MUSICAL TALES AND THE VIRTUAL EXPERIENCES:
A HUMAN-CENTERED DESIGN APPROACH TO CLASSICAL MUSIC
WITH HOLOGRAMS AND AUGMENTED REALITY

Komsun Dilokkunanant[1]

Abstract

Musical Tales and the Virtual Experience is a creative research project, funded by the National Research Council of Thailand, that explores how storytelling, holograms, and augmented reality (AR) can broaden access to classical music. Guided by Human-Centered Design (HCD), the project integrates classical repertoire with visual arts and interactive media to create a multisensory pathway into the music. Works including Peter and the Wolf (Prokofiev), The Carnival of the Animals (Saint-Saëns), and Opus Number Zoo (Berio) were adapted for small ensembles and translated into Thai to enhance local accessibility. The performance environment combined installation elements, holographic visualizations aligned with musical narrative, and AR overlays that invited real-time interaction. Post-event surveys and informal interviews assessed engagement and perceived value. Findings indicate that blending live performance with virtual elements strengthened connection to both music and story; many participants reported that holograms enriched understanding, and that AR increased involvement. While a longer program challenged younger listeners' attention, the project demonstrates that deliberate experience design and restrained technological integration can maintain intimacy and musical priorities yet broaden appeal, yielding a reusable model for future performances that combine classical repertoire with contemporary media.

Keywords: Musical Storytelling, Hologram, Human-Centered Design

Part 1: Introduction

Classical music has often been seen as a domain of cultural elitism, inaccessible to modern audiences. However, its potential to foster cultural understanding and appreciation remains significant. This creative research project, *titled Musical Tales and the Virtual Experience,* aims to bridge the gap between classical music and contemporary audiences through storytelling, holograms, and augmented reality (AR), fostering a more inclusive appreciation of classical music.

The project integrates classical music literature with visual arts and technology, adapting musical stories for smaller ensembles, translating works into Thai, and incorporating virtual experiences to broaden accessibility. The chosen compositions include *Peter and the Wolf* by Sergey Prokofiev, *The Carnival of the Animals* by Camille Saint-Saëns, and *Opus Number Zoo* by Luciano Berio.

At the heart of this research is the application of Human-Centered Design, ensuring that the audience's interaction with music and technology is immersive and engaging. The goal is to create a multisensory pathway into classical music through innovative technologies and interactive environments. The benefits include (i) greater approachability and enjoyment for diverse audiences, (ii) higher engagement and likelihood of repeat attendance, and (iii) practical insights for musicians and educators to adapt repertoire, staging, and outreach.

Part 2: Literature Review

Research on immersive, audience-centered performance indicates that multisensory design and spatial agency can increase attention, emotional resonance, and recall in music audiences. Studies of installation-based performance highlight the role of spatial layout and visual mediation in shaping listening focus and perceived intimacy, while works on holograms, augmented reality, and related mixed-reality tools reports gains in presence and meaning-making. Within arts and education contexts, Human-Centered Design (HCD) is used to elicit user needs, prototype experiences, and iteratively refined engagement, though several authors caution that technology-led novelty may not translate into sustained appreciation without cultural and pedagogical framing.

The research follows a seven-part framework proposed by the author (Experience Arts, Intrigued/Inspired, Engage, Connect, Immerse, Understand, Appreciate) and uses it to analyze how innovative technologies and interactive art form deepen audience engagement.

Musical Performance

Classical music, especially works such as Peter and the Wolf, The Carnival of the Animals, and Opus Number Zoo, has long functioned as narrative music for broad audiences. In line with this tradition, studies note that adapting, arranging, and programming familiar stories can meet contemporary listeners, particularly when performance is paired with visual art and interactive media. Live performance remains the primary communicative medium and a core site of engagement, presenting familiar repertoire in ways that invite entry, attention, and return.

Installation Art

Installation art enhances audience experience by transforming spaces into immersive environments. The form extends beyond the visual to encourage active participation, allowing audiences to interact with physical space and artwork. When integrated with music, installation strengthens connections to both environment and narrative. Rather than dividing the room into "stage" and "seating," the entire space is conceived as the experience, inviting exploration and multisensory interaction.

