A Pathway to Immersive Storytelling: from Linear to Participatory

– Reflecting on the Artistic XR works of Michelle & Uri Kranot

Michelle Kranot *
The Animation Workshop, Storytelling, Design & Business
VIA University College
Denmark
MIKR@VIA.dk

Uriel Kranot
The Animation Workshop, Storytelling, Design & Business
VIA University College
Denmark
URKR@VIA.dk

ABSTRACT

This paper contributes to understanding XR, animation, and participatory storytelling intersections by documenting and reflecting on creative processes. This account illustrates the Kranots' trajectory through six stages of practice and research, illustrated by personal artistic works. The authors argue that the integration of performance, animation, and XR enriches creative industries and educational contexts, adding meaning and practical value. Their process begins with 'performative immersion', followed by 'passive witnessing' and 'immersion through interaction'. The process is further explored in 'immersion through being' and 'immersion through shared experience'. Their current stage of investigation concludes the process with the examination of 'real-time narratives'. This research traces a personal artistic journey from linear to participatory storytelling, while providing a structured pathway for other artists and researchers to explore similar practices.

CCS CONCEPTS

•Applied computing ~ Arts and humanities •Social and professional topics ~ Professional topics •General and reference ~ Document types ~ General conference proceedings

KEYWORDS

Immersive Storytelling, Participatory Art, XR, Virtual Worlds

Introduction

This contribution is a reflection on the story design process through an account of personal creative milestones in our professional practice. By testing the frontiers of immersive art and moving images and activating participation in location-based experiences, we are compelled to ask how the medium is changing the way we tell a story? Specifically, how does the development of technologies offer artists new tools and opportunities, and what steps are involved in the transition from traditional to participatory storytelling? Our objective is to offer a basic theoretical framework outlining the practical and conceptual progression from screen-based linear storytelling to interactive, collective experiences – while pointing out interdisciplinary strategies in support of this trajectory.

Background

According to the European Commission's science and knowledge service, new virtual environments are expected to bring transformative shifts in technology, society, and the economy (Hupont Torres et al., 2023). This research is conducted in the practical framework of collaborations with companies and cultural actors in the digital media and animation industry, set within the broader context of the European cultural and creative industries (CCI) ecosystem.

Immersive Storytelling, or XR, builds on the ongoing rapprochement between audiovisual arts and game studies to experiment with storyworlds as an alternative mode of storytelling (Ryan & Thon, 2014). We use the comprehensive term XR to reference a group of emerging technologies and media which in some way manipulate our perception of physical reality. These include virtual reality (VR), augmented reality (AR), mixed reality (MR), and other digital tools and applications (Rauschnabel et al., 2022).

Moving from traditional narrative and timeline-based film towards an experience that calls for an active participant rather than a viewer, XR holds the potential to unveil new territories for storytelling just as cinema did 120 years ago. This is even more apparent when engaging in interactive, free-roam, 6 DoF (six degrees of freedom) performative installations in public spaces (Ceuterick & Ingraham, 2021).

* Michelle Kranot and Uriel Kranot work as an artistic duo. Both lead the research area for immersive storytelling and documentary at the Center for Animation, Visualization and Digital Processes, where Uriel is Associate Professor and Michelle is Assistant Professor.

Our multi-disciplinary inquiry uses artistic practice research to explore the storytelling possibilities in the burgeoning field of animated XR, which now offers increasingly complex immersive and participatory animated XR worlds, both for individuals and for groups (Lukas, 2012).

Methodology

Our research methodology aligns with the term 'practice research', which encompasses all forms of research that incorporate practice (Candy 2006). Practice research may be used to describe our body of work 'as a whole', combining practice-as-research (PaR) approaches in the development process with practice-based-research (PbR) analysis, including researcher practitioner reflection, and participant research. Described as a cycle or revisionary process (Gadamer, 2004), PaR is an iterative cycle of "doing – reflecting – reading – articulating – doing" (Nelson, 2013).

