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Tiivistelmä: In this publication four case studies on the challenges of contemporary theatre in a changing technological environment is presented. The case studies are based on the experiences of four organizations involved in the project. The Azkuna Zentroa study will show how artistic residency programs help artists create and share knowledge. The Amsterdam-based theatre company De Toneelmakerij discusses narrative design and design thinking in their case study The Saxion University of Applied Sciences Saxion XR lab case study introduces Design Thinking tools, which are essential in testbed design. The Estonian Academy of Arts case study provides an overview of two case studies that integrate telecommunication systems in the contemporary theatre environment and art.

ACuTe CASE STUDIES

Raivo Kelomees, Taavet Jansen and Petri Hoppu (Eds.)

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ACuTe OAMK OULU UNIVERSITY OF APPLIED SCIENCES

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Introduction

Below, we present four case studies on the challenges of contemporary theatre in a changing technological environment. They belong to the project ACuTe Culture Testbeds for Performing Arts and New Technology, whose primary goal is to enhance innovations in dramaturgy, stage design, and audience engagement. The case studies are based on the experiences of four organizations involved in the project.

The Azkuna Zentroa study **Enhancing stage productions vs. sharing knowledge: The importance of post-première residence** by Bárbara Epalza Azqueta and Fernando Pérez will show how artistic residency programs help artists create and share knowledge.

The Amsterdam-based theatre company De Toneelmakerij discusses narrative design and design thinking in their case study **Engage—Test—Change: Designing New Audience Relations** by Paulien Geerlings, Jedidjah Julia Noomen, and Nina van Tongeren. They use the performance Rabbit Hole as an example.

The Saxion University of Applied Sciences Saxion XR lab case study **The use of Design Thinking Tools to Enlarge Audience Engagement in Theater Productions** by Hester van der Ent, Herman Paassen, and Matthijs van Veen, introduces Design Thinking tools, which are essential in testbed design.

The Estonian Academy of Arts case study **Telecommunication technologies and their relationship with performative cultural practices and theatre: Telepresence stage and 'Third Space'** by Raivo Kelomees, Taavet Jansen, and Petri Hoppu provides an overview of two case studies that integrate telecommunication systems in the contemporary theatre environment and art.

Editors
Raivo Kelomees, Taavet Jansen and Petri Hoppu

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ENGAGE - TEST - CHANGE: DESIGNING NEW AUDIENCE RELATIONS

By Paulien Geerlings, Jedidjah Julia Noomen and Nina van Tongeren

In this case study, we take Rabbit Hole as our model for the application of narrative design throughout the creation process. We also discuss how the 'design thinking' method practised by ACuTe partner Saxion University of Applied Sciences can help us in our considerations of our audience, new dramaturgy and technology.

If theatre is to remain relevant in the 21st century, the relationship between artist and audience needs to be redefined. This fundamentally hierarchical relationship is starting to feel a little outdated, with theatre practitioners broadcasting their story into the auditorium – for one, two or even three hours at a time – while audience members receive it passively and remain more or less captive until the applause. Although we in no sense underestimate the potency of storytelling in this conventional form – we practice it ourselves, after all – we do question whether this form serves creator and spectator equally well. How should we go about getting the audience engaged, keeping them with us, and even involving them in making art that is both innovative and accessible?

Toneelmakerij is Amsterdam's theatre company producing work for young people. In 2023 we made the play Rabbit Hole, working through ACuTe, a major European collaborative project on theatre and new technology. [1] We took this opportunity to explore a different kind of relationship with the audience, as part of our research into a new approach to dramaturgy. Our goal was to use technology to enable the audience to actively participate in the play. We also made all efforts to avoid the technology serving only as gimmick – we did not want to simply celebrate the technology itself at the risk of losing sight of meaning. The decision to use technology is never a neutral one, after all – whether in our everyday lives or in theatrical work. While working to integrate the interactive component into the play's narrative we encountered the world of 'narrative design'.

1 ACuTe is co-financed by Creative Europe. Its partners are OAMK, European Theatre Convention, Ars Electronica, Schauspielhaus Graz, Saxion University of Applied Sciences, Akademie für Theater und Digitalität, SNG Nova Gorica, Det Norske Teatret, de Toneelmakerij, Azkuna Zentroa Alhóndiga Bilboa, EKA Estonian Academy of Arts, Theatre de Liège and Teatrul National Marin Sorescu Craiova.

3.1 What is narrative design?

Before we embark on an analysis of Rabbit Hole, it is important to clarify the meaning of the term ‘narrative design’. In its birthplace, the games industry, narrative design focuses on the relationship between the narrative of the game and the way the player experiences that narrative through interactive gameplay. The narrative designer connects the author and designer of the game, and is responsible throughout the production process for the alignment of form and narrative. The role of the narrative designer in gaming has a number of similarities to that of the dramaturge in theatre, in that for the duration of the production process they both continuously monitor the alignment of content and intent.

Narrative design emerged as a job function in the 1990s in parallel with the development of increasingly complex gameplay incorporating complex storylines. In the 1985 game Super Mario Bros, for example, the relationship between gameplay and storyline was still relatively simple: the gamer’s mission was to find a kidnapped princess (storyline) and they completed it by advancing straight ahead, encountering enemies and obstacles along the way (gameplay). But in the 1996 game Resident Evil, the gamer’s choice of character (they each have a different ‘skill set’) impacts on the gameplay stats. Likewise, the route taken by the gamer – in this case within a house – affects which elements of the narrative the gamer encounters. In more complex games like this one, it is also more complex to mould content, interaction and technology into a

coherent and unified whole. This is where the narrative designer – whose task it is to preserve these connections – comes into play.

The way a player interacts with the game influences that player’s experience of the story, as well as subtle differences in the way the story is told. We see a good illustration of this phenomenon in A Plague Tale: Requiem in which the player-controlled central character is faced with a desperate choice: they must help a loved one to die, and if they wait too long to do so the loved one will be killed by the player’s travelling companion – the companion is a non-playable character (NPC) over whom the player has no influence. So the loved one will die whatever the player chooses to do, but their autonomous action can affect the route to the inevitable outcome. There are players, after all, who will choose not to perform the act. In this case, the producers of the game were thematising the idea that fate is inevitable by compelling the player to choose the lesser of two evils while simultaneously granting them a sense of agency.

In story-driven games, interactivity often centres on decisions that impact on narrative branching, but this is certainly not the only way to integrate interactivity. Many such games invest in the physical and emotional components of immersion. In the multi-award-winning 2017 game What Remains of Edith Finch, for example, the player discovers family secrets in a house. The sequence in which these discoveries are made is predetermined by the designers of the game, leaving very little in terms of decision-making to the player. But decision-making is not what this game is about. Instead it focuses on conveying an emotional experience. The interactivity arises out of the player's experiences of scenes from the lives of deceased family members as seen through their own eyes – an example while the 11-year-old character Calvin is enjoying playing on a swing, going higher and higher: it gradually dawns on the player that the boy is going to fly off a cliff. The player is unable to stop swinging because they are re-enacting an event that has already taken place. Nonetheless, the 'physical' activity (the repetitive swinging motion initiated by the use of the controller) makes the player an active participant in the character's fate – and makes Calvin's death very palpable indeed.

In the gaming industry, user testing is a key instrument for assessing whether players are doing what the designers want. This practice is analogous to the use of design thinking by tech companies, which we discuss in more detail below. While the player of a game has agency and the ability to make independent decisions, this always takes place within the parameters defined by the designers. Regular testing enables the industry to assess player engagement with both technical and content-related aspects of the game. In this context we can regard testing as a form of dramaturgy.

3.2 Working with a design document

A wide range of technical and other disciplines are involved in the development of a large-scale game, and their exponents each work towards the final product separately, within their own department. The traditional approach to making a theatre production is quite different, in that the creative process takes place in a shared rehearsal space and is usually collaborative. Another difference is that the duration of the average game is considerably longer than the average theatre play. A game is more like a marathon in comparison: a 20-hour opera production in which all cast members wear a different costume for each scene, and the set comprises 12 different moving parts. It is essential in complex creative processes such as these to properly communicate any changes that are made. In the gaming industry the standard procedure to use a 'design document' to streamline documentation and communication during the production process. The design document contains details of both the intended effect and the technical development of the game. Closely intertwining the disciplines concerned with both contextual and technical matters – from the outset – ensures that content, form, storyline and technology are always inextricably linked and complementary. The design document, which is administered by the narrative designer, aligns the synopsis, the concept and so on, with the various phases of technical development.

3.3 Analysis of Rabbit Hole

Rabbit Hole centres on the character of Samy, whose life plays out exclusively online. Samy has become isolated after classmates shared dickpics of him, and following the death of his father from Covid. He falls increasingly under the spell of the 'manosphere' influencer Neo17, who gives him a sense of belonging. Samy also Facetimes with his leftist sister Hanna, who tries to de-radicalise him. But Samy is drawn ever further into the murky depths of the extreme-right swamp on the Internet.

The staging concept reinforces the exclusively online nature of Samy's existence: the set comprises nothing more than a table, a chair and a laptop. His screen is duplicated on a projection screen as large as the rear wall of the stage but hanging halfway downstage – close to the audience. Samy sits with his back to the audience for almost the entire play, immersed in his computer world, and the audience mostly sees his face only onscreen, during video calls. This approach to staging is quite radical for a play for young people, and this fact prompted our first question: How can we get the audience to connect with a character who feels so disconnected from the audience. We decided to encourage audience members to leave their phones on while watching the play, rather than switching them off. This would allow us to extend Samy's online world to their phones. But what role could we assign to the spectator in Samy's world? We decided it would be exciting literally to give the audience a voice in the play, by allowing them to text-chat during the performance, and make these chats visible to all on the large screen.

It felt like a good idea, but it raised many questions – questions of a dramaturgical nature, but also of a technological nature. How should we get audience members to log in? What kind of chat platform should we use – an existing or fictional one? Should the audience be anonymous or use names? And if they use names, should they use their real name, choose an alias for themselves or be assigned a nickname? How do we get the audience to become active participants and really join in? At what points in the performance should they participate? Is it an issue if audience members start using their phones for other purposes? How do we keep the behaviour of an auditorium packed with adolescents in check, especially if they all have their phones switched on? Do we need a moderator, or is unfiltered behaviour more meaningful than moderated behaviour? Will one live moderator be enough for an audience of 200 teens, or will we need multiple moderators? Will the technology allow us to build moderation into the system in such a way that offensive language is impossible, or will that just encourage audience members to look for cracks in the system? And, last but not least: How do we create a realistic world for young people that suits the play's narrative without feeling gimmicky?

Adding a narrative designer to the artistic team proved to be a very worthwhile move. The narrative designer worked with the dramaturge to examine and develop the interactive concept for the production, and bridged the gap between script and technology to clarify what technology would have to be built in order to implement the concept.

We arrived at the decision to use live chat that was open and visible on Samy's desktop for the entire duration of Rabbit Hole. Enabling audience members

to use their own phones to enter Samy's chatroom served to merge their own world with the world on stage, in both a physical and thematic sense. Samy may be sitting by himself in his room, but the audience sees him being bombarded with a torrent of online chats, forum posts, video clips, memes, games, voice notes and video calls. By continually engaging with the chat function, the audience contributed to the vast array of information and communications to which Samy falls prey, and became part of it. Samy doesn't have a single moment of peace.

Our live chat system had very few rules – just like the real world wide web – and each audience member was assigned a nickname so they could participate anonymously, which made them feel free actively to join in with the play. This level of freedom was the best possible fit with the narrative of Samy's world, in which he is exposed to a lawless online environment where anybody can adopt any identity and say whatever they want.

We allowed audience members to post swear words and negative comments about the play, the characters and even cast members. But given the context – a play for young people – we did decide not to allow behaviour such as bullying of fellow students. This meant there had to be a moderator in place with tools at their disposable to control users in both covert and overt ways. The system had a built-in 'ban' button to exclude audience members who displayed disproportionate misbehaviour, but it became clear that the moderator would not always be able to detect bullying behaviour. We also coded four 'bots' into the narrative design which the moderator could deploy to steer the live chat towards the themes explored in the play. These automated chat messages were written in teen style and slang to ensure audience members were unaware that bots were involved. Additionally, at several points in the play Samy and his sister Hanna chat live with the audience, each attempting to get audience members to see their side of the issue at hand. The moderator also posted polls to the chat, putting questions to the audience such as 'Have you ever sent or received a nude photo' and 'Do you wish the mobile telephone had never been invented?'

The public chat yielded information about the views and behaviour of the young people in the auditorium, and we used this information as the basis for a post-performance conversation between the chat moderator and the audience. This

forum allowed everyone to reflect on the dynamic that emerged through the live chat, one which is an everyday reality on the Internet at large.

3.4 Design thinking and the importance of testing

To work out what form of interaction would be the most effective for Rabbit Hole, we invited in members of the public early on in the production process. It was only by carrying out tests in this way that we could discover how the live chat would work best, both technologically and thematically, and then adapt it as required. This iterative process of testing and modification necessitates an extended production process with sufficient preparation time prior to rehearsals.

Our process of phased 'sprints' has its origins in the design thinking method, where the user is the starting point for innovation: a profile of a target user and their needs forms the basis for the development of a product for that user, and throughout the production process the product is tested by users matching that profile. This approach contrasts starkly with the way most theatre practitioners are accustomed to working. Saxion worked through the ACuTe project to develop a toolkit rooted in design thinking, to help theatre practitioners innovate their production processes. Saxion discovered that it was customary for its partners in the theatre sector only to invite in test audiences during the very final phase of the production process: the tryout. Coming from the design world as Saxion do, this was a completely unfamiliar strategy to them. How was it be possible, they wondered, for theatre practitioners to create a final product without including the intended user in their process? The theatre practitioners were at a loss for words.