Holograms
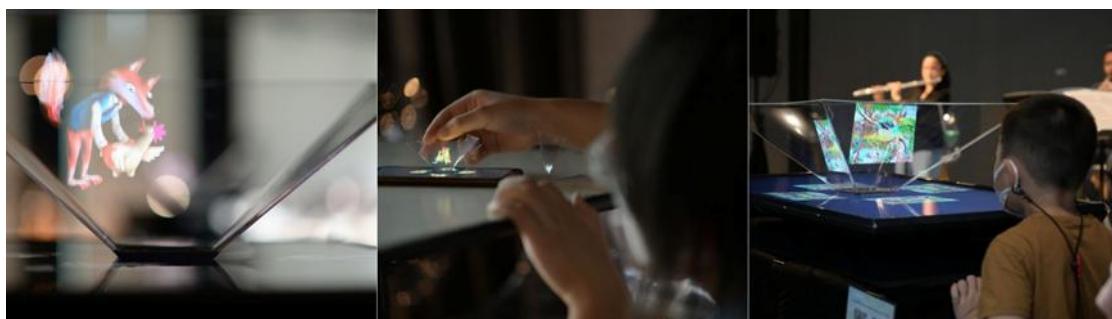
Visual 1 – the Holograms Utilization

Holographic projection has been used to add visual mediation and perceived interactivity in performance contexts. Three-dimensional imagery can externalize narrative elements and musical motives. For instance, character-based holograms in narrative works (e.g., Peter and the Wolf) can track roles and actions, which studies

report as enriching comprehension and affective response. As a visual correlate to musical material, holograms deepen connection to the work when alignment between image and score is clear.

Virtual Experiences

Virtual experiences, most commonly augmented reality (AR) and virtual reality (VR), introduce additional modalities for engagement. AR overlays digital content onto the physical environment, enriching live performance with real-time interactive cues; VR, by contrast, situates listeners in a fully synthetic environment, heightening presence while trading off co-presence with performers. Prior literature notes that these affordances support personalized modes of interaction when technical and cognitive-load constraints are managed.

Human-Centered Design

Human-Centered Design (HCD) offers a cyclic process - contextual inquiry, ideation, prototyping, and iterative evaluation - for aligning arts experiences with audience needs and affective responses (International Organization for Standardization [ISO], 2019; Norman, 2013). Designing from observed practices correlates with higher perceived usability, meaning, and engagement (Hassenzahl, 2010). Performing-arts and museum studies show that narrative framing, spatial agency, and multisensory cues lower barriers and script legible audience journeys (Falk & Dierking, 2013; Bitner, 1992). Co-/participatory design extends HCD by involving audiences and front-of-house stakeholders to balance spectacle with listening focus (Sanders & Stappers, 2008). For mixed-reality add-ons, effectiveness depends on clear metaphor-music mapping and managed cognitive load; otherwise novelty displaces attention (Witmer & Singer, 1998; Slater, 2003). Evaluation typically blends qualitative captures with lightweight instruments for engagement and experience quality (O'Brien & Toms, 2008). Across studies, HCD positions technology not as spectacle but as support for shared meaning-making and emotionally resonant encounters with music.

Connecting Arts Through the Seven Frameworks

CONNECTING ARTS

MUSICAL TALES AND THE VIRTUAL EXPERIENCES

EXPERIENCE ARTS — INTRIGUED/INSPIRED — ENGAGE — CONNECT — IMMERSE — UNDERSTAND — APPRECIATE
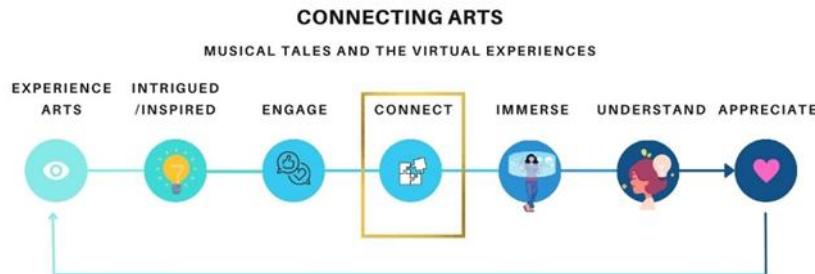
Visual 2 – Connecting Arts Framework

The seven-part framework, Experience Arts ⟶ Intrigued/Inspired ⟶ Engage ⟶ Connect ⟶ Immerse ⟶ Understand ⟶ Appreciate, is used here as a conceptual lens to interpret how blended modalities (music, visual arts, and interactive technologies) correspond to successive forms of attention, presence, comprehension, and appreciation in classical-music contexts.

Part 3: Research Methodology

This project adopts a creative research approach, focusing on the integration of classical music, literature, and technology to create a multisensory experience for the audience. The methodology is structured around Human-Centered Design principles, which prioritize audience engagement through thoughtful design and technology use.

The intended audience was families with young children. Observations and informal conversations indicated that many attendees were taking or considering music lessons; this is an observed profile rather than a pre-screened recruitment.

The first step of the process involved selecting and adapting the classical works for smaller ensembles that could be performed in intimate settings, such as galleries or smaller concert venues. These pieces were then translated into Thai to ensure accessibility for the local audience.