The cycle consists of making work, reading, researching as artists and complementing that with critical assessment and evaluation of other works. Producing new work and iterations of prototypes, presenting work, conducting workshops with students and collaborators from across disciplines perpetuates this cycle.

Our methodology of artistic practice research (Nelson, 2006) is anchored in the creative process and applied to our teaching practice. Among other opportunities, it is through our association with a higher education institution that we have access to the latest technology in our lab and studio. Reflective practice (Schön, 1983), an invaluable feature of our practitioner research, is also embedded in our teaching methods. Notably, our methods often employ the pedagogic lens of Project-based Learning (PjBL) (Mitchell & Tilley, 2024).

From Linear to Participatory

As a touchstone and primary case study, we offer a brief analysis of the project The Hangman at Home (2020). This multimedia work deliberately explores the crossover between the linear screen-based medium of animated film, and the technologically mediated immersive experience of VR (Kranot, 2021). Thus, in the following section, we chart the milestones which led to this innovative work and the technological achievements it later enabled. These are organised as a six-stage framework.

Situating the case study

The Hangman at Home is an animated short film and a single-user VR experience. It is also a multiuser co-location experience and a performance installation. Though all the components of this multimedia project deal with the overarching theme of acknowledgement, the two XR experiences are separate and independent from The Hangman at Home animated short film. These investigate interactivity as a call for participation (Biocca, 2002), examining this through the lens of a non-linear user-led journey through changing environments.

In 2020, the project The Hangman at Home was awarded the grand jury prize for best VR immersive work at the 77th Venice Biennale Film Festival. Notable titles released in this same period include Finding pandora x by Kiira Benzing (USA) and Sha si da ming xing (killing a superstar) by Fan Fan (China), (La Biennale, 2020). The Hangman at Home is uniquely innovative among its contemporaries in its use of fully interactive story elements. Interaction is a term that is more common in discussions of multimedia and digital art forms than in participatory theatre (Machon, 2013). Yet it is knowledge transferred from the field of participatory theater and installation art (Biggin, 2017) which positions The Hangman at Home as unique in the XR landscape at the time.

The development and production process of this large-scale project, co-produced in Denmark, France and Canada, was lengthy and incremental. Beginning with drawing, painting, sculpture, and sketches, the narrative progressively built upon each iteration and in conversation with the distinct media platform. Our objective was to explore the diverse possibilities offered by each platform: the screen-based film adheres to a linear structure adopting a strict formalist approach to cinematography and editing. It features only five repeating shots, with no camera movements. As an XR experience, we introduce user mobility and interactivity, inviting users to make choices and take on an active role as an avatar in the story. In its multi-user form, the project enables participants to communicate and make decisions collaboratively within a virtual world.

Stage One: Performative Immersion

We describe the first stage of our six-stage framework as 'performative immersion'. Some game and VR researchers regard immersion as a technical construct, while others regard immersion more as a psychological state (Bareisyte et al., 2024). Our definition builds upon our own earlier work, preceding the introduction of XR technology into our creative process. This earlier work investigates multiuser experiences in expanded animation (Hagler et al., 2019), embedded within participatory theatre (White, 2013). Gareth White defines theatre as participatory when active audience participation is an integral aesthetic and structural feature of the participatory performance (White, 2013).

Figure 1: Photo from The Hollow Land Experience

We refer to the example of The Hollow Land Experience (2013), which was the first in a series of collaborations with theatre practitioners Sara Topsøe Jensen and Sarah John. Together we designed a sensorial participatory theatre experience where the audience wears masks and is immersed in the visual world of Hollow Land (2013), which was first released as a traditional stopmotion animated film on the theme of displacement. The film is a love story about resentment, immigration, and hope.