Saxion concluded that the absence of testing in the process made theatre production an unnecessarily risky enterprise. But, compounding the danger of facing potential failure at the premiere, it raises an even more fundamental question: How seriously do the theatre practitioners take their audience? The integration and application of design thinking demands a shift from the concept of the 'genius artist', who operates in relative isolation from their audience, to a theatre practitioner who places the audience on an equal footing by considering their feedback – and making modifications if that feedback is well founded.

This testing procedure can have even more far-reaching consequences if audience behaviour is different from what was anticipated. This type of outcome can prompt theatre practitioners to come up with new ideas, to hone the original idea or even to change the concept completely. In the case of Rabbit Hole, for example, the narrative design of the final version (with live chat), was very different from what we started with. In an early version we had a system in place to determine when the audience would be permitted to chat, but during a test performance a glitch in the system allowed audience members to use the chat function throughout the play. That is how we discovered this would be a far more interesting route to take than the one we originally plotted out.

The biggest change we made in response to test results was between the original Austrian version, performed in Linz, and the Dutch version, which we made six months later. [2] As well as being able to chat live on their phones, audience members in Linz were assigned to different 'bubbles' based on their responses to a number of questions, and each bubble had its own content feed. It became clear that when combined with the impactful visuals on Samy's desktop, this separation into bubbles yielded too much additional input without delivering sufficient additional meaning. So when it came to the Dutch version, we decided to focus only on live chat, and developed the play from there as described above.

3.5 Using new tech to nurture a less hierarchical relationship with the audience

Videogames, the Internet, social media and virtual reality have been around for quite a while now, but these technological tools are relatively new in the context of traditional theatre – while one does encounter technologies such as video screens, live cameras and the occasional video wall in the theatre, particularly in musicals, other technologies remain largely unexplored. And when theatre productions do incorporate technology and interactivity it rarely rises above novelty status – technology provides the 'wow factor' and interactivity suggests participation, without the audience becoming intrinsic contributors to what is taking place on stage.

In the meantime, however, technology and interaction have become givens in our lives, and without much embellishment they could easily be implemented in theatrical contexts. Despite the hazards of the online world that are explored in Rabbit Hole, the Internet and the smartphone have led to the democratisation of the participation model. Easy access to social media makes it possible for everyone to have their say in the public domain and in VR games you can have experiences that would be impossible in the real world. Especially for the generations that have grown up with the Internet and mobile telephones, technology is by definition accessible and participatory.

We in the theatre world can reap the benefits of these developments in our efforts to nurture a less hierarchical relationship with our audiences. By normalising the use of technology in an everyday way, rather than for empty effect, we can introduce a low-threshold form of genuine participation into the theatre. Rabbit Hole is a perfect example of this. Allowing the audience to behave as they would in a regular chatroom dramatically reduces the sense of distance between actor and spectator. Clearly, in this case this works largely because of the clear link with the subject of the play: the technology is integral to the story so it is a good fit with the production as a whole.
There are other theatrical contexts in which technology could play a democratising role, however. Live translations and surtitles would help diversify

2 The Austrian version of Rabbit Hole premiered on 17 June 2023 in the Deep Space projection gallery at Ars Electronica Centre, Linz, during the Schäxpir festival. The Dutch touring version premiered on 1 March 2024 at Krakeling in Amsterdam.

Using new tech to nurture a less hierarchical relationship with the audience

audiences. Live streaming video recordings of performances to private homes or care homes, as Toneelmakerij did recently as part of a different production, increases accessibility even further. And the tendency of younger audiences to want to be more part of the experience also offers opportunities. Traditional museums, for example, have drawn inspiration from so-called 'Instagram museums' in their efforts to immerse visitors in the experience, and TikTok's BookTok community has got young people reading a lot more. any people in the art world are disdainful of such 'submission' to the audience but being rooted in the gaming industry and theatre for young people, we know all too well that showing true consideration for your audience is enriching rather than threatening. In her work on the subject of theatre and consent, queer activist and theatre practitioner Jenn Wilson underscores the crucial importance of nurturing non-hierarchical relations between practitioners and audiences, to become inclusive and to remain relevant. She advocates not only asking audiences for their consent (and embedding it by offering pre-care and after-care), but also providing the audience with the means to share their voice.

3.6 Conclusion

Let it be clear that we are not proposing that all theatre productions should be highly interactive and technologically innovative, or that they be based on a hefty design document. We fully subscribe to those forms of theatre in which the audience listens in silence to a well-told story. Nonetheless, it will benefit us all to bear in mind that – in Rabbit Hole as in all other types of theatre production – there is always some form of interaction between stage and auditorium, whether or not any forms of active participation or technical innovations are involved. Our audiences make the effort to come to the theatre, and the least we can do is acknowledge them.

By engaging with our audience members as living, breathing individuals, each with their own agency – rather than regarding them as an anonymous crowd in the dark auditorium – we can nurture a new and non-hierarchical relationship

with them. This does not mean that theatre practitioners should surrender their own autonomy and only make easily consumable work. The benefits of this approach are precisely that as a theatre practitioner you can engage in dialogue with the audience at any point in the production process to evaluate what they need in order to take on board the story you want to tell. Audience testing can be used in multiple ways, whether or not technology is involved.

In short, audience testing – involving and engaging the audience throughout the process – increases the likelihood of relevant and artistic theatre productions being attractive to broad audiences. Practitioners who do not reflect on their potential spectators will continue to make work for that small percentile of the population that is white and academically educated and that traditionally goes to the theatre. But our audience is changing. Now it's the sector's turn.

TELECOMMUNICATION TECHNOLOGIES AND THEIR RELATIONSHIP WITH PERFORMATIVE CULTURAL PRACTIES AND THEATRE: TELEPRESENCE STAGE AND “THIRD SPACE”

By Raivo Kelomees, Taavet Jansen and Petri Hoppu

The following overview examines two case studies that explore integrating telecommunication systems with theatrical practices in contemporary performing art. The first case focuses on British artist Paul Sermon, who has been employing telecommunications and interactive media for over three decades to create installations investigating the interface between physical and virtual spaces.

The second case analyzes the project “Held in Human” by Liis Vares and Taavet Jansen, which examines the interactions between the human body, hybrid spaces, and technology. Both cases underscore the transformative impact of technology on human experience and the evolving boundaries between physical and virtual environments. The following sections will explore each case in detail, highlighting their importance to the intersection.

4.1 Introduction

In Chapter 5 “Telecommunication and Performance: Online Art and Mediated Performative Practices” of our previous publication “From Past to Present: The Journey of Technological Theatre”, we looked at the spiritual and technical predecessors of telecommunication practices. It became clear that technical visions for aesthetic and emotional remote communication already existedin the 19th century. There were also visions of how remote means (such as radio) could influence masses of people to improve their health and work productivity. In reality, we know that means of communication have become tools for influencing the behaviour of the masses. Radio influenced the masses between the two world wars, later this function was left to the internet and television. We can already see the call to make radio a two-way (interactive) means of communication in Bertold Brecht’s appeal of 1932. Later calls by artists in the 1960s and 1970s in the context of so-called tele-actions also come closer to what we understand as the theatre and stage of telepresence. The desire to activate the spectator has led to an interactive art format that, in addition to international recognition, has given creators the tools to create participatory environments in education, entertainment and theatre.

In the 1970s, Kit Galloway and Sherrie Rabinowitz’s attempts to put performers on a screen ushered in what we call the telepresence stage. There, dancers were brought together on a single television screen, which we will see later

in the installation practice of Paul Sermon, who is the subject of our closer observation.

We would also like to mention the important role played by the works of Roy Ascott, Douglas Davies, Stelarc and Rafael Lozano-Hemmer in the preparation of this field of practice, which we could subsume under the term ‘telepresence art’.

4.2 Telepresence

The concept of telepresence is often confused with “virtual reality”. Telepresence was formulated in 1980 by Marvin Minsky, which means the use of teleoperation systems to manipulate distant objects. [1] Jonathan Steuer has added that “Telepresence is defined as the experience of presence in an environment by means of a communication medium.” He also writes: “…”presence” refers to the natural perception of an environment, and telepresence” refers to the mediated perception of an environment.” And his interpretation of “virtual reality”: “A “virtual reality” is defined as a real or simulated environment in which a perceiver experiences telepresence.” “The key to defining virtual reality in terms of human experience rather than technological hardware is the concept of presence.” [2]

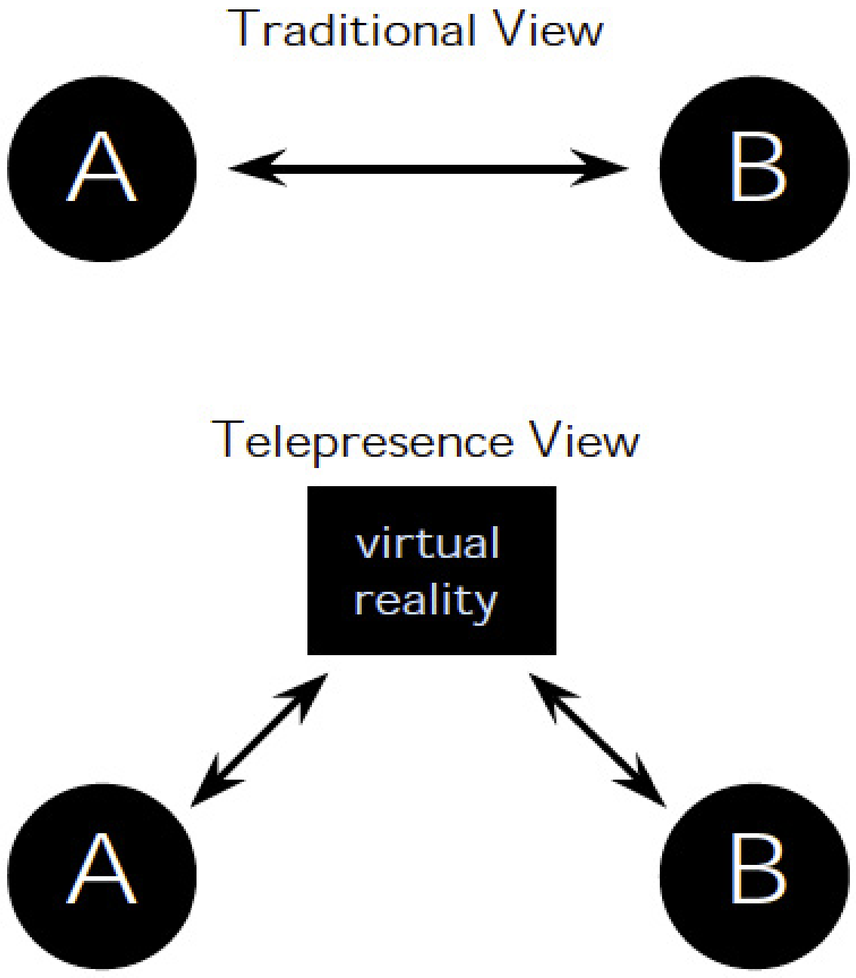

Image 1.

1 Campanella 2000.
2 JSteuer 1992.

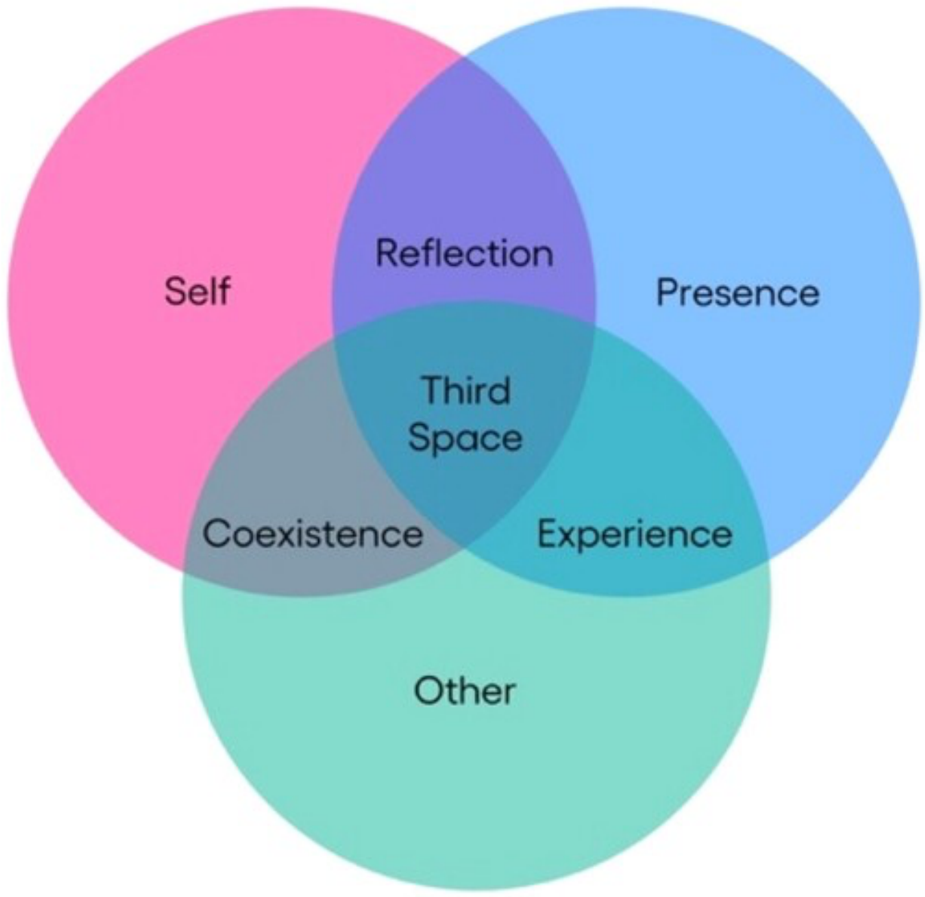

Image 2. The phenomenological model of the third space, Paul Sermon 2023.

