.7%), 2 persons (1.1%) who did not identify with male or female and 35 (19.1%) who did not reply to this question. The mean age was 49.5 years, with a range between 18 and 78 years.

Experts' assessment forms

Four experts filled in the form, which included questions about craft, originality, ambition, resonance, feeling, and technology. All four experts went to the Dublin performances and, additionally, two of them went to The Civic. The experts were a freelance opera composer, an opera singer, a dramaturg, and a Virtual Reality producer.

Interviews

At the end of the process, and once the VR opera was released, 4 non-professional artists from Tallaght and Inis Meáin were interviewed in a group interview. Additionally, individual interviews took place with professional artists. They include a composer, the librettist, an opera singer, and a theatre director.

3.4. DATA ANALYSIS

An evaluation coordinator at INO managed the audience questionnaire distribution at the end of each screening and distributed the assessment forms to the selected experts. As for the interviews, an external researcher interviewed participants, transcribed the interviews and then processed them using qualitative software Atlas.ti with a procedure agreed across trials. Coding started using the map of indicators as a pre-established list of codes but, where necessary, additional codes were added, using a deductive-inductive process. The analysis below is based only on the

aspects related to the performance, though at times it is intrinsically linked to the co-creation process.

4. RESULTS: DISCUSSION

Results of the different evaluation instruments are presented next.

4.1. AUDIENCE QUESTIONNAIRE

Table 2 summarises the main results of the audience questionnaire, including descriptive statistics and a frequency table grouping the 6 points in the Likert scale in three main groups.

Table 2
Audience questionnaires results

	Mean	SD	Median	1–2	3–4	5–6
It was well made and performed	5.53	0.74	6	1%	8%	91%
It was different from anything I've seen before	5.70	0.65	6	0.5%	6.5%	93%
It was about things that really matter to me	4.74	1.16	5	4%	37%	59%
I felt involved in the performance	5.09	1.12	5	3%	19%	78%
	Yes	No	Not sure			
Has the performance made you feel differently about anything?	50%	23%	27%			
Would you recommend this performance?	95%	1.1%	3.9%			
Would you watch another VR opera?	92.7%	2.7%	4.6%			

Most attendees recorded very positive attitudes towards the artistic quality of the opera (91% of responses were in the 5-6 point range on the indicator related to craft) and its originality (93%). They also showed high levels of immersion and involvement (78% on the indicator related to feeling). Although lower percentages were recorded, the opera is still reported to have resonated with a significant number of participants (59%), who think it deals with things that matter to them. Very few participants selected the lower ranges for these four aspects, always below 4%, and the medians on a 6-point Likert scale are always 5 or 6. Most audience members would recommend the performance (95%) and a high number of them (92.7%) would be willing to watch another VR opera, which highlights the success of this innovative community opera as well as the potential for future developments.

The aspect attendees enjoyed most was the immersion, which is in line with the replies related to involvement. It is important to note here that immersion can be characterised as the degree of involvement that participants have with different aspects of the experience, which leads to a shift in attention and awareness from their external reality to the happenings of the VR opera (Cairns, Cox and Nordin, 2014). In the space

for further feedback, audiences reported that they: “loved the part of the boat! Gives a real feeling of being in a sea storm,” “I felt really peaceful too, really engaged in the story and not thinking of anything else” or “I loved the sense of scale — the height of the waves and the sense of being at the centre of the story.” For some audience members it was their first experience with VR and they were amazed at its possibilities: “I have never experienced a VR performance and was blown away by the potential of this medium.” Other aspects that audience members appreciated were related to artistic features such as the story, the visuals (the colour palette used), the music and the singing, the bilingual libretto and lyrics, the worlds created, the art direction, together with very specific elements. Some audience members also commented on other aspects beyond the artistic quality, such as feeling part of the community and being involved in this project. Attendees were attracted by the “newness” of the VR experience and how new technology was used to reach the audience.

They were also asked about aspects they did not like, and in this case the comments were related to “some small bugs.” For example: “subtitles get behind the floor,” “there’s a brief audio freeze,” “subtitles are not yet available in Irish,” “blurry in parts”). One participant found it “very glitchy and uncomfortable” and another one felt “wobbly wearing the headset.” Some participants reported trouble with the headsets: “found the headsets a little tricky with glasses,” “had to hold up the VR set to get it to focus,” “disliked the physical disorientation.” Some of them felt a slight sea sickness, especially those who reported being prone to vertigo. This is an effect sometimes associated with VR and, as outlined by one participant who had never worn a headset, “it took a while to get used to. Disorienting at first, but ultimately a marvellous experience.”