Figure 2: Still from Hollow Land

As a theatrical experience, it is a poetic and moving social experiment with light and projections, and is motivated by curiosity and playfulness. By placing masks on people, audiences are invited into the story – making them active participants in the characterless landscapes of the Hollow Land visual universe. We consider this our first step towards interdisciplinary and participatory storytelling (Machon, 2013), leading to further research on the technologically mediated notion of 'presence'. Lee defines the term 'presence' in communication theory as "a psychological state in which virtual objects are experienced as actual objects in either sensory or nonsensory ways" (Lee, 2004).

Stage Two: Passive Witnessing

Following 'performative immersion', we propose 'passive witnessing' as the second stage in the framework. To exemplify this progression, we can trace the leap from The Hollow Land Experience, as a theatrical offshoot of the animated film Hollow Land, to the next milestone project – Nothing Happens (2017). Nothing Happens began as an animated film about spectatorship. The project is about watching and being watched, and it was simultaneously developed into an XR experience on the same theme.

Figure 3: Still from Nothing Happens

Examined through multiple perspectives, Nothing Happens offers a new way of looking and questions our accountability as viewers, spectators, and artists. The project depicts a crowd of people assembling to witness a spectacle. The assembly of characters is mirrored by a murder of crows in the tree tops: a snowy forest, time and location unspecified. Nothing Happens is an animated observation on the nuances of interaction and passive witnessing.

The adaptation from a screen-based film to VR allowed us to deconstruct the narrative and put it back together in a new way. We were compelled to place the viewer inside the painted scenes, inviting the spectator to become part of the collective spectacle itself. Nothing Happens VR, in line with its theme, offers the user a multi-layered, yet passive experience.

Figure 4: Photo from Nothing Happens VR installation

Though many VR works address the notion of togetherness, in most early VR works, the user is passive (Durlach & Slater, 2000). This may have to do with the limitations of the technology at the time. Developing the technology which later allowed for interactive shared experience demonstrated in The Hangman at Home, demanded a substantial financial investment, and was still out of our reach. Our investigation into the innovative interactive components of a VR experience was thus broken down into smaller, cumulative building blocks.

Stage Three: Immersion Through Interaction

Succeeding the notion of 'passive witnessing', is stage three which we label 'immersion through interaction'.
Shortly after the successful launch of Nothing Happens, we were approached by The Guardian Virtual Reality team to collaborate on Songbird (2019). Described as 'a fairytale with a dark heart', Songbird transports you to the island of Kauai in 1984 and into a painted replica of a lush cloud forest filled with colourful birds. Here you are invited to search for the last known 'ō'ō, an iconic black bird with yellow leg feathers and a beautiful song, a bird whose existence has been threatened to the point of extinction.

Figure 5: Still from Songbird

Songbird challenged us to develop a new storytelling toolkit and vocabulary for interactive spatial narrative (Jenkins 2004). Our response was to position ourselves in the role of the user and anchor the progressional storytelling process in a series of questions. These questions, though listed here as a first-person internal monologue, are offered as a broadly applicable model for developing immersive stories:

"Where am I?"

Our most primal need: we want to feel safe. As we are transported into a new environment, we will most likely make a quick 360-degree scan of it, making sure there are no dangers around us. In terms of storytelling, this initial orientation requires more time for an introduction, allowing the user to adjust to their surroundings.

"Who am I?"

Once we familiarize ourselves with the environment, we might ask ourselves how are connected to this place. Or in other words, in what state do we exist? Are we ourselves or have we been put in 'someone else's shoes'? Is our existence represented physically? Do we have a body? Hands? Are we a ghost?

"Why am I here?"

We propose that once it has been established that one exists, the next logical question would be to ask why.

As opposed to traditional screen-based viewing, in interactive media, it is imperative to define the role of the person engaged in the media experience. As authors and creators, we may refer to our audience as users or participants. We may refer to them as guests or players, considering that each characterization implies a different position and varying degrees of agency.

"What can I do?"

Can I move around? Can I touch it? Can I interact with my surroundings?

At this point, the user would most likely be developing expectations which demand to be addressed: if the experience is interactive, what are the rules? What are the parameters? Which actions are rewarded, and how?