We also borrow Jonathan Steuer's scheme, which brings us closer to the concept of "third space". The figure is taken from Myron Krueger's book:[3]

The "virtual reality" box in this figure is undoubtedly the "third space". It belongs to both parties to the communication, and if there are more than one, to all of them. Paul Sermon defines "third space" as "...a telepresence experience of self as other in a coexisting reflection. This is the place we occupy together as an extension of the body scheme not a separation from it. The third space is simultaneously referring to three spaces, the two locations where we exist remotely and the third location where we exist together." [4]

Paul Sermon's scheme is richer than Steuer's:

Sermon refers to Myron Krueger, who has made observations about the third space in connection with his "Videoplace" installation in 1983.[5] There, for the first time, a situation arose that the images of the two participants' bodies began to overlap in the composite image, which created an uncomfortable situation and the idea of a certain etiquette when communicating in the composite image.

3 Krueger [1983] 1991.
4 Sermon 2024.
5 Krueger [1983] 1991.

4.3 Paul Sermon's telepresence stage

Paul Sermon deserves attention for his consistent practice of creating telecommunicative works for over thirty years and for his contribution to the development of telepresence stage projects.

A large part of the British artist Paul Sermon's telematic projects are based on user interaction. Since the early 1990s, Sermon's name has been associated with performative projects between different locations. His works 'Telematic Dreaming' (1992), 'Telematic Vision' (1993), 'The Tables Turned' (1997), 'A Body of Water' (1999) and several others are built for viewers operating in different physical locations whose images are merged. Participants see each other's feedback images on the screen and manipulate them like electronic puppets. These projects have become favourites of art historians and survey exhibitions, and are the clearest expression of the dia- and polylogic of interactive and telecommunication art.

Paul Sermon uses the possibilities of the Internet to connect people from different places, while allowing audio communication and incorporating facial expressions and gestures. In this way he achieves a result that is the pinnacle of intimacy. His works could be described as "interlocal art". They are interactive and communicative installations between physically separated places.
A strong social aspect is manifested in Sermon's visualised site-specific installation 'A Body of Water', 1999, where visitors related to the visitors of the second part of the installation, who were in the miners' dressing room in the abandoned mine in Herten. A video of one of the visitors in Duisburg, projected onto a water screen, became a concrete and realistic presence in the Waschkaue, while historical footage of miners showering was projected on the other side.

4.4 Proprioception in telepresence artworks

Paul Sermon's work in the 1990s is a significant contribution to the evocation of the proprioceptive sense in the viewer. His solutions took place in a completely new technical environment and were again realised with the help of an expensive Internet connection. In Sermon's projects, different locations are brought together on a single screen, but the image and the object depicted are not connected remotely. Instead, touch takes place at the level of the image rather than through a direct physical interface. If two participants wish to touch each other remotely, they do so only insofar as the images of their respective bodies are merged into a single image on the screen and thus appear to touch. In Sermon's legendary "Telematic Dreaming" (1992), beds are placed in two different locations. Each bed is viewed through a camera suspended above it, and beside each bed is a screen and speakers to transmit sound and images. The participants lie on the distant beds and see each other's bodies projected onto a single bed on their screen. In this case, an interesting phenomenon can be observed in the reactions and behaviour of the participants, where even though they are not in the same room, they each react to the combined

image as if they were in contact with the body of the other person shown in the combined image.

We have only seen this work of art once, in an art museum. On that occasion there was a small group of high school students. They had been divided into two groups - half in one room, the other half in another. When the familiar faces of their schoolmates appeared on the screen, apparently in the same bed, they began to play with each other, punching each other's bodies with their fists. You can probably imagine the fun they were having and the raucous laughter, but they also seemed to behave as if they were delivering and receiving punches directly with the other group. In this example, it is clear that the same ancient layer of the human psyche mentioned above was activated by the experience, enabling them to engage easily with the pictorial object. It seems that, from the perspective of the deep human psyche, the being and the image of that being actually belong to the same territory, so that the image and the object are inseparable.

There is a kind of intimacy without real intimacy. Technology unites and separates. Obviously, you could experience an exciting astonishment when you later meet the 'original' coming from another room, i.e. the person projected on your bed.

Sermon's subsequent project 'Telematic Vision' (1993) is similar in that two different groups interact from two separate rooms, but in one room there is a large couch on which this group of participants sits in front of a blue screen. The installation took place in Karlsruhe, one sofa in the Badisches Landesmuseum and the other in the ZKM Centre for Art and Media in Karlsruhe.

The aim is for the two groups to place each participant so that they are sitting on this one couch. The significant difference here is the performative collaboration that ensues as the two groups (one in the sofa room, the other in a second room/location) try to arrange themselves to perform together. Participants in both rooms tend to focus more on their image as it appears on the collaborative screen, rather than looking directly at their body as it is located in the actual physical space immediately around them. A game of (accidental) and awkward eroticism takes place as people who do not normally know each other in the physical world negotiate the positioning of their bodies and the arrangement of their limbs. The situation has some similarities to the experience of standing in front of a mirror, but unlike a mirror, there is no left-right reflection, so when a person raises their right hand, they see the image of the right hand on the screen, which is also raised, but facing their left side on the screen. This makes coordination difficult and participants move awkwardly as they try to orientate their own body while looking at it on the screen, rather than focusing on themselves in the room.

Here we can use the term "proprioception," which is rarely used in connection with interactive art, although author have previously done so in an article about contemporary screen practices.[6]

"Proprioception, first defined by Sir Charles Sherrington in 1906, is a person's perception of their own body position. It is usually an intuitive understanding of the position of the body and body parts in space. It is a kind of sensory system and a form of interoception, but it is difficult to describe as a "sense". It is certainly an internal coordination system based on the nervous system:

6 Kelomees 2017.

objectively, the internal network of nerves in the limbs and parts of the body provides the brain with information about the position of the body in space. This usually happens unconsciously during a person's physical movements, such as touching their nose or putting on their shoes.

Sermon's previous project shows a situation where participants have to actively assemble visual and physical feedback, and where the use of a feedback image serves to awaken participants' proprioceptive sense. We can talk about the awakening and activation of this sense in cases where physical activity is placed in an unfamiliar situation: the participant should focus their attention on the position of their limbs in space in order to find or locate them again and complete the tasks presented by the artwork. This situation is similar to learning any new physical activity that requires unfamiliar coordination of the body, such as when a person learns to ride a bicycle, skate, dance, swim, or play a musical instrument. Driving a car requires a person to coordinate their perceptual and physical apparatus, which can be learned, but is certainly not immediately intuitive to the learner.

4.5 Telepresence Stage

A new chapter in Sermon's research was the "Telepresence Stage" project, which he also described as a new paradigm born during the pandemic. An extensive article has been written on the subject.[7] It is a

7 Sermon, Dixon, Popat Taylor, Packer & Gill 2022.

Image 3. Paul Sermon "Telematic Vision" (1993).

technological and conceptual platform for different theatre companies to realise remote theatre projects. The authors write: “In response to the COVID-19 impact on the performing arts sector, this project identifies new and creative ways for actors, dancers and other performing arts professionals to rehearse and interact together in shared online spaces and to produce collaborative live performances from remote sites.” In the case of these projects, the concept of ‘third space’ emerges clearly. It is a virtual shared space created by combining physical space and virtual environment.

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This platform was offered to a number of theatre companies that were struggling with the fact that traditional theatre activities had almost come to a standstill during the pandemic. The “third space” is both a metaphor and a visual-practical outcome. It is a situation in which actors from different geographical regions are placed in one screen environment, one “space”. They only see each other together on the screen and act towards each other by seeing this composite image. Here the issue of proprioception becomes relevant again. The participants, actors or dancers control the screen by watching their body movements. They are in their body and at the same time watching it from the side. This is different from standing in front of a mirror, where the left and right sides do not change and the reflection is visually ‘wrong’, although objectively correct.

The telepresence stage project was designed for several theatre groups, enabling them to perform during the pandemic, but also teaching the performers new ways of acting in virtual space. Understandably, the new technological environment also enables new methods, and these create a new conceptual situation.

Image 4. View of the “Held in Human” installation (2023).

Next, we will discuss an art project called “Held in Human.” The project was carried out in Tallinn, Estonia, from August to September 2023. It was a three-week durational performance/interactive installation by artists Liis Vares and Taavet Jansen. The project aimed to link visitors in a gallery space

4.6 “Held in Human”

“Held in Human” was held in collaboration with the Estonian Academy of Arts and the elektron.art platform. It was part of the project “ACuTe - Culture Testbeds for Performing Arts and New Technology” and lasted from 21 August to 13 September 2023. The artists created a digital layer around an art installation in a physical space so that people could access and participate in the work.

The artistic metaphor for “Held in Human” was “a fetus growing in the womb.” The gallery was a safe, immersive space where sound, light, video projections, objects, and an augmented reality layer nurtured a single idea to flourish.

The project was broadcast live on the elektron.art website, where viewers could chat and influence the projections in the gallery. The chat content was recorded in an augmented reality archive that spiraled up to the ceiling. The artists had removed the gallery ceiling, making it look like the archive was spiraling out of the room into the sky.

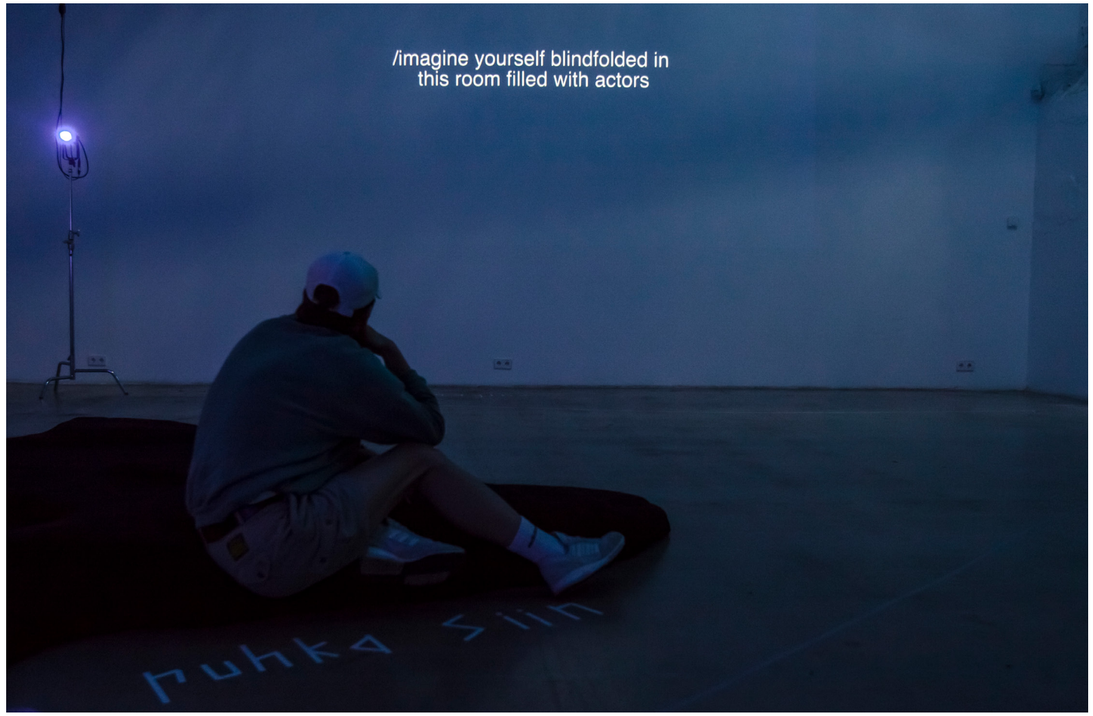


Image 5. A lone visitor reading a notice on the wall.

Telematic presence using text

Telematic presence is the technology-enabled sensation of being present in a place other than one’s actual location.[8] This idea has usually been used explicitly with video transmission, but in ‘Held in Human’ the authors were looking for ways to bring the ideas of online viewers into the gallery, so that the viewer’s trace would remain in the space even if the viewer never arrived.

The focus of this project was on text - creating text, writing text, appearing text, pronouncing text and reading text. They explored how to translate the viewer’s thoughts into physical space and find a form for them that would have a poetic and artistic quality. Everything that viewers typed into the chat window

8 Dixon 2007.

was analysed, and the software filtered out posts with specific keywords and used them in the video design. The keywords had a poetic depth to intrigue viewers and inspire writers to include them in their sentences. The keywords were in English and preceded by a '/' sign to distinguish them from random words in the sentence. The keywords used were /imagine, /remember and /whisper.