As with any artistic work, opinions regarding its specific aspects were not unanimous: some liked the colours, whilst an audience member did “not immediately like the colour palette.” One participant did “not really like the graphics of the other people on the ship,” but another one thought the “graphics were fantastic.” The abstract representations of the human form were also the object of diverging comments. In any case, this should not be interpreted as a negative aspect in the final opera but as an inherent part of artistic productions, where subjective opinions on the artistic composition vary.

As for the global VR experience, it is worth stressing that some participants explicitly mentioned the instructions and “very gentle welcoming” given before the opera. This is significant given that it sometimes takes some time to get accustomed to the virtual world. Similarly, the opening scene elicited strikingly similar responses from audience members, who noted that “I found the beginning ocean scene unnerving but was soon at ease underwater — what a beautiful world that was created,” “I liked the drop experience but found it a little intense,” the “going underwater moment gave me a strong physical reaction.” They are referring to a moment in the opera in which participants are on the boat taking them on an epic journey and suddenly they plunge into the water.

Attendees also made multiple suggestions that can be considered in future productions to enhance the immersive experience: “it would have been interesting to see some sort of transitions between the different landscapes, but the blackout was a good way to mark that transition and to keep track of the plot” or “I could have done with louder/more immersive/binaural sound.” Another would have liked “to be able to interact more.” Participants enjoyed seeing their own hands in the virtual world, but one asked for more: “I would like to be able to see my feet.” Some wished for a longer experience. All in all, feedback from the audience was very positive and it was seen as a unique way to experience opera beyond its traditional context. As expressed by one of the participants, it was a “really strong piece, extremely different” and a “super combination” of both the immersive experience and the opera.

Returning to the quantitative data, lower values were associated with personal change: 50% answered that the performance had made them feel differently about something and 27% were not sure. This should not come as a surprise given the novelty of the experience. Those who replied positively referred to four issues that the VR opera suggested to them: 1) themes associated with climate change, environmental issues and sustainability, forced migration or the vision of afterlife; 2) the use of VR technology in the arts (one wrote: “I thought VR was a bit gimmicky — I was very wrong — so effective!!”); 3) use of the Irish language as “thought provoking,” as “more performances should/could have this,” and 4) new views about opera. In this regard, a diverse array of comments were found in relation to the inclusion of non-professional artists and of new technologies as a means of expanding interest in and the relevance of opera: “opera as something modern, even futuristic,” “a greater appreciation for opera and the fact that it can be done with a community participation slant,” “normally I wouldn’t go to an opera quickly, but the VR experience made it more accessible for me and I really enjoyed it.”

Most would like to watch another VR opera and the reasons expressed were generally focused on the novelty and enjoyment they felt. One participant thought it was a “unique experience” which was totally, in the words of another audience member, “different from a conventional opera.” The opera was defined as “well made” (an aspect related to craft) and “fun” (an aspect related to feeling) and they liked “the immersive experience,” which was expressed as “powerful.” The novelty of the medium also induced feelings of nervousness and excitement for some participants, who wrote that after this first experience, they “would know what to expect the next time and relax and enjoy it a bit more.” Several were not willing to repeat the experience or were not sure, citing various reasons including the length of the opera (they would like it to be “longer”) and some of its artistic features (they would like “to see a more realistic play or opera done where it’s less cartoon or animation-like”).

The questionnaire included a final open field in which audience members could add any additional comments. The statements found in this field were generally words of praise: “congratulations,” “a great experience,” “I really enjoyed the experience and look forward to

seeing more,” although one participant also reported finding it “very disappointing.” Some entries provided suggestions, such as warning participants that they may take a seat if they feel dizzy — an aspect implemented in subsequent screenings —, improving the pronunciation of the Irish title, and improving the subtitles.

4.2. THE EXTERNAL EXPERTS

The reports by experts provided input in relation to the artistic quality. A summary of the main findings is presented next, using qualitative data gathered from experts (E1, E2, E3 and E4) through questionnaires.