The work poured into Songbird finally afforded us the tools, applications, and production opportunities to begin the development of The Hangman at Home.

Stage Four: Immersion Through Being

We situate The Hangman at Home as an example of the fourth stage of the framework called "immersion through being".

Figure 6: Still from The Hangman at Home

"What does the hangman think about when he goes home at night from work?"

Inspired by the 1922 Carl Sandburg poem of the same title, The Hangman at Home (2020) is a multi-media project exploring participation across mediums, it became an opportunity to investigate the position and the role of the of the user more deeply.

A guest?
A ghost?
An observer?
A participant?
A character?
A player?

Both the single-user VR experience of The Hangman at Home and the multi-user XR installation titled We Are at Home (2022), present a captivating, poetic habitat that prompts users to question the consequences of their actions and inaction. The experience expands on the notion of witnessing and observation posed in Nothing Happens, by going further to ask about implication and responsibility through interaction and bifurcating storylines (Ryan, 2001, Murray, 1997).

Figure 7: Still from The Hangman at Home VR

As in our previous works, the animation is hand-painted frame-by-frame with acrylic, a technique that allows for a rich though subtle examination of characters, gestures, and behaviours. The series of 'living paintings' highlights private, domestic spaces, which are positioned within a formalistic, fragmented narrative.

When expanded and presented as an immersive scenography and installation for a larger group of participants, the project was showcased in the context of a theatrical event. This leads to stage five: where audience members are invited into a shared immersive experience - to meet each other both in the VR headset, as avatars, and outside it - engaging with multiple layers of narrative and imagery.

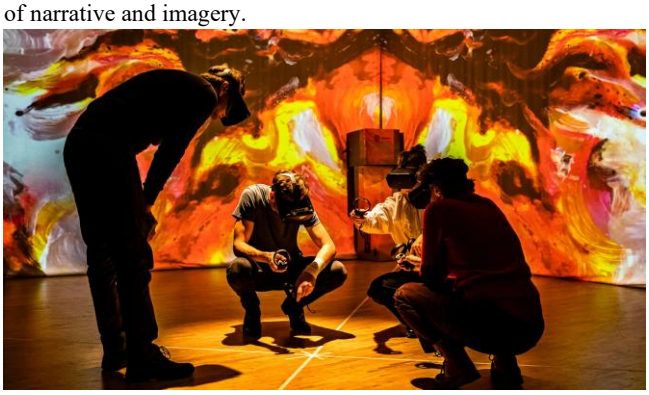

Figure 8: Photo from The Hangman at Home VR installation

Stage Five: Immersion Through Shared Experience

'Immersion through shared experience' is stage five in the framework. The investigation into the collective and shared experience of The Hangman at Home became a highly relevant case study for applying immersive storytelling research and introducing XR into the educational sphere, as well as the cultural sector.

Prototyping workshops with students emerged as a novel and integral tool in realizing the project, serving as a meeting point with bachelor students. We organized periodical showings where students tested our latest prototypes. We closely observed and documented their behaviour, in combination with interviews. By observing users' behaviour, we were able to assess their navigation skills, comprehension levels, and their ability to actively engage with and progress through an interactive narrative. We paid close attention to how much time was spent in each of the virtual spaces, variations in attention, in focus, and how these impact the perceived experience. In addition, students actively participated in the production process, through internships and workshops. Students could take on various positions, from visual development to programming, which fostered a valuable exchange of knowledge.

Stage Six: Real-Time Narratives

The sixth stage of the framework proposes the notion of 'real-time narratives' as the most powerful storytelling tool we have developed as of now. Our current project, "The Garden Says…" (2025) is born from the lessons of The Hangman at Home. Specifically, we were spurred to expand on the notion of collective experience and explore a shared virtual space in a more authentic and sensorial setting (Bucher, 2017).

Figure 9: Still from The Garden Says...

"The Garden Says…" is a virtual world. It is an interactive audiovisual and tactile multi-user mixed reality experience: a dynamic, shared playground where music, hand-painted animation, and dramaturgical scenography unite. The garden serves as an active and sensual space for emergent behaviour, exploring human encounters as an ecological act, through an immersive experience of the sublime.