/imagine

There were large video projections on the gallery walls. When the keyword /imagine was used in the chat, the phrase was projected onto the gallery wall. The authors did not provide a specific direction for the viewer's imagination, but welcomed any interpretation projected onto the large wall. This collective thinking space encouraged an uncensored starting point where everyone could share their ideas and take ownership of their writing. Visitors to the gallery could also visit the website and design the projection while they were there. In this way, messages were also left for other visitors, turning the gallery space into a playful environment. As some visitors left profound messages, this variability created a sense of lightness and anticipation throughout the installation.

Image 6. Camera mounted on dolly

Image 7. A guest whispering into a microphone in the gallery.

/whisper

The camera in the gallery was mounted on a tripod, which in turn was mounted on a 3m dolly. The cables were attached to the ceiling so that visitors to the gallery could move the camera around the room, rotate it and zoom in and out. A microphone was also installed in one corner of the gallery, with a small screen in front of it. When a visitor whispered into the microphone, it was automatically recorded and played back through speakers mounted on the gallery ceiling. If an online viewer typed the keyword '/whisper' into the chat window, the phrase would appear on the small screen in front of the microphone. This allowed online viewers to invite physical visitors to whisper something into the microphone.

Bridging Physical and Online Audiences

The ability to send messages directly from the chat window to the gallery wall created a rich opportunity for interaction between online and physical viewers. For example, when the text "/imagine, you could make someone very happy by changing her point of view" appeared on the wall, the gallery visitor realised that the text was meant for her and moved the camera. As online viewers could see what was happening in the gallery, this invitation provided another opportunity for interaction between physical and online viewers.

A second option, where online viewers could invite gallery visitors to whisper something into the microphone and leave their thoughts in the gallery (and also in the video stream), created an opportunity for physical visitors to interact with online viewers. For example, if the phrase "/whisper who you love" was left on the screen, the gallery visitor could freely whisper into the microphone, "What else don't you want?!" and thus create a dialogue with the web viewer by questioning their power relationships.

These two possibilities created unique relationships between online and physical viewers. On several occasions an extended interaction between physical and online viewers took place using these limited facilities - some people online and some people in the gallery spent some time interacting with each other and seemed to be having a good time.

"All whispers were recorded, stored in a database and played back randomly. As a result, when viewers interacted with the microphone or chatted, their thoughts were left to wander around the space. These thoughts started a dialogue with other thoughts on the walls or on the speakers".

/remember

If the keyword '/imagine' led to posts on the wall, '/whisper' related to the microphone, then the keyword '/remember' invited people to contribute more thoughtful, deeper ideas. While these ideas only appeared in the AR layer, the arrival of each idea was signalled by a light effect and a sound cue. As mentioned above, an augmented reality layer in the gallery rose like a tunnel from the centre of the gallery and could be accessed by mobile phone. In this spiralling collection of text, the viewer could move up and down and read all the previous contributions. Artists were using AR technology for the first time, and while the initial effect was remarkable, the use of AR raised some doubts among creators and viewers alike.

Concerns about using AR technology

Conceptually, augmented reality is an ideal medium for adding layers to a space that are invisible to the naked eye, while leaving the space empty. In practice, however, such a solution may create a conflict between the art space and the viewer's personal space. The use of a personal technological object in an art event is still a new and alienating concept.

Firstly, the use of a personal smartphone raises issues of technological inclusion and accessibility: not all visitors may have smartphones that support AR. Furthermore, differences in smartphone capabilities can lead to different user experiences. "For example, the AR technical solution in 'Held in Human' did not support certain phones running the Android operating system. This caused mixed feelings among their owners and also made us wonder: "Is technological disruption more tolerated in the context of art than in other fields? If an artist takes an authorial position, is it ethical to judge the viewer's experience by the devices they use?"

Secondly, the reliance on personal devices raises concerns about privacy and security. The authors used QR codes printed on the wall to access the AR, the website and the WhatsApp community. They did not explain to viewers where these codes led or how to use them - below the codes were the words 'tunnel', 'web' and 'community' written on the floor. They were interested in the viewers' exploration of the possibilities they offered and their trust in them as authors - that they would not lead them into a digital quagmire where it would be dangerous for them.

They noticed the different attitudes of visitors to the whole user experience (UX). One visitor mentioned that his interest in the installation disappeared when the online chat window did not work as expected. This is a vivid illustration of how, when using technology that the visitor is familiar with from other areas (in this case, web design and the smartphone interface), the viewer expects the installation to provide the same intuitive and seamless interaction as they are used to elsewhere. Visitors' varying levels of technological sophistication should also be taken into account. This could include providing clear instructions, troubleshooting support and possible alternative access methods for those unfamiliar with AR features or whose devices do not support the web solution.

The issue of digital literacy also needs to be considered. Visitors who have little experience or comfort with AR technology, or who are not intuitive with their devices in different situations, may need help to fully engage with the installation. The artists considered providing an assistance in the gallery space, but decided not to do this and to let 'natural selection' take its course, accepting that it is not possible to try to provide an equal experience for everyone in technologically complex situations.

Using a device in the gallery also raised the issue of immersion and distraction. While the AR solution was the only possible access channel to the full archive of the work, the use of smartphones may have been too distracting.

The Final Improvisation

Over the last two days, the creators of an installation deactivated audience interaction, redesigned the gallery, and allowed the collected material to improvise. the result was a sense that the installation had begun to take on a life of its own, combining a seemingly endless number of people's ideas.

Viewers interacting with the installation were unaware of the impact of their presence. The installation provided a platform for people's thoughts and dreams to meet without physically meeting. The result was some beautiful moments: one person's whisper resonated with another's search for a friend, while someone's imagination sparked the belief that 'this is not the end'.

It is worth noting that these physical moments in the gallery could have occurred several weeks apart, yet the installation managed to bring them together.

It is also possible that the writers of the texts had never been in the gallery. The installation became a medium through which people's thoughts and desires intertwined without their knowledge, creating a unique and beautiful experience.

In conclusion, we can see that experiments with the telepresence stage are taking place in different countries.To a significant extent, the process has been accelerated by the era of the pandemic, which has allowed targeted experiments with different theatre groups. Here we have looked at the work of the British artist Paul Sermon. To widen the perspective, we have included Liis Varese and Taavet Jansen's project "Held in Human", which was carried out after the pandemic era.

Image 8. A look at the installation over the last two days.

ENHANCING STAGE PRODUCTIONS VS SHARING KNOWLEDGE: THE IMPORTANCE OF POST-PREMIÈRE RESIDENCE

By Bárbara Epalza Azqueta and Fernando Pérez

Det Norske Teatret Residence at Azkuna Zentroa

This case study of the European programme ACuTe Culture Testbed for performing arts and new technology[1], supported by the European Commission, will demonstrate the value of artistic residency programmes and the importance of supporting creation and knowledge exchange. We will show how the innovative residency format organised by Azkuna Zentroa - Alhóndiga Bilbao[2] benefited the contrast of WONDERLAND the VR production of Schauspielhaus Graz[3].

1 ACuTe.

2 Azkuna Zentroa - Alhóndiga Bilbao.
3 Schauspielhaus Graz 2023.

5.1 Introduction

One of the responsibilities of Azkuna Zentroa in the framework of the ACuTe project is to organise artistic/experts in residencies for 4 of the 9 new productions: Oslo, Craiova, AZ and Graz. Each of these 4 productions were at very different points in time at the time of the residency and AZ offered a programme adapted to the moment they were in and to their needs.

One of Azkuna Zentroa's tasks within the ACuTe project is to organise artistic residencies for 4 of the 9 new productions: Oslo, Craiova, AZ and Graz. Each of these 4 productions was at a very different stage at the time of the residency and AZ offered a programme adapted to the moment and their needs.

The first residency was with Det Norske Teatret [4] of Oslo, who were in an initial phase of research where they needed time for inspiration and internal work to sort out ideas and propose their narrative proposal and possible uses of technology; the second residency was with Marin Sorescu National Theatre of Craiova [5], with a clear dramaturgical concept and use of technology, but which required time and space for individual work as it was the first time the team had met with the artistic director. The third residency will accompany the support of Azkuna Zentroa's own production, which will premiere in May 2025. The fourth and final residency was WUNDERLAND the VR production of Schauspielhaus Graz [6] project, which premiered in Graz in March 2023. This production was not only completed but also premiered, but the mandatory process of the residency had to be carried out, and it was decided to maintain this phase and to carry out an artistic residency programme with the reflection and contrast of experts on the piece. This residency was held in January 2024.

4 Det Norske Teatret.
5 Teatrul Natonal „Marin Sorescu" Craiova.
6 Schauspielhaus Graz 2023.

5.2 Research Questions

Creating a new stage production is a meticulous process that demands countless hours of dedication, research, creativity, rehearsals, investment, and collaboration. However, the journey doesn't end once the curtains rise on première night.
In the performing arts sector, there are different artistic residency programmes to prepare a production, but not for a post-production evaluation, especially when the production is the result of an innovative and experimental piece that include new technology and a combination of different disciplines for an assessment of the process and result of the piece. In fact, it could be just the beginning of another two crucial phases:

1. Refining and perfecting the performance based on audience feedback and expert insights. This is where post-premiere residencies could play a pivotal role.
2. Be open and share this experience with other professionals, exchange knowledge, disseminate the process of the production.

5.3 Theorical framework

What is an artist residency?

Artist residencies are programmes that offer artists and other creative professionals time, space and resources to work, individually or collectively, in areas related to their artistic practice.

The benefits of these programmes can be grouped into five broad categories:

1. the professional development of artists/companies,
2. economic benefits
3. cultural development (for the artist, the host organisation, the region)
4. organisational learning and capacity building for both the host and the community
5. the enhancement of the reputation of the host city or region

An artist residency is an aid to the artistic process, an endowment of time, place and resources so that a project can be realised. The expert/artistic residency surrounds the provision of other resources. It seeks contact, coexistence, exchange and links with other artists, accompaniment of the project through invited and professional experts.

According to artlex[7], the dictionary of art, Expert/Artist-in-residence programmes are deep and immersive explorations of the arts. How they work is influenced by several factors, including the type of art, the characteristics of a specific programme and levels of personal preference. An artist-in-residence programme allows artists to live and work in new environments that are different from their traditional studios or workspaces. Artists are invited to live in a different environment/environment, usually with other like-minded creative types.

The idea is that by moving away from society, we can reflect and see the world in different ways, with a more refined and attuned approach. Artistic residencies can also amount to a 24/7 intensive course of study, where aspiring artists can learn detailed information in a short period of time, either from a mentor or from an artistic community. Artists in residence can take the opportunity to tackle new projects, develop ideas or try out new methods and techniques. Resident artists can find greater levels of productivity by freeing themselves from the distractions that surround them in everyday life.

Residencies offer an enormously valuable opportunity to disconnect from the world, reflect, learn and produce.

Art residencies can vary significantly from one another, including in size, duration, and cost. Creative practice is different for everyone, so when weighing residency programmes, there are many internal and external factors to consider. Now more than ever, there are a wider variety of options, including virtual residency, artist exchange programmes and unique studio space designed to maximise comfort.

7 Artlex 2024.

Artist residencies are immersive studios that aim to enhance skills and broaden artistic perspectives. Determining the purpose of a residency is crucial for artists to maximize their experience. Questions like “What kind of artist am I?” and “What skills do I want to learn or improve?” help to define goals. Some residencies involve shared spaces with experts from different fields, facilitating collaboration and idea exchange. This allows for the exploration of new perspectives and the forging of long-lasting connections. Approaching residencies with an open mind, eagerness to learn, and willingness to ask questions is essential for artists. Residencies primarily focus on the learning process, so being knowledgeable and enthusiastic about the subject matter can be advantageous. It is also important to approach certain aspects of the residency with a fresh mindset. Overall, artists should embrace the diversity and opportunities provided by residencies to make the most of their experience.

5.4 Case Study Selection

Azkuna Zentroa, renowned for its commitment to fostering creativity and innovation in the arts, recognized the significance of this phase and designed a comprehensive residence program of experts from different fields for Graz National Theatre’s production, WUNDERLAND, one of the nine productions of ACuTe project.

Conceived at the time of COVID and produced in November 2022 within 5 days, this innovative production is the result of the intersection of several disciplines:

Wunderland

staging, cinema, animation; shot in 360º for an individual experience in VR with a duration of 15 minutes.

The viewer sits in a tent with the scenography of a children’s room, with virtual reality glasses on the nose and 3D sound headphones in the ears, and experiences how a mother (Maresi Riegner) and a father (Valentin Postlmayr) take care of you. They are many things: artists, hipsters, millennials, but they are not happy.

In the modern world, a woman doesn't always have to sacrifice her life and dreams to have a child. In WUNDERLAND, the father's career is put on hold because he's at home looking after his children, while the mother is successful. The child comes first. His dreams are secondary, arguments are inevitable. There is a storm outside, and it is not much calmer inside. Love and anger alternate until everything culminates in a nightmare. In the end, father and mother stay together. Just as many parents stay together too long.

The new virtual reality film by Schauspielhaus Graz, WUNDERLAND, written and directed by Kurdwin Ayub, where he takes Ayub back to childhood by showing him everyday life through the eyes of a little girl. WUNDERLAND premiered on 22 March 2023 at the Diagonale, the festival of Austrian film in Graz.

The team of this production wanted to review their piece during a residency in order to compare it with experts from Bilbao and exchange knowledge, sensations and recommendations. This residency brought together a diverse group of professionals from the context of Bilbao, including film director, set designers, and dramaturgs, to engage with the production in a unique and immersive way.

However, the residency has enabled knowledge to be shared across different levels of the local arts sector, bringing innovation into the local performing arts context.