Regarding the artistic and technical skills, which would fall under the item denominated as craft by Matarasso (2019), E1 believed that the opera “demonstrates exceptional craft in many areas of the production—especially the music” whereas E2 suggested that the “technical and artistic skill of the singers involved was (from my perspective as a singer), excellent.” The first expert thought that the “composer shows both high levels of craft and originality in how they facilitated different levels of musical ability [...] within a distinctive musical and dramatic style. The often-challenging contemporary musical idiom was very successfully integrated with the traditional Irish music interests of the community musicians.” However, they also believed that “sometimes the sound quality didn’t quite match the music’s quality,” which was due to “not enough time being allocated to successfully mix the sound in the VR.” E2 believed that “compositionally there was interesting material, but this became repetitive throughout the piece (very much a matter of taste however),” whilst E3 thought that the “music was textured and varied.” E4, who acknowledged not going to the opera regularly, found the “music and vocals to be stunning.” The libretto received positive remarks from E1: “the setting of the libretto was well judged and executed,” and E3: “the libretto was skilfully wrought,” although the latter found the structure of the narrative “clear but repetitive.” In this regard, E4 wrote: “Narratively, the concept was clear, in part due to the intro from the facilitator, though I would have preferred to have heard, or read it, as an intro while in the headset.”

Continuing with artistic aspects related to the craft, E1 considered that “the direction was also impressive, and, when at its best, succeeded by allowing the music to carry the weight of the narrative.” E2 thought that the “experience from start to finish was polished and well put together.” Reference to visuals and design was included in three of the reports with diverging views: “The relative abstraction of the visuals (although there were human figures, they weren’t sketched realistically/ figuratively) was an excellent decision, as it allowed for the experience to be enjoyed in a more sensory-lead way” (E1), “The design, though imaginative, felt partly achieved as more physical detail in the figures and the setting would have allowed more emotional investment in the story” (E2), “The characters were interestingly portrayed” (E4). An additional comment by E4 found:

“visually, the lands I was brought through were intriguing, and sometimes overwhelming. There were some beautiful moments.”

E1 noticed that “sometimes the subtitles were out of sync, yet in these instances the high clarity of the text setting guaranteed comprehension without subtitles.” As far as the VR production was concerned, E1 had seen the opera at different stages of completion and believed that “although the crafting of the VR itself was oftentimes exciting, not enough time was given to realising the later sections of the opera as fully as the earlier ones.” E3 described the use of VR as “impressive and engaging and would have even more of an impact if it was more closely integrated with the elements of music and narrative.” In line with the experience of some audience members already reported above, E4 “found the start of the experience on the stormy ocean waves hard to adjust to, and also spent the first while looking around, so found myself not very focussed on the music and maybe missing some of it.”

As for the second quality element by Matarasso (2019), “originality”, E1 thought that the “originality of *Out of the Ordinary / As an nGnách* was its defining quality” and highlighted “how the composition married the distinct music making of the community members with the composer’s own contemporary voice.” E1 believed that “the narrative of the libretto was relatively conventional” but “it was well judged to facilitate a more experimental and abstract style of design and direction, both of which frequently felt fresh, creative, and highly innovative.” Moreover, “the relative newness of VR as a medium, the work, as a whole, offered audiences a strikingly unique experience.” E2 defined the opera as “very distinctive” and did not “know anyone else who has experienced a similar mode of performance,” an opinion also expressed by E3, who considered that “the use of VR offers a unique entry point into the world of opera and its particular mode of storytelling.” Additionally, E3 stressed the community aspect of the co-creation process: “Drawing on different communities and individuals as source material for the piece is an inspired choice, and perhaps there could have been little ways to highlight this in the chosen form?” E4 concluded by highlighting the novelty and braveness of this artistic proposal: “This work stands out as one of a kind. Combining opera and VR, via community engagement is not an obvious arts format! I don’t think it has ever been done before. It’s ambitious and brave.”

When experts were asked whether it was worth doing the opera, as a proxy for the indicator “ambition,” replies were unanimously positive but also pointed at some room for improvement. E2 considered that “VR is a brilliant medium in which to explore these other (now theoretically endless) worlds” and saw the opera as a “first step with a huge amount of potential.” E1 acknowledged that despite many positives “there are aspects of the work that were less successful than others (particularly with the technological realisation).” However, they noted that “it felt uniquely experimental; in being so, it succeeded in opening up some radically new creative avenues and experiences for both the makers and audiences involved.” A similar opinion was expressed by E3, who thought the “ambition is clear — to integrate seemingly disparate technologies and

artistic forms — though it isn't achieved in its entirety." E4 congratulated the team "on the achievement of bringing this format to audiences, some of whom might not be regular consumers of either opera or VR, and providing a memorable experience. It is absolutely worth doing." Despite some room for improvement, one of the biggest merits of this opera is that, as E1 noted, it was "the world's first community VR opera."