In "The Garden Says…" different types of meetings take place simultaneously: a meeting in VR for four to eight people at a time, alongside different invitations to analogue (not digital) meetings in the room. The performance hosts of "The Garden Says…" are a team of three performers who, by way of inviting, meeting, and asking questions of the participants, make these questions come alive. We describe these experiments with dialogical structures as a 'meeting laboratory', where performers and participants share the responsibility for the experience (Breel 2017).

Figure 10: Photo from The Garden Says... installation

In the expansion from the individual to collective experience, The Hangman at Home opened new opportunities for working collaboratively. Thus, "The Garden Says…" not only builds on the technical accomplishments of The Hangman at Home, but also on the teamwork, the talents, and the network that allow us to push the boundaries of the medium. Prototyping workshops with practitioners from the fields of games, theatre, educational sciences and communication design, emerged as an integral tool in realizing the project. This valuable exchange of knowledge made it possible to develop a complex networked system using mixed reality headsets (Quest3), projection mapping, and directional sound into a seemingly effortless habitat.

Conclusions

The evolution of our storytelling methods goes hand in hand with innovation in emerging media. By using XR technology, we transcended our linear screen-based practice to explore multisensory space: visual, tactile, and haptic all at once. We find that the integration of performance, animation, and XR offers a rich and meaningful outcome.

Our learnings allow us to further explore how digital artwork might relate intimately to a specific spatial and sonic setting and how it might take up a physical, visual, and emotional relationship with the audience. We argue that, as opposed to traditional screen-based viewing, in interactive media it is imperative to define the role of the person engaged in the media experience.

We conclude that, whereas XR is an excellent tool for scenography or visual dramaturgy, we feel very strongly that it is not the technology that is driving the experience. The element of engagement in public spaces and the interconnected themes of presence and participation are the thread that ties together all the works represented here – rather than the technology or the medium through which the artwork is expressed. That said, we

believe that a discerning choice of medium is at the core of any work of art.

This account serves as a foundation for the further investigation of audience experiences in virtual worlds. In our research, we argue for the conceptual framework of 'Expanded Worldbuilding' to describe a system for emergent storytelling which combines visual, immersive, and participatory strategies (Crois, 2022). In continuing our research endeavour, we propose that 'Expanded Worldbuilding' enables the audience to engage in an increasingly complex, emerging narrative as they experience and participate in a shared meaning-making process.

ACKNOWLEDGMENTS

This paper is based on an oral and audiovisual presentation offered at Viborg Animation Festival CAGA Conference in September 2024. At CAGA 2024, the Kranots presented a keynote focusing on their recent artistic works in XR and emerging technologies.

REFERENCES

Bareisyte, L., Slatman, S., Austin, Aj., Rosema, M., van Sintemaartensdijk, I. Watson, S. & Bode, C., (2024). Questionnaires for evaluating virtual reality: A systematic scoping review, in *Computers in Human Behaviours Reports 16*, Elsevier Ltd.

Biggin, R., (2017). Immersive Theatre and Audience Experience: Space, Game and Story in the Work of Punchdrunk. Cham: Springer International Publishing.

Biocca, F. (2002). The evolution of interactive media. Toward being there in non-linear narrative worlds. In M. Green, J. Strange & T. Brock (Eds.), Narrative impact, social and cognitive foundations (pp. 97–130).

Breel, A., (2017). Conducting Creative Agency; the Aesthetics and Ethics of Participatory Performance. PhD thesis, Kent: University of Kent.

Bucher, J. (2017). Storytelling for Virtual Reality: Methods and Principles for Crafting Immersive Narratives, Routledge.

Candy L. (2006): Practice Based Research: A Guide. Creativity and Cognition Studios Report. 1. Sydney: University of Technology.