5.5 The Expert/artist residency programme

The residency took place in January 2024 with a structured programme of sessions with 10 experts grouped by discipline:

Film and audiovisual:

- Iratxe Fresneda (filmmaker, screenwriter and university professor).
- Ainara Bilbao (Azkuna Zentroa Cultural Programming for film cycles and jury in several film festivals).
- Jaime de los Ríos (new media artist, curator).

New Dramaturgy and interpretation:

- María Goircelaya (director, playwright, actress, voice specialist and theatre researcher, Max Award for best director, author and for theatrical 2023).
- Javier Liñera (dramaturg, author, and director).
- Fernando Perez (Azkuna Zentroa Director, Programming for Performing arts)

Production and new technologies:

- Sergio Cabrero (senior researcher leading interactive Media Technology at Vicomtech).
- Mikel Zorilla (Head of Digital media at Vicomtech).
- Gorka Martin (researcher and lecturer for scenography at Dantzerti, Higher School of Dramatic Arts of Euskadi).

Youth students for audience engagement session

- Martin Barandiaran (researcher and lecturer for Applied technologies to scenic spaces at Dantzerti, Higher School of Dramatic Arts of Euskadi)

Audience Engagement:

- 25 youths students from IED Kunsthal Bilbao (European Design Studies)
- 5 youths students from Dantzerti (Dantzerti, Higher School of Dramatic Arts of Euskadi)
- Jaime de los Ríos (new media artist, curator)

The residency began with the experts attending performances of WUNDERLAND, allowing them to experience the production firsthand. This firsthand experience provided them with valuable insights into various aspects of the performance, from the acting and direction to the set design and technical execution. Following each performance, the experts engaged in reflective discussions, sharing their observations, critiques, and suggestions together with Graz team.

Production and new technologies session

One of the key benefits of post-premiere residencies is the opportunity for the production company team to receive constructive feedback from objective, knowledgeable sources. This feedback is invaluable in identifying areas of strength and weakness in the production and pinpointing areas that may require further refinement or development. It also provides validation for aspects of the production (now Deutsches Theatre) that are working well, boosting the team's confidence and morale.

Furthermore, the residency facilitated meaningful dialogue and collaboration between the production team and the experts. This exchange of ideas and perspectives enriched the creative process, sparking new insights and inspiring innovative approaches to storytelling and staging. It also fostered a sense of community and camaraderie among the participants, as they worked together towards a shared goal of enhancing the quality and impact of the production.

For the experts invited to this residency, it was a great experience since, for many of them, they did not know each other, which allows them to establish relationships, but for some of them it was also the first experience of such an innovative production, which opened their minds to another dimension and influenced future imaginaries.

This residency has benefited both the Deutsches Theatre production and the local context in Bilbao as it has allowed for an exchange that may lead to further development opportunities in the future.

5.6 These are some of the experts' contributions

For most of the experts it was their first experience with a VR show, which they were delighted to experience and opened up a world of artistic opportunities also for their own projects. Experts were grateful for the efforts made by the production team to explore the new narrative and technological possibilities of audiovisual narratives. All the participants were grateful for the generosity of the production team to talk freely about the piece.

The first question experts ask is about the discipline of the piece: is it a film or a performing arts piece?

Virtual reality applied to theatre demands a new way of conceiving dramaturgy. WUNDERLAND is a very good test of how to present a short film in 60 degrees and see how viewer dives into the story, but at this stage the project is closer to a cinematographic experience than a theatrical one. This is not cinema, but it is not theatre either. What job profiles are needed then to tackle this type of work?

This new work model points out the need for new roles in work teams where dramaturgy can function at different levels: the first focusing mainly on the

story, the second, focused on the audiovisual narration that VR requires, and a third one where spatial design helps to tell that story as a significant bridge inseparable from impact generated by VR.
All experts coincide on the innovative experience mixing the real and the virtual. For all of them, it is a brave piece, committed to current affairs.

It would be interesting not to limit the senses in this experience and add others such as touch and smell. Wearing 360º glasses and headphones slows down the immersion of the experience. The group experience in a scenic space is lost by sharing the experience with other spectators. How does it affect the loss of contact with reality in the theatre? Theatre is a unique art because of the experience of sharing live: the act of exchange that happens in that space between performers and the audience. How does then the suppression of reality affect the experience. However, going to the theatre to have this individual and immersive experience is also a social experience.

The starting point of the story, the written piece, is very interesting. however, the point of view of the girl, whom we don't see at any point, is not fully developed.

The production is more a compendium of tableaux vivants than a story. The experience, when you put on the glasses and start to experience the story, is fragmented and disjointed, it doesn't flow. (Although we can understand that there may be an intention to implement Bertold Brecht's theory of alienation). The sequence of the moment of crisis of one of the characters (the father) running through the rooms is one of the greatest dramatic achievements of the project. It has an impact. The experience of the project is interesting and positive, and that it can be part of a transmedia experience, combining traditional staging with additional spaces where, with the help of the glasses, other lines derived from the main theatrical narrative can be experimented with. Technology enables new ways of telling stories and provides novel formats, such as this one. However, technology needs to answer an artistic purpose. It ca not ne just a fireworks. Technology needs to be: human-centred, easy to understand, easy to use, universal, accessible to all and inclusive, it should be considered from the conception of the process and we ned skill facilitators for multi-disciplinary activities.

Regarding the production costs, whose value is far removed, in terms of economic profitability, from that of conventional theatrical productions. The open path mst be continued and new funds are needed to develop this type os research within stage structures.

In the audience session, the participants considered the possibility of distributing this production through Spotify-type platforms, in order to experience the immersive sound of the piece. They also considered the possibility of programming this piece in exhibition spaces such as cultural centres or museums, in the context of an exhibition with themes related to the daily life of a family; another option for social purposes is to program the piece in schools to raise awareness about the importance of maintaining a good atmosphere at home and how arguments affect children.

5.7 Conclusions

In conclusion, post-premiere residencies are an essential component of the stage production process, offering invaluable opportunities for reflection, critique, collaboration, and refinement. By engaging with experts and incorporating their insights and feedback, productions like Wunderland can continue to evolve and improve, captivating audiences and leaving a lasting impression on the cultural landscape. But also, is an opportunity to share knowledge, analysing and disseminating an experimental production as this one to experience and opened up a world of artistic opportunities also for their own projects through innovation.

THE USE OF THE DESIGN THINKING TOOLS TO ENLARGE AUDIENCE ENGAGEMENT IN THEATRE PRODUCTIONS.

By Hester van der Ent , Herman Paassen and Matthijs van Veen

One of the goals of ACuTe, cultural testbeds for performing arts and new technology, is to encourage engagement amongst under-presented audience groups of theatre and performing arts. This can be people who are not used to visiting the theatre or who are unable to. Key elements for the project are outreach and accessibility by making use of digital technologies.[1] With an interdisciplinary approach integrating digital technology and co-creation methodologies, a new type of 'culture testbed' was created to test and prototype the application of new technologies within performing arts productions under three themes: 1. new dramaturgies, 2. stage design and 3. audience engagement. To structurally design the testbed, the Design Thinking method was chosen, resulting in a toolkit of Design Thinking tools, based on the user needs drawn from the ACuTe consortium institutions and networks in the European sector, developed by Paassen en van der Ent. The toolkit (figure 1) was published in the form of an interactive PDF.[2]

In this case study the toolkit will be evaluated, based on the design process, the tools used during the different steps of the process and the results of the use of the toolkit, within two innovative concepts: "The case against humanity" hereafter called Case 1 and a concept for a City Game, called Case 2.

The main question is whether the toolkit is usable for European theatres when applying digital technologies to develop innovative performances.

Figure 1: the Toolkit for testbed implementation & productions (Paassen & van der Ent, 2023)

1 Culture Testbeds for Interactivity, Performance and Technology (ACuTe).
2 Paassen & van der Ent 2023.

6.1 Design Thinking

Design Thinking was chosen as a method to develop the toolkit because of its user-centered approach that integrates the needs of people, the possibilities of technology and the requirements for success.[3] As the goal of the ACuTe project is to test the possibilities of new technologies to encourage engagement amongst under-presented audience groups, the tools are meant to help the theatres to empathize with the audience, to create audience-centered innovative concepts and to follow an iterative prototyping and testing process.

The Design Thinking method contains five steps:

- empathize: research the users' needs;
- define: state the users' needs and problems;
- ideate: challenge assumptions and create ideas;
- prototype: start to create solutions;
- test: try the solutions out. [4]

For all phases tools have been incorporated into the toolkit to create a "Do-It-Yourself" toolbox to use the Design Thinking method.

3 Brown.
4 Dam 2024.

6.2 Case 1: Det Norkse Teatret & Net Nordic, Oslo

Under the working title "The case against humanity", a theatre co-production between Det Norske Teatret and Net Nordic, based on Karel Çapek's book Rossums Universal Robots, an immersive audience experience will be created to challenge the audience to participate in new dramaturgies. The goal is to develop a performance where the audience interacts with a manifestation of an AI alongside actors within a given framework. The play will be performed in March 2025.

From September 2023 till February 2024 a team of students of Saxion Creative Media and Game Technologies worked at the Saxion XR lab [5]in cooperation with Peer Oian and Anders Hasmo of Det Norske Teatret on developing the concept for the following concept for the play: "In the future an AI puts humankind on trial. Humans are charged with gross negligence onwards and on Planet Earth". The following technologies are explored: Generative AI in dialog, Robot Embodiment with trained AI and Real-Life Dialog between actor and AI.

5 Velez Cano, Stan, Meijer, Bocheva, Ion, & Staykova; XR lab of Saxion University of Applied Sciences 2023.

6.3 The design process of Case 1

Within the development of the concept for the “Case against Humanity” production, the following design process was conducted.

To empathize with the ideas of the theatre, the play and the suggested audience the students did desk research into theatre audiences, the play, concept possibilities and inspirational cases and had multiple talks with Oian and Hasmo. The final problem statement was defined as

“Create an immersive theatre installation on the concept of AI, where the audience can participate and immerse themselves in the experience and start conversations about the future of AI”

A long list of concepts was developed during the ideation phase of which three concepts were selected to be presented to the theatre. This presentation led to the final concept, that was further developed by prototyping and testing. The process was less linear (more iterative) than presented in the overview in figure 2 below as can be read in the blog of the student team. [6]

6] Project: AI Theatre.

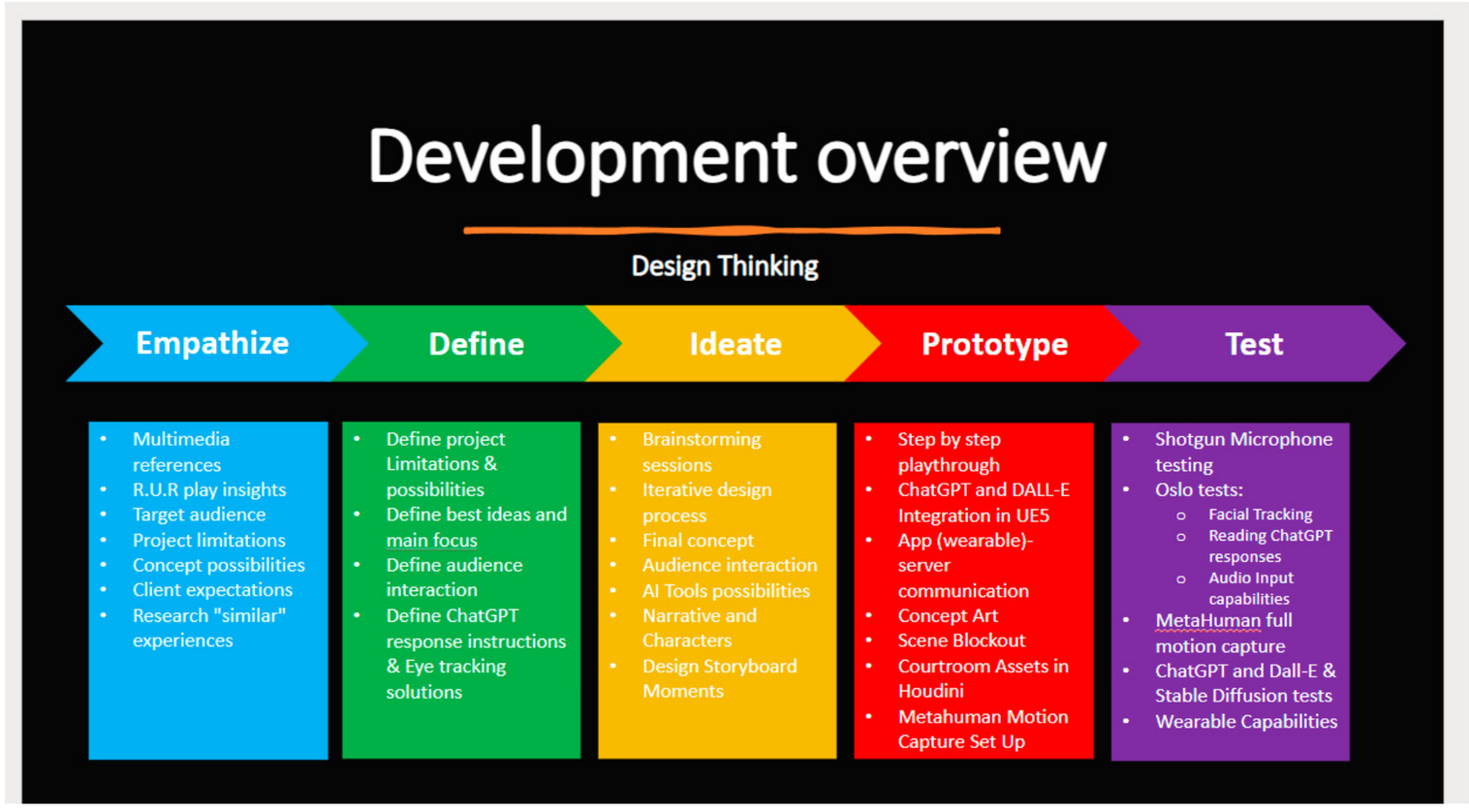


Figure 2, overview of the design process of case 1 (aitheatre.wixsite.com)

6.4 The tools used within case 1

Empathize

The team got insight in the assignment and the target audience by using a needs-motivations-drivers matrix and a motivation chart to find the so-called "sweet spot" of the target audience. This approach is similar to the value proposition canvas that is incorporated in the toolbox. The content to fill out the templates was derived from talks with the theatre, focusing on an audience that is used to visit the theatre and that is assumed to be interested in interacting with a somewhat confronting experience. [7]

Define

The students first defined individually their own interpretation of what the project was. Based on that, the final problem statement was defined, in consultation with the theatre. After that the team defined the project limitations and possibilities as starting point for the ideate phase.