Another key aspect to assess artistic quality according to our framework is the piece's connection or relevance to the audience and its concerns, termed "resonance" by Matarasso (2019). E1 believed that "it certainly resonates with audiences, as has been clear from the work's reception" and E2 thought that the "subject matter of the piece is relevant and important to humanity and present." E3 wrote that the "ecological parable at the heart of the story resonated with me," an opinion shared by E4.

Finally, when asked about the feeling, i.e. about the non-rational effect of the piece and its ability to linger in the mind, E1 suggested that it "certainly lingered in the mind well after the experience of it, although, for me, for the reason it was powerfully dramatic and aesthetically/formally thought-provoking more-so than it was emotionally moving." In this regard, E1 thought that

Not all great art needs to be immediately emotive, and oftentimes, as in the case of *Out of the Ordinary / As an nGnách*, its emotive power is realised through reflection post-show. I would describe it as leaving a powerful and lasting dramatic impression.

E2 was impacted by "the novelty of the delivery," and E3 "found it very moving, even despite some of the formal drawbacks." E4 referred to the evolution of the work from the first screening in The Civic to the official premiere: "Having seen a work-in-progress at The Civic a month ago which didn't linger, I can say that this longer version certainly did."

Finally, although not directly linked to the artistic quality factors by Matarasso, a question about technology was included due to its relevance in the Traction project. E1 saw the technology as "certainly engaging, and, at times, strikingly so; however, it was not consistent." E2 defined it as "really sophisticated," allowing "for a really immersive experience," with some room for improvement in the audio quality — an aspect also mentioned by E4 — and the visual world — an aspect also mentioned by E3 and E4. E4 proposed having subtitles all through the experience and stated that the "use of VR technology combined with operatic storytelling is a fantastic concept."

The open comments field revealed the excitement at the new possibilities for audience involvement that new technologies bring:

It was a fascinating project and it was exciting to see this level of experimentation with an art form I wouldn't be immediately familiar with. The use of technology in this way offers a compelling gateway for people who may not have had a relationship with opera before. (E3)

4.3. THE PARTICIPANTS: PROFESSIONAL AND NON-PROFESSIONAL ARTISTS

In the group interview with non-professional artists and in the individual interviews with professional artists, diverging views surrounding the final work were observed. This complements the information provided by the experts and the audiences, allowing for a thorough analysis of the artefact. Non-professional artists showed high levels of satisfaction with the final output. This aligns with findings from the audience questionnaire and the external experts. The professional artists, however, expressed a certain degree of frustration with the outcome.

When discussing whether they felt represented in the work, several of the non-professional artists suggested that they could see and hear some of their ideas:

I could see a lot of the elements that we'd touched on in the workshops and the Zoom calls present in the actual production [...]. I felt there was a lot of care taken to include what had gone before.

Regarding the presence of Irish language elements, one non-professional artist from the island community highlighted that: "The music has lovely Irish and we were part of the choir. They came from Dublin to ask us what was the real accent for those words from the island." Conversely, a non-professional artist from Tallaght found it more challenging to find their contribution in the final output, hence feeling less represented: "From my point of view, no, I'm afraid I don't but I know there must have been some element of what we contributed."

Non-professional artists enjoyed the visuals but some of them did not agree with the abstract representation of human forms, an aspect that also generated disagreement among audience members and experts. One non-professional artist noted that: "One thing that I didn't like about the performance was all the people. They were a bit creepy looking," whereas another said: "I actually liked the representation because I thought it was in the context of the other-worldliness of the experience." Again, the inclusion of Irish was seen as a very positive aspect by the Inis Meáin community, but another participant from Tallaght had trouble taking in the whole experience due to the subtitle presentation, which could have been improved: "I think because it was in Irish, I was having to read the subtitles and I was losing the surroundings." Overall, non-professional artists expressed satisfaction with the result during the interviews: "I could hear myself play in it. So that was great. It did make me feel happy." This feeling of empowerment engendered by the performance opportunity constitutes a measure of personal change resulting from the final output of the project. Aside from this, participants reported higher levels of appreciation and openness towards opera as an artform and as a storytelling mechanism — as one participant noted:

Part of why I did the project was that I had a preconceived notion of opera being a stuffy artform for people with too much money who looked down on the rest of us. Now I've come through it, I've realised that, well I probably knew beforehand, but we all have our own quirks. But opera is an artform for everybody.