The visual elements of the project were based on the storytelling aspects of the music. Illustrations were created for each composition and converted into holograms, which were projected in the exhibition space during performances. These holograms were synchronized with the music, allowing the audience to experience the music in a more immersive and visually stimulating way.

Augmented reality was also incorporated, allowing the audience to interact with virtual elements via mobile devices. This interactive technology enabled participants to explore the virtual world of the music and artwork, enhancing their engagement with the performance.

Finally, data were collected through surveys and informal interviews with the audience to assess the effectiveness of the project in creating an engaging, multisensory experience. This included feedback on the music, the virtual experiences, and the overall impact of the performance.

Part 4: Research Findings

The research findings revealed the impact and effectiveness of integrating classical music, visual art, holograms, and virtual experiences in fostering deeper audience engagement. The event, held at 515 Victory—a community space designed for exhibitions rather than a traditional concert hall—provided a flexible, immersive environment, allowing the audience to interact with the performance in an unconventional way.

Exhibition and Engagement

Visual 3 – the Exhibition

The event commenced with an exhibition showcasing illustrations of the stories of *Peter and the Wolf*, *The Carnival of the Animals*, and *Opus Number Zoo*, which were used both during the performance and as part of the holograms. The audience was encouraged to interact with the illustrations via augmented reality (AR), where animated scenes popped up on their smartphones when pointed at specific images. These scenes featured characters and themes from the stories, creating an engaging

and immersive experience. This AR interaction was designed to intrigue the audience, preparing them for the live performance and helping them connect with the narrative.

Observations revealed that the AR experience was particularly engaging for families, with many parents or grandparents interacting with children, as well as groups of friends, who seemed to appreciate this novel way of connecting with the music before the performance began. This interactive element aligned with the research's goal of encouraging audience participation and fostering a deeper connection to the artwork.

Visual 4 – the AR experiences

Workshop Engagement

A DIY hologram workshop was also organized as part of the event. This hands-on activity allowed attendees to create simple holograms, giving them a direct, creative engagement with the technology used in the performance. The workshop proved to be an effective way to encourage audience participation and further deepen their connection with the technological aspects of the performance.

## Performance Experience

Visual 5 – the Performance

During the performance, holograms were projected throughout the space, enhancing the live music experience with visual elements that complemented the musical narrative. Importantly, the audience was free to move around the space, removing the traditional constraints of classical music performances where the audience is expected to remain seated. This flexibility allowed for a more relaxed and interactive environment, where attendees could freely explore the performance and immerse themselves in the experience.

The integration of holograms alongside live music created a multi-sensory environment, where the music and visuals worked in tandem to tell the story. This approach provided a fresh take on the classical music experience, allowing for greater audience engagement and interaction with the performance.

Post-Performance Interaction

At the end of the event, the audience was encouraged to engage with the artists and revisit the exhibition of illustrations. This post-performance engagement provided an opportunity for further reflection and interaction, extending the immersive experience beyond the performance itself. The event's open-ended structure encouraged attendees to continue their connection with the art, making the experience feel more personal and meaningful.

Space and Environmental Design
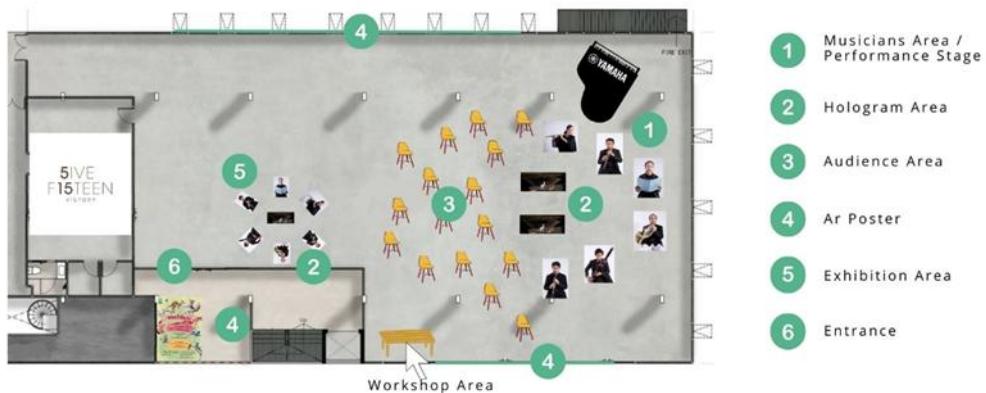
Visual 6 – Floor Plan

The 515 Victory space was integral to the immersive experience, as the entire venue was designed to be part of the performance. Unlike a traditional concert hall with a clear distinction between performer and audience, the venue was designed to allow the audience to move freely and interact with the different elements of the event. This holistic design approach ensured that every aspect of the space contributed to the immersive experience, reinforcing the research's aim of creating an engaging, audience-centered environment.