Ceuterick, M., & Ingraham, C. (2021). Immersive storytelling and affective ethnography in virtual reality. In *Review of Communication, 21*(1): 9–22.

Crois, E. (2022). Holding [a Conversation with] the Situation. Antwerp and Brussels.

Durlach, N.& Slater, M., (2000). Presence in Shared Virtual Environments and Virtual Togetherness, *Virtual Environments 9* (2): 214–217.

Gadamer, H., (2004). Truth and Method, New York, NY: Continuum.

Hagler J., Lankes M., Wilhelm A. (2019). *Expanded Animation: The Anthology: Mapping an Unlimited Landscape.* Berlin: Hatje Cantz.

Hupont Torres, I., Charisi, V., De Prato, G., Pogorzelska, K., Schade, S., Kotsev, A., Sobolewski, M., Duch Brown, N., Calza, E., Dunker, C., Di Girolamo, F., Bellia, M., Hledik, J., Nai Fovino, I. and Vespe, M., Next Generation Virtual Worlds: Societal, Technological, Economic and Policy Challenges for the EU, Publications Office of the European Union, Luxembourg, 2023,

Jenkins, H. (2004), Game design as narrative architecture. In: Harrington, P., Frup-Waldrop, N. (eds.) First Person. The MIT Press, Cambridge, MA.

Kranot, M. & Kranot, U. (2013). *Hollow Land*. Denmark, France, Canada.

Kranot, M. & Kranot, U. (2017). *Nothing Happens*. Denmark, France.

Kranot, M. & Kranot, U. (2019). *Songbird*. Denmark, United Kingdom.

Kranot, M. & Kranot, U. (2020). *The Hangman at Home*. Denmark, France, Canada.

Kranot, M. & Kranot, U. (2020). *The Hangman at Home*. Denmark, France, Canada.

Kranot, M. & Kranot, U. (2022). *We Are at Home*. Denmark, France, Canada.

Kranot, M. & Kranot, U. (2025). *The Garden Says…* . Denmark.

Kranot, M. & Kranot, U., (2021). ACM SIGGRAPH 2021 VR Theater. Association for Computing Machinery, New York, NY, USA.

La Biennale, (2020). Official Awards of the 77th Venice Film Festival. (September 2020). Retrieved May 2, 2025, from https://www.labiennale.org/en/news/official-awards-77th-venice-film-festival

Lee, M. (2004). Presence explicated. In *Communication Theory, 14*: 27–50.

Lukas, S., (2012). The Immersive Worlds Handbook: Designing Theme Parks and Consumer Spaces, Routledge.

Machon, J., (2013). Immersive Theatres: Intimacy and Immediacy, Contemporary Performance, Basingstoke: Palgrave.

Mitchell, J., & Tilley, E. (2024). The Role of Project Based Learning at the Core of Curriculum Development. *Journal of Problem Based Learning in Higher Education*, *12*(1), 1–17.

Murray, J., (1997). Hamlet on the Holodeck: The Future of Narrative in Cyberspace, New York: Free Press.

Nelson, R., (2006). Practice-as-research and the Problem of Knowledge. Performance Research. 11(4).

Nelson, R., (2013). Practice as Research in the Arts: Principles, Protocols, Pedagogies, Resistances. Palgrave Macmillan, London.

Rauschnabel, P., Felix R., Hinsch C., Shahab H., Alt F. (2022). 'What is XR? Towards a Framework for Augmented and Virtual Reality', Computers in Human Behavior, 133: 107289

Ryan, M.L. & Thom, J.N., (2014). (Eds.), Storyworlds across Media: Toward a Media-Conscious Narratology. University of Nebraska Press.

Ryan, M.L., (2001). Narrative As Virtual Reality: Immersion and Interactivity in Literature and Electronic Media. Baltimore, MD, USA: Johns Hopkins University Press.

Schön, D. (1983). The reflective practitioner: How professionals think in action. New York: Basic Books.

White G., (2013). Audience Participation in Theatre: Aesthetics of the Invitation. New York: Palgrave Macmillan.