Ideate

The first set of concepts were brainstormed individually based on desk research of similar installations or performances and they were all presented to the student team. This was because the students all had different outlooks as to what the project could be, some of them suggested a more gamified approach to the concept, some a more didactic and also exploration based one. A selection of three favorites from this longlist was made by means of a SWOT Analysis of each concept. Every other concept since then was a collaborative effort within the team, being improved or changed based on client feedback. The final concept was a studio wide effort, collaborating with other student teams in order to find weaknesses and quickly brainstorm solutions to those weaknesses. And then back to the team to fine tune and document it all in order to prepare the concept to be presented to the client.

Prototype

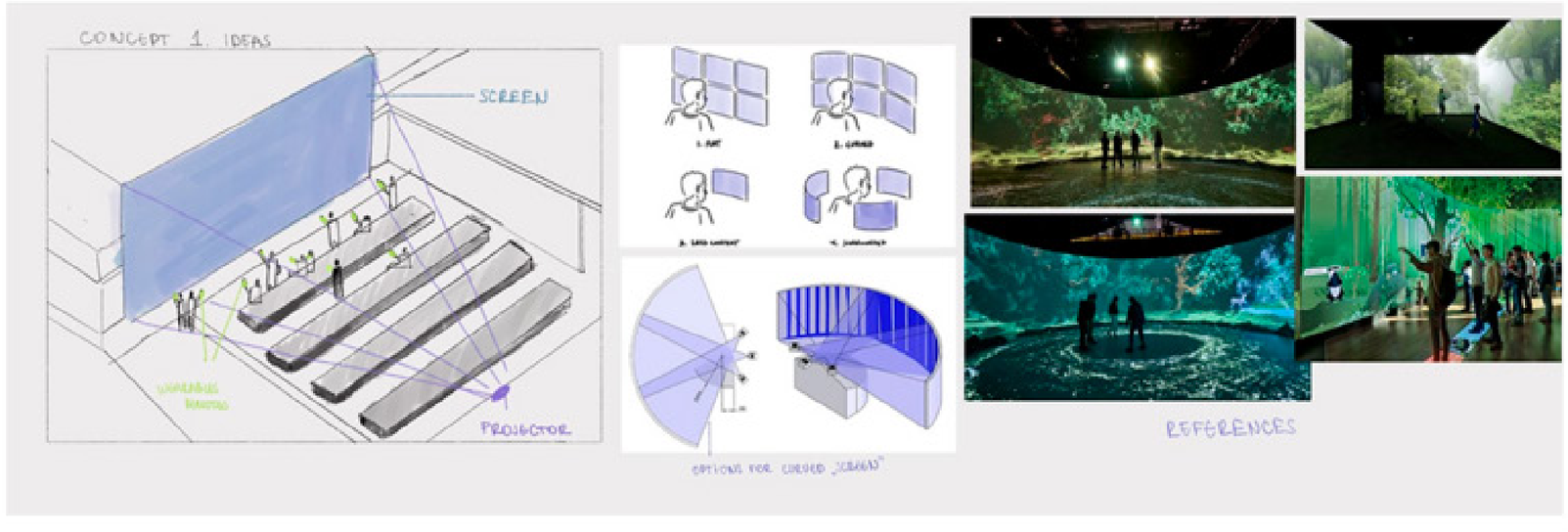
As outcome of the ideate phase, paper prototypes of four concepts were presented to the client; 1. a Narrative/Story focused idea, 2. "Inside-AI" Installations, 3. a concept for an AI generated World and Story and 4. a combination of concepts one and three. The prototypes explained the interaction to the client, as can be seen in figure 3 below. [8]

The story driven concept was chosen to further develop. Within this concept an AI will question the audience in an actual courtroom. An interaction framework diagram was created to understand the interaction between the audience, installation and actors, based on questions the AI can ask humanity, as you can see in figure 4 below. [9]

7 Research Audience Motivation and Behavior I Nona - Week 1 2023.

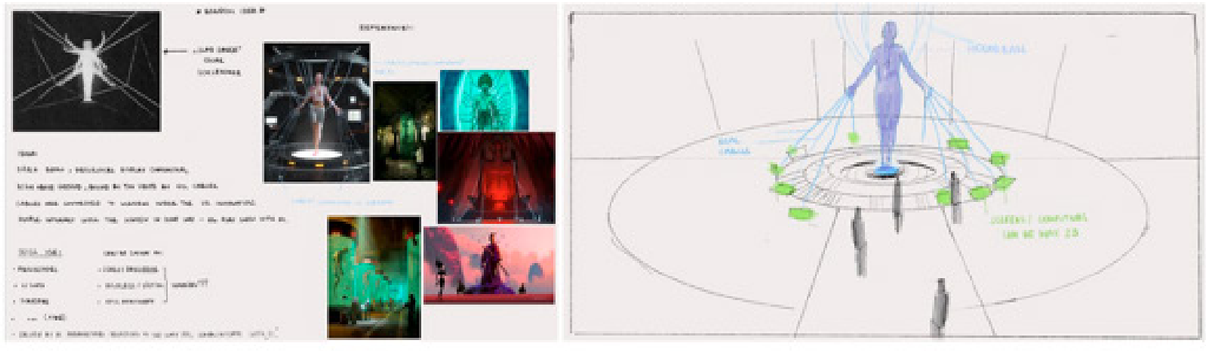
8 Project AI Theatre - September-October 2023; Oslo trip I Nona Bocheva - Week 11 2024.

9 Final concept | Cristian - Week 5/6 2023.

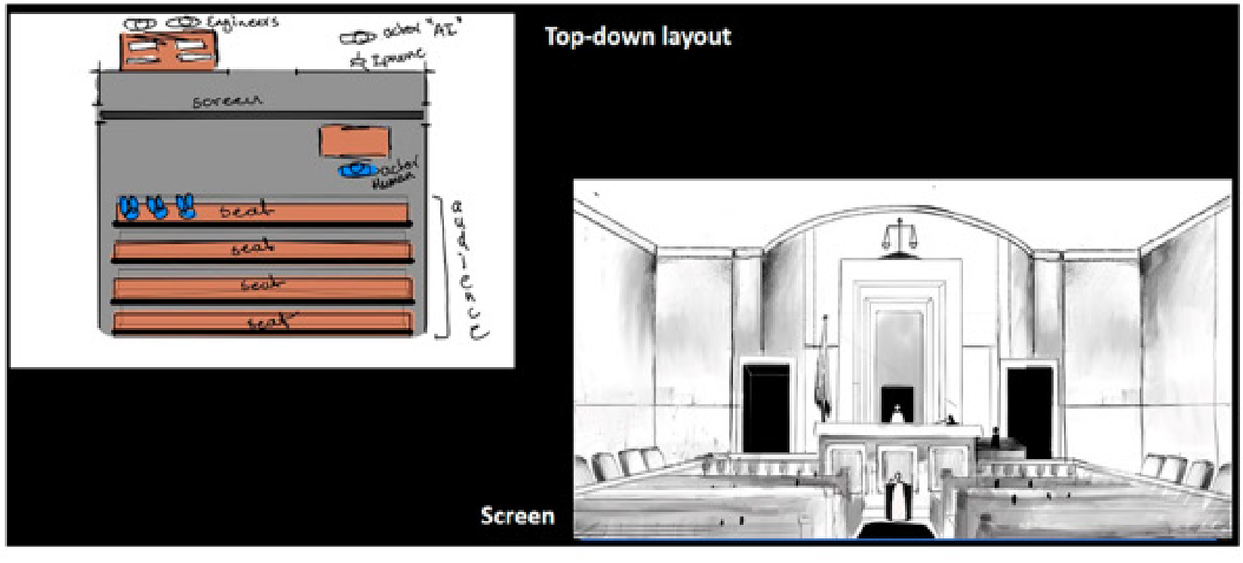


Concept 1

Concept 2



Concept 3



Concept 4

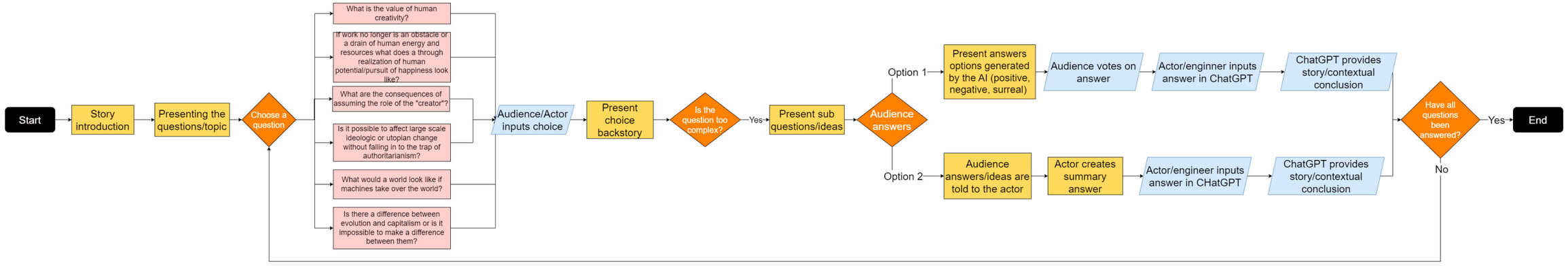


Figure 4: example of an interaction framework diagram.

A service blueprint, showing the organizational process, was made as a starting point for the testing on location (figure 5). The flowchart explains how sub-questions can help the audience to answer the main question or further drive the discussion. [10]

10 Interaction design & user experience | Cristian - Week 9/10 2023. Blog. https://aitheatre.wixsite.com/aitheatre/post/interaction-design-user-experience-characters-cristian-week-9-10, retrieved 03.04.2024

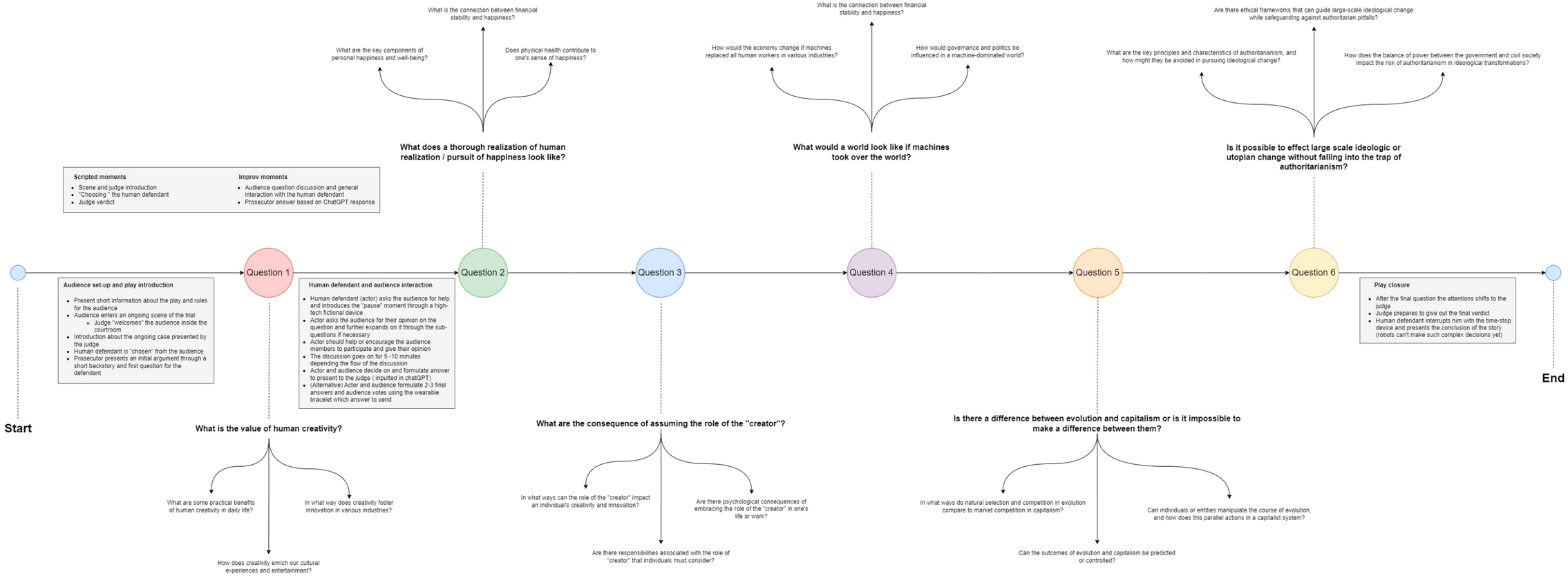


Figure 5: example of a service blueprint.