Community Collaboration

The event also collaborated with local vendors, offering drinks and snacks for attendees. Interviews with these vendors revealed that their sales increased compared to normal weekend sales, highlighting the broader community impact of the event. This collaboration not only added comfort and convenience for the audience but also demonstrated the event's ability to positively affect the local economy.

Feedback from Management and Observations

Feedback from the management of 515 Victory emphasized the unique nature of the event. They noted that by combining music and storytelling through *Musical Tales*, the performance made classical music more accessible and engaging for a broader audience. The integration of AR filters and holograms helped create an immersive virtual experience, which allowed the audience to interact with the art in a way that was both engaging and informative. The blending of music, storytelling, and technology was seen as an effective way to reach a diverse audience and increase interest in classical music.

Survey Results and Audience Feedback

The findings from this project revealed that the integration of classical music with virtual experiences significantly enhanced audience engagement. Audience members responded positively to the combination of live music and virtual elements, particularly the holograms and AR experiences.

Surveys conducted after the event indicated that 85% of participants found the holograms to be an effective medium for enhancing the musical experience. Many respondents mentioned that the visual elements helped them connect more deeply with the music and the story being told. Additionally, the AR features were also well-

received, with over 70% of participants stating that they felt more involved in the performance because they could interact with the virtual content.

The integration of Human-Centered Design principles played a critical role in ensuring that the experience was both accessible and engaging for the audience. Participants appreciated the seamless incorporation of technology with the music, and they felt that the performance was immersive and meaningful. This feedback supports the idea that designing experiences with the audience's needs and interests in mind enhances their overall engagement and enjoyment.

Summary of Results

In conclusion, the event successfully integrated music, visual art, and technology to create a deeply engaging and immersive experience for the audience. The use of AR, holograms, and interactive elements like the DIY hologram workshop contributed to a dynamic and participatory performance environment. The flexibility of the performance space, collaboration with local vendors, and emphasis on post-performance engagement ensured that the audience had a holistic, interactive experience from start to finish.

The survey results and audience feedback demonstrated the effectiveness of integrating virtual experiences with classical music, showing that such approaches not only engage but also enhance the audience's connection to the music and the narrative. Overall, this research demonstrates that incorporating modern technology into classical music performances can offer innovative ways to attract and engage audiences, bridging the gap between traditional music forms and contemporary technology.

Part 5: Discussion

Integrating virtual experiences into classical performance can reshape how audiences listen and participate. Storytelling, holograms, and AR helped situate the music within a coherent narrative pathway that invited deeper engagement. Crucially, high impact did not depend on lavish technology; simple, well-aligned uses of AR and holograms enhanced comprehension and affect in line with HCD's emphasis on audience needs.

Program length emerged as a key design lever: the initial three-story, a little over one hour format was effective overall but demanding for younger attention spans, whereas around 30-minute programs (one story plus a short piece) consistently improved focus and closeness. More broadly, the project demonstrates how classical performance can expand its boundaries to reach younger listeners and broader demographics by calibrating narrative framing, spatial freedom, and selective technology.

Questions about larger venues and audiences are valid. Scaling is possible but must keep the reach-intimacy trade-off explicit. A Human-Centered Design approach can guide targeted amplification, localized screens, simple zoning, and clear onboarding to manage attention and technical load. The emphasis on technological mediation also highlights risks in more complex settings; future work should test scalable configurations and technical contingencies across venue types, alongside age-appropriate program lengths that sustain attention without sacrificing musical focus.

Part 6: Conclusion

Musical Tales and the Virtual Experience shows that thoughtfully applied technology can make classical music more accessible and compelling for contemporary audiences. Through narrative framing, holograms, and AR - guided by HCD - the project deepened engagement without displacing musical priorities and offers a practical model for future performances.

Elements of the work were presented at the International Double Reed Society Conference 2022 (IDRS2022), underscoring relevance and impact. Following the premiere on April 3, 2022, subsequent performances incorporated new stories and, without the exhibition component, continued to reach diverse audiences. Importantly, condensing program format plus a workshop or Q&A proved especially effective for younger listeners, reinforcing the value of format adaptation to contemporary audience needs.

Reference

Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of Marketing, 56*(2), 57–71. https://doi.org/10.1177/002224299205600205.

Falk, J. H., & Dierking, L. D. (2013). The museum experience revisited. Left Coast Press.

Hassenzahl, M. (2010). Experience design: Technology for all the right reasons. Morgan & Claypool. https://doi.org/10.2200/S00261ED1V01Y201003HCI008.

International Organization for Standardization. (2019). ISO 9241-210:2019 Ergonomics of human-system interaction—Part 210: Human-centred design for interactive systems. Author.

Norman, D. A. (2013). The design of everyday things (Revised and expanded ed.). Basic Books.