The positive nature of the feedback obtained from audiences, the experts and the non-professional artists contrasts with some of the opinions expressed by professional artists involved in the final project. For example, one professional artist thought that “we haven’t brought it to where we said we’d bring it” as the different artistic elements were not working together. They were also critical of how VR had been used and observed that its potential had not been met. A new awareness of the necessity for a less fractured creative process with the technology at its centre was a significant learning outcome for this professional. Another professional thought that a more synchronised approach to the development of the final work in terms of the animation process and the recording process would have yielded a better outcome for the spatial audio component. Further frustration was expressed by another of the interviewees: “I had really high hopes of the project as a whole. And so I think I was quite disappointed in the outcome of it.” This critical view however did not prohibit them in clearly stating that they would partake in the project again: “It’s nice to be at the beginning of something.” In this regard, although the story is defined as “weak” and the execution is considered “poor” by this professional, the music and the 360-degree view afforded by the VR headset and the spatial audio are highlighted as important aspects. As with the other cohorts, the aesthetic component of the work is a point of dissent. Here, this artist believes that a visual abstraction would have been more aesthetically compelling.

Another of the professionals being interviewed expressed dissatisfaction about different elements (“timings are out,” “sound wise, there’s bits that just don’t sound good”) but also expressed appreciation for the music, the libretto and the VR experience:

Despite [...] the fact that we’re still not there yet, it is still like beautiful to kind of put this headset on and be in this 360 [degree] world where you look up, you look down, all around you, there’s different details. It’s stunning to look at.

This professional highlighted the positive feedback from the communities while acknowledging that the scale of the project was perhaps too large: “Three communities plus VR? I think it’s just slightly too much. I applaud INO for trying it, they really tried to do the impossible.”

A general sense of frustration was felt by professionals, which was not in line with the views of non-professional artists involved in the process or with external experts viewing the VR opera. A possible explanation for this sense of frustration may be found in the nature of the co-creation process and in the need for managing expectations. In any

case, professionals also acknowledged the innovation and ambition of the work: “I still think what they were trying to do is amazing and ultimately I think we’ve done something really really incredible.”

5. CONCLUSIONS

Co-creation processes in the context of Traction brought many benefits to the non-professional artists involved (Matamala and Soler-Vilageliu, 2022): a better understanding of others, improved and new skills—both related to artistic skills and transferable skills such as managing work, teamwork, or communication—, an increased awareness, enjoyment and interest in opera, new relationships, personal satisfaction, and a sense of achievement. Professional artists also improved their facilitation and adaptation skills and gained an increased awareness about communities with whom they were not familiar. The process per se was therefore beneficial for most of the participants. This co-creation process concluded with an artistic work, an opera, which was welcomed by audiences, non-professional artists and external experts, though received some criticism from professional artists involved. Both the process and the output provided some learnings. Firstly, it is of critical importance to manage expectations, not only at the beginning but also during the process. The role of professional and non-professional artists, the decision-making processes and the ownership of the resulting work need to be clearly defined as they may differ from professional artistic productions. A misalignment in the understanding of the creative processes specific to VR and the desired outcomes at an organisational level, alongside insufficient digital literacy amongst some of the professional artists regarding these specific processes may have impacted on their experience of the outcome and led to some of the dissatisfaction expressed. Despite this, positive feedback from audience members was recorded. It is likely that the novelty of the experience contributed to the high levels of satisfaction reported in the findings, as novelty is often correlated with highly positive emotion, and deepened or harmonious engagement (Pelowski, Markey, Luring, & Leder, 2016).

A significant finding within this study comes in the form of the capacity for this medium to facilitate authentic representation of populations that traditionally fall outside of the audience base for opera performance. However, the incorporation of the Irish language in this opera in pursuit of representation was not without its challenges. Despite the designation of Irish as the first national language of Ireland (Bunracht na hÉireann, 1937), complications around the bilingual nature of the work and the accuracy and authenticity with which it was executed were noted.