Digital mock-ups were made in the form of animated videos to test how realistic a digital human, that will embody the AI, can look including facial movements and body proportions (see figure 6). [11]

11 Brainstorming & technical research | Nils - week 1⁄4 2023; MetaHuman V-tuber fails and success | Emanuel 2024; LiveLink demo 2024; Mocap Demo 2024.

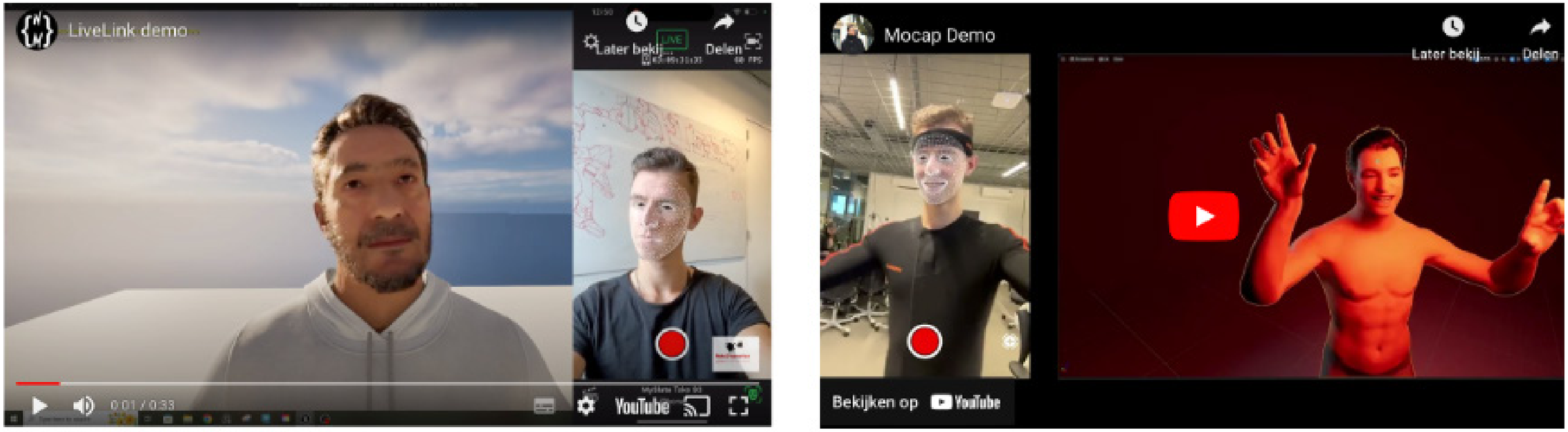


Figure 6: video recordings of the digital mockups of the digital human.

To test the concept of giving the audience a bracelet in order to enable them to react on questions by raising or lowering their hand, Arduino was used to make a prototype.

Arduino is an open-source electronics platform based on easy-to-use hardware and software. It's intended for anyone making interactive projects (arduino.cc). [12]

12 Arduino; Project AI Theatre - November | Part 1 – Bracelet 2024.

Test

Prior to the test on location a low fidelity user test was conducted at the XR lab, with CMGT students as testers. To do this, rough 3D sketches were made to visualize the stage set up, as can be seen in figure 7 below. [13]

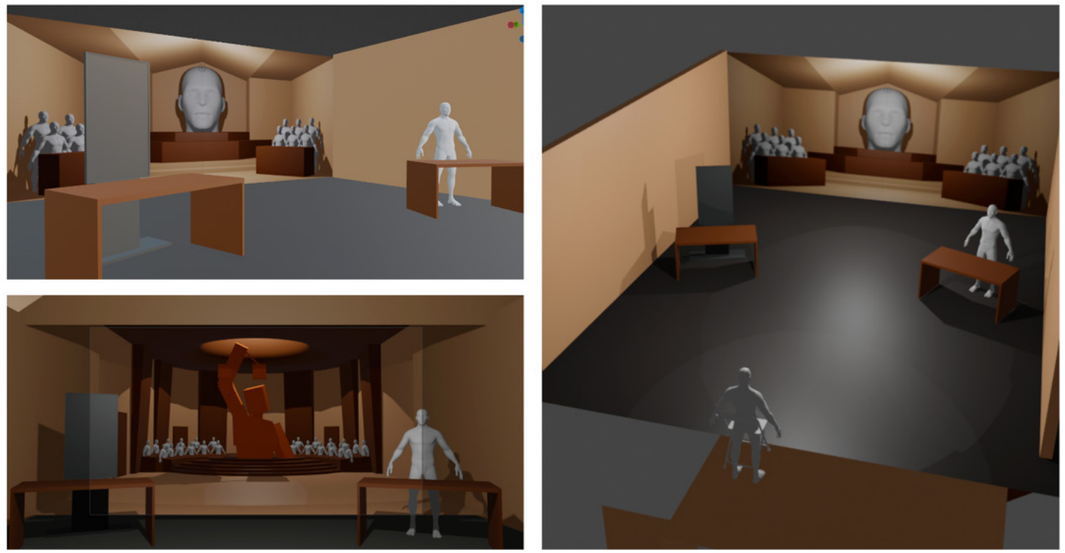


Figure 7: 3D sketches to visualize the stage set up.

To test the interaction between the actor(s), the ChatGPT persona, the system, and the audience a usability test was conducted at location with the actual user.

13 Midterm, Testing, Oslo Prep | Emanuel week 9 & 10 2023.

A user test was conducted to understand if the performers would be interested in working with a Metahuman (figure 8). [14]

6.5 Results of the usage of the tools within case 1

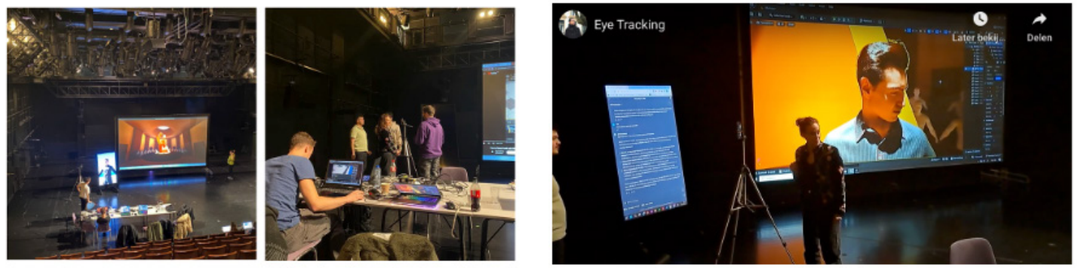


Figure 8: usability and user tests on location.

Conducting the empathizing phase, by using tools like the needs-motivation-drivers matrix, motivation chart, empathy map, user persona, and customer journey helped the team to find the “sweet spot”, to understand how to create something for a theatre audience. The team had to find out how the expected visitors of the play can be stimulated to interact with the somewhat confronting experience. It was assumed that the users the expected audience,

14 Oslo trip I Nona Bocheva - Week 11 2024; Project AI Theatre - November | Part 2 - Oslo Trip & Midterm 2024; Oslo Trip | Emanuel - Week 11 2023; Eye Tracking 2024.

consists of regular visitors of the theatre, having the open mindset, needed to experience the uncomfortable interaction. The team based the design on these assumptions, made by the theatre; the students did not have the opportunity to talk to the target audience themselves. Defining the problem statement, including the limitations and possibilities for the concept gave insight in the key success indicators as starting point for the development and testing of the final solution that will be developed after the publication of this case study, by the theatre in cooperation with a design company.

The Interaction Framework Diagram proved to be useful to explain the concept to the client. Paper prototypes helped to explain the audience engagement and the digital mock-up gave insight in how realistic a digital human can look, including facial movements and body proportions. The extend of realism of a digital human can influence the immersion of an experience, so it is important to test concepts to find out if they can meet the expectations. Regarding immersion, the time ChatGPT needed to generate answers and counterarguments needed to be tested as well, as timing is an important issue when it comes to engagement and immersion. The service blueprint the students provided was helpful to create this test. By this it was tested how the installation would respond to the actor's cues, while acknowledging the unpredictable audience responses. An important take away was that the actress found it difficult to interact with the installation that only consisted of a head. Her play was hindered by the fact that there was no body. Based on that the options of doing a full body motion capture were explored.

6.6 Case 2: Slovene National Theatre, Nova Gorica

During the same period another team of students [15] developed together with Marko Bratuš and Jure Novak of SNG, The Slovene National Theatre in Nova Gorica, a concept for a City Game that will last two weeks in the City of Nova Gorica and that has the goal of stimulating citizens to explore parts of their city they normally don't visit. The Game will be launched in June 2024 and will last for two weeks.

6.7 The design process of Case 2

Within the development of the concept for the City Game, the following design process was conducted.

An empathy map and user persona were developed to empathize with the audience and to manage the expectations of the theatre. Based on that the final problem statement was, with the help of a problem statement canvas, defined as "A solution so that the people of Nova Gorica start to build a community with both Italians and Slovenians together, taking into account that both communities want to actively and willingly interact with each

15 Panovski, Veldscholte, Costa Pinto & Wu.

other." Within the ideate phase brainstorms took place on gameplay ideas and narratives. Mood- and storyboards, user interface designs, flowcharts and a user journey were made to develop and explain to the theatre the possible interaction of the player with minigames and external objects of the game. Mini games were prototyped and tested in lab sessions. Figure 9 below shows a visualization of the process, that was less lineair as the graphic suggests, as can be read in the blog of the student team. [16]

16 Acutecity - Nova Gorica.

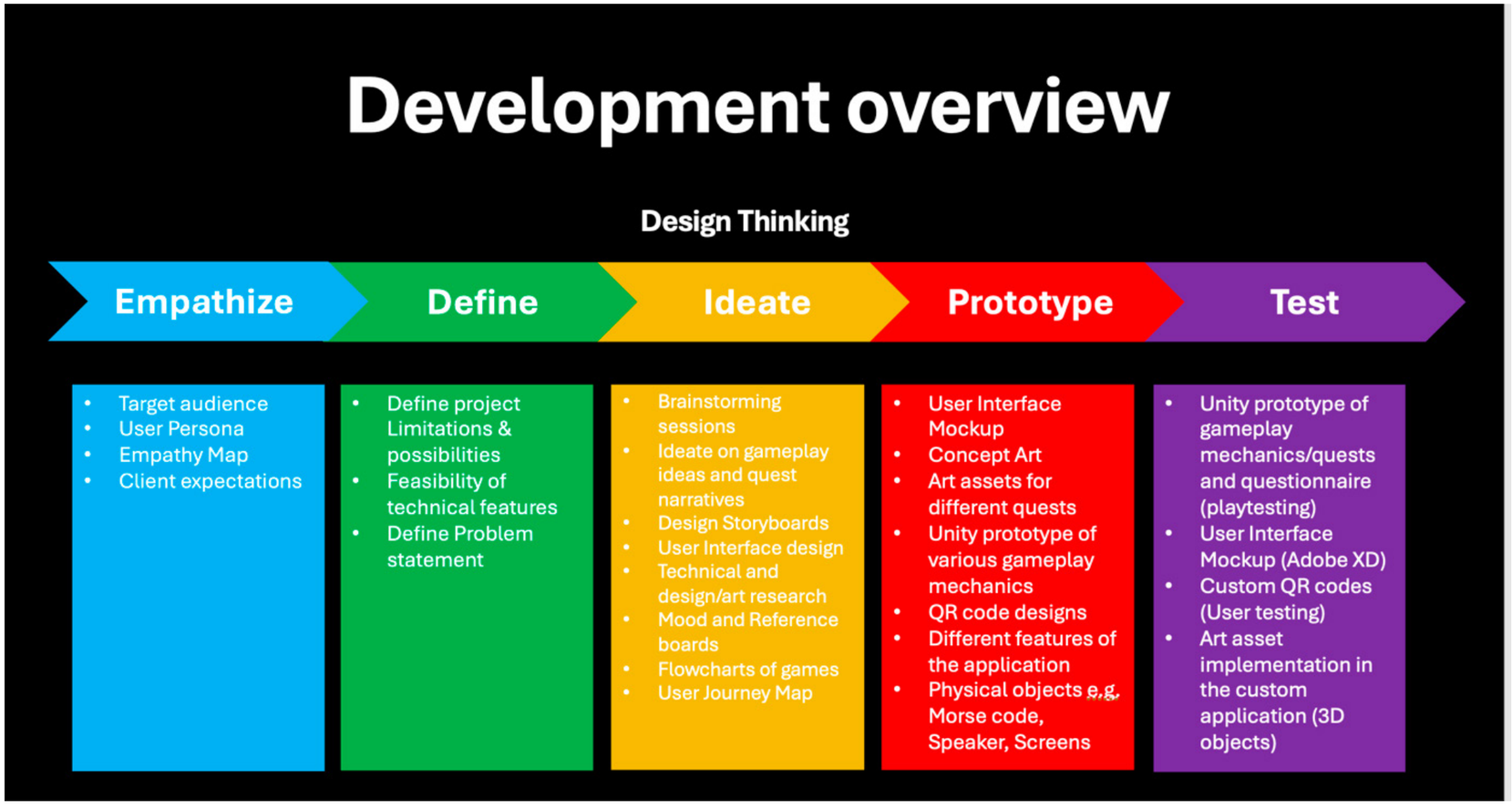


Figure 9: overview of the design process within case 2.