Finally, the capacity of VR to dispel widely held perceptions of opera as an archaic, elitist and highbrow artform were highlighted. Findings also signify the potential that new mediums such as VR hold for the expansion of access to traditional artforms, and through providing a higher sense of presence and enhanced audience engagement may lead to an increased appetite for live performance (He et al., 2018). It is clear however that

artistic work in this medium holds innate value, and thus should be regarded as work in its own right—not simply as a means of achieving increased theatre ticket sales.

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Audience Questionnaire

1. How did you get here today? Taxi/Train/Car/Bus/Bike/Walk.
2. Roughly how long did it take you to get here? ____ minutes.
3. Do you have any connection with the performance? No, I don't. / I took part in the project./ I know someone who took part in the project./ I know someone who works at SAMP/INO./ I have a professional connection with the project. / (only for Liceu) I am related to Raval neighbourhood.
4. How much do you agree or disagree with these statements?
(6-point Likert scale):
 - It was well made and performed.
 - It was different from anything I've seen before.
 - It was about things that really matter to me.
 - I felt involved in the performance.
5. Was there anything you particularly liked or disliked? Please say what, and why.
6. Would you recommend this performance to a friend? No/Yes/Not sure.
7. Has the performance made you feel differently about anything? No/Yes/Not sure. If yes, please say how.
8. Did you see any live theatre or music performance in 2019 (before lockdown)? No/Yes/Not sure. If yes, please say where.
9. (If applicable) Do you think technology played an important role in the performance? No/Yes/Not sure. Please say why.
10. (if applicable) Would you watch another Virtual Reality opera? Please say why.
11. Finally, please add any other thoughts on your experience today.

Expert's assessment form: artistic quality

1. Craft: It relates to the technical and artistic skill evident in the production and performance. How well was it made and executed?
2. Originality: It relates to the distinctiveness of the work, and the extent to which it reflects the particular context of its creation. How true does it seem to those who have created it?
3. Ambition: It relates to the aspiration, scale and openness of the work: is it worth doing?
4. Resonance: It relates to the piece's connection or relevance to the audience and its concerns. Does it speak to me?
5. Feeling: It relates to the non-rational effect of a piece and its ability to linger in the mind. Does it move me?
6. Technology: It refers to the use of Traction technology in the performance. What was the overall audio and video quality of the experience? Was it good enough for this performance? Did the technology help you feel engaged? (Only when Co-creation Stage is used) Do you think technology helped to connect people on stage with remote audiences?

7. Other comments: Please add any further thoughts about the performance or the project which have not been covered under the previous headings.

Co-creation evaluation interview (non-professionals)

1. Tell us how you heard about the project and why you wanted to take part.
2. Can you explain what you did in the workshops?
3. What did you enjoy most—and why?
4. What wasn't so good?
5. How could it have been better?
6. How do you feel the group got on with each other?
7. Was everybody respectful?
8. Did you all have the chance to contribute?
9. About the performance: Can you explain what you did in the performance?
10. What did you enjoy most, and why?
11. What wasn't so good?
12. How it could have been better?
13. Were you happy to perform or see people like you performing?
14. What will you remember from this experience?
15. Have you gained any new skills (practical, relationship with people, etc.)?
16. What do you think you've learnt from the experience?
17. Have these workshops changed some of your ideas, your interests, anything at all?
18. Would you do it again?
19. Is there anything important that we haven't talked about? Is there anything else you want to add?

Co-creation evaluation interview (professionals)

1. Please introduce yourself and tell us about your past experience—if any—of co-creation.
2. Can you explain your role in the workshops?
3. What was most successful in the workshops?
4. Was anything disappointing? If yes, what and why?
5. What did you enjoy most and why?
6. How do you feel the group got on with each other?
7. Was everybody respectful?
8. About the performance: What did you enjoy most and why?
9. What wasn't so good?
10. How could it have been better?
11. Would you attend this type of performance again?
12. Did you see any development in the participants' skills or confidence? If yes, please explain.
13. And you? What do you think you've learned from the experience?
14. Have these workshops changed some of your ideas, your attitudes, anything at all?
15. What will you remember from this experience?
16. Would you do it again?

17. What would you change in the future?

18. Is there anything important that we haven't talked about? Is there anything else you want to add?

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