6.8 The tools used within case 2

Empathize

An empathy map was made to understand why the citizens (the users) are hesitant to visiting the part of the city, they don't live in. A user persona was created to identify the user, the team was designing for. And the hook model was used to design flowcharts to design the loop of triggers, actions, variable rewards and investments to keep the audience engaged. The content was based on a heterogeneous target audience, namely the citizens of Nova Gorica and Gorizia. Some of whom do visit the theatre regularly and some of whom don't. [17]

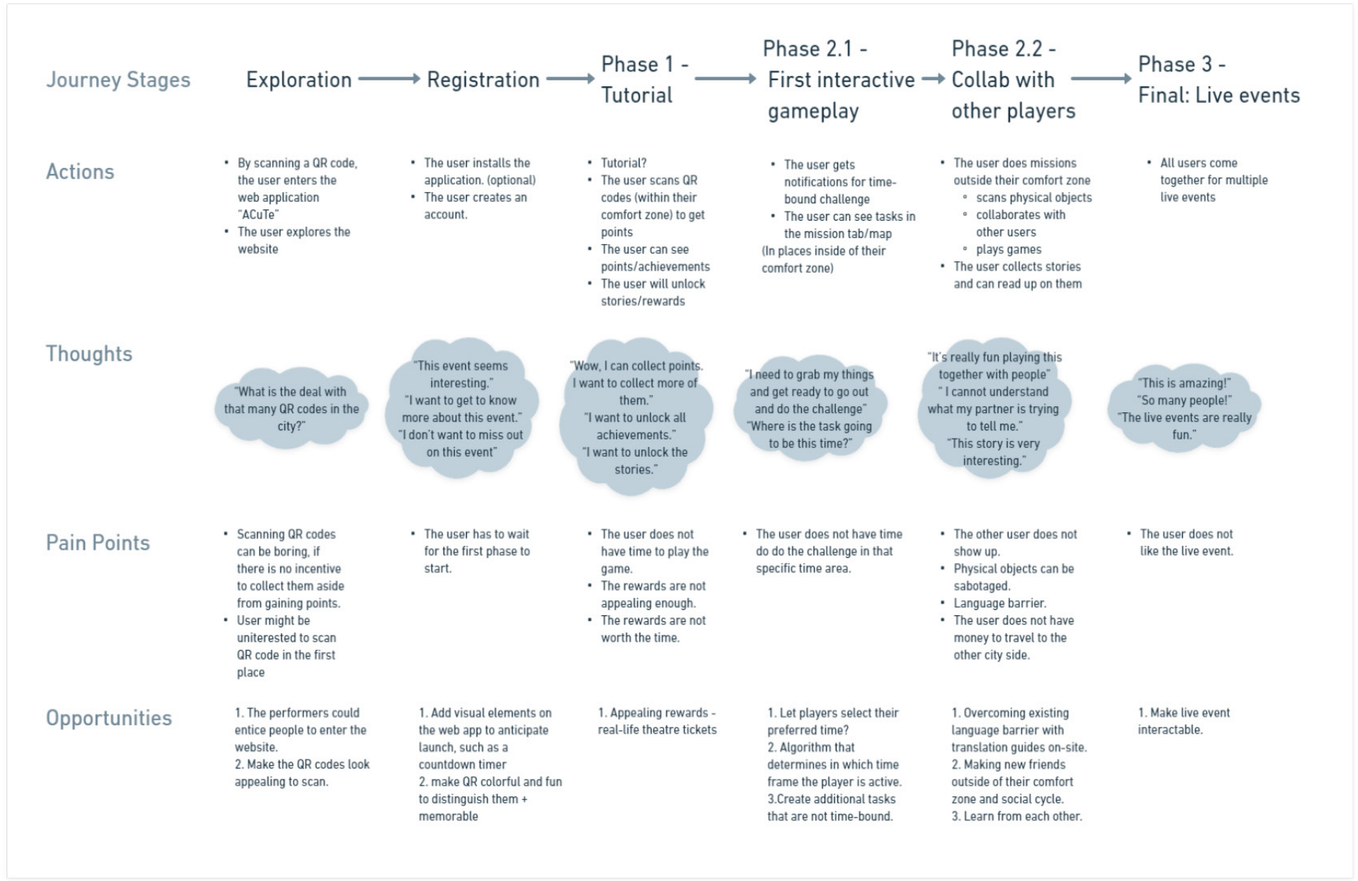


Figure 10: example of a user journey.

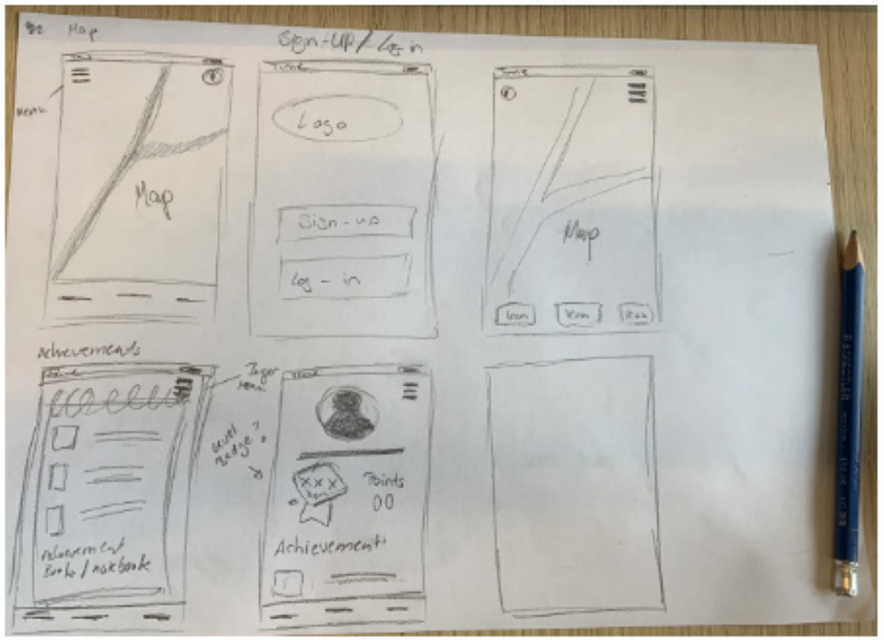
Define

The problem statement canvas was used to define the final problem statement.[18]

Ideate

A user journey (see figure 10) was made to kickstart the wireframing process. [19]

17 Week 1-2: Design Thinking – Empathy Map 2023; Week 1-2: Design Thinking – User Persona 2023.
18 Week 1-2: Design Thinking – Problem Statement Canvas 2023.
19 Week 1-2: Design Thinking – User Journey Map 2023.



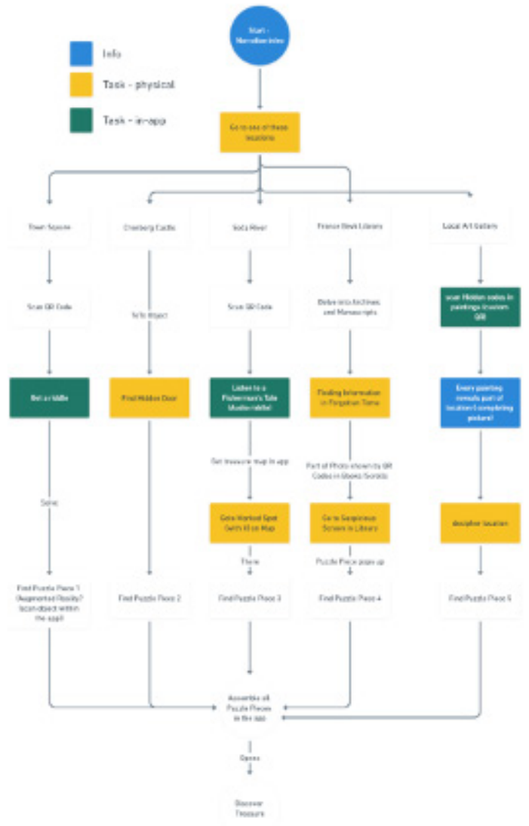


Figure 11: examples of a paper prototype and flowchart for the wireframes.

Prototype

Some rough sketches on paper and flowcharts were made for the wireframes to get feedback from the client before going into digital prototyping. See figure 11 below. Flowcharts were made for the Scavenger hunt, the Onboarding process and a language barrier puzzle. [20]

As open-source hardware, Arduino and Raspberry Pi were used to prototype two of the mini games. [21]

20 Week 2: App Wireframes 2023; Week 3-6: Idea: "The Enigmatic Puzzle of Nova Gorica" (Scavenger hunt) 2023; Week 4-6: Idea: "Lost Child in Nova Gorica" (Language Barrier Puzzle) 2023.
21 Arduino; Raspberry Pi; Tech – Morse code prototype 2023; Tech – Text to speech 2023.

Test

The Unity concept prototype was tested at the Saxion XR lab, with students of Saxion Creative Media and Game Technologies, by a survey and observation. The test incorporated the scores, QR codes, and clarity of prototype elements.

6.9 Results

The tools helped to understand what triggers the game must incorporate to stimulate the players to get “out of their comfort zone”, and to stay engaged for two weeks. The target audience was based on desk research, in consultation with the theatre, but the students were not able to get in touch with the actual citizens of the city.

Creating the problem statemen canvas was crucial for the students to provide the team with a solid foundation for their design process, providing comprehensive understanding of the overall user interaction.

By making rough sketches the students made a concept presentation for the City Game, without spending too much time working on a solution that was not yet approved by the client. Paper prototyping makes applying feedback not too costly, before going into digital prototyping. Flowcharts explain the interaction of the audience with the app and with objects on location. Based on that the user experience can be tested. Also prototyping with open-source hardware, like Arduino and Raspberri-Pi, helps to test the interaction between the user and an object.

6.10 Conclusions

To design innovative concepts, it is important to get deep insight in the audience to find the “sweet spot” as the base for the engaging and immersive audience experience. The tools that are incorporated in the empathy phase of the can support this process. In the two cases described in this paper, the students were not able to get in touch with the actual audience and thus could not get deep insight in the needs and wants of the audience, nor could they test their ideas and concepts on the actual user. Nevertheless, the tools used helped the students to focus on a specific user during the design process and to justify their choices.

Low fidelity prototyping and flow charts helped the teams to explain concepts that are new to the theatres, showing how the audience will interact within the experience. It also helped to do user tests in an early phase, to find out if the audience is likely to be engaged and/or interested in interacting with the experience. Lab tests can give valuable insights on user behavior if no tests can be conducted on the actual users.

Usability testing proves to be important to help the creation of an organic and responsive way that enhances the overall theatrical experience for all involved parties. Based on the tests proper discussions with the people involved can take place about how to proceed with the project. Although usability tests are preferably conducted in the field, lab tests can give useful data as well.

6.11 Discussion

Design thinking is one of the design methods that are widely used in the creative industry. It can be expected that design teams will use, amongst others, tools from the toolkit to follow a user-centered, iterative, and structured design process. Based on the experiences with the two cases, this paper is based on, it can be concluded that the tools supported a co-creative process of students and theatres. Tools of the toolkit can help to justify choices, explain and select concepts and clarify interaction designs. They can support the visualization of innovative ideas, make them tangible and bring them to live. By that they can help to facilitate the communication between the design team and the theatre.

Thanks to the cooperation with the students and the toolkit, Oian and Hasmo of the Norwegian Theatre, have indicated to be inspired to use elements of Design Thinking method, when exploring both dramaturgically and structurally new approaches.

For most professionals from the theatres the Design Thinking method is new; they are not used to empathize, prototype and test. Because of that, the tools from the toolkit appear not to be as accessible as they are meant to be. This became not only clear during the cooperation of the students and researchers with the theatres, but also during the knowledge sharing event in Dortmund that took place on March 20 and 21, 2024. In general, the consortium partners feel that the theatres must be introduced to the Design Thinking Method before they can fully benefit from the toolbox. Also, the name of the toolbox doesn't help, as it doesn't explain what the purpose of it is for the theatres that are not part of the ACuTe consortium.

Based on the experiences with the two cases that are described in this paper, it is too early to draw conclusions to answer to the question if the toolkit is usable for European theatres when applying digital technologies in co-creation with external experts from the industry. It seems that the toolkit can be helpful in applying the Design Thinking methodology, but it also seems necessary to introduce the theatres into the Design Thinking method. Only after that it can be found out if their design process can benefit from the toolkit and if so, in what way.

6.12 Recommendations

Based on the conclusions we recommend organizing so-called "crash courses" about Design Thinking and the use of the tools, to help theatres in Europe to meaningful apply new technologies, to create innovative interactive experiences for under-reached audiences. This will help the theatres apply a structured design approach when developing concepts and support cooperation with external partners from the creative industry.
We also recommend changing the name of the toolkit or to add a subtitle that explains the goal of the toolkit.

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ACuTe, co-funded by the Creative Europe programme, is a pioneering digital theatre project across Europe. Project aims to transform the way theatre and performing arts are created and presented using emerging technology and new forms of cultural collaboration and competence development. The project involves a collaboration of 14 leading theatres, universities, and creative arts organizations, including Ars Electronica, the European Theatre Convention, and Europe's first Academy for Theatre and Digitality.

These organizations, from 10 different European countries, will work together to develop new approaches and models for testing new technology, leading to audience development, co-creation, and capacity development within the performing arts and theatre industry.

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