

Contextualism and Music Annotation: Exploring the Role of Digital Storytelling about a Composer's Life on Music Perception

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Abstract

Intangible cultural heritage, especially music, is challenging to interpret due to its elusive nature and reliance on context. This study investigates how knowledge of a composer's life and historical background shapes listeners' interpretations of classical music. Based on contextualism theory, which emphasizes the importance of cultural and personal context in meaning-making, the study involved 25 participants with varying levels of familiarity with music theory and the composer Nikos Skalkottas. In a two-stage process, participants first annotated four musical pieces based on initial impressions. They then revisited the pieces, after having engaged with a collaborative digital narrative and virtual reality (VR) experience based on archival material about the composer, presenting his life and work. The results show that annotations became more reflective and contextually informed after the storytelling experiences, indicating enhanced empathy and historical understanding. These findings suggest that immersive, narrative-driven context can enrich music appreciation and offer valuable tools for cultural heritage education.

CCS Concepts

• **Human-centered computing** → *User studies*;

1. Introduction

In recent years, digital storytelling has emerged as a powerful tool for cultural heritage institutions seeking to engage audiences with the past in more immersive and emotionally resonant ways [KPV*20, MPKK20]. Digital storytelling is recognized as an important means of preserving cultural heritage. In particular, its audiovisual format can offer vivid representations that help sustain traditions and customs [PGN*21]. By combining multimedia elements with narrative structures, digital experiences can bring historical figures, events, and cultural artifacts to life, allowing users to connect with heritage on a deeper level. For historical archives, central to these experiences is the integration of archival material such as photographs, letters, recordings, and personal documents, as it provides authenticity to the narratives and engages the audience with the organization's content. [Sch16, Muk18]. When thoughtfully curated and integrated, these materials not only preserve memory but also invite new forms of interpretation and historical empathy.

Music has always been an integral part of human culture, and has been viewed as a means to enrich one's sensory experience [Hod19]. Contextualism in relation to music has been studied since the early 20th century, however the formal study of music as science, particularly including psychological and conceptual aspects, gained momentum in the late 20th century [Tho09]. Though few

studies have explored the correlation of music and context, in contrast to art which has been explored more meticulously [CS19]. Within this context, our study focuses on music archives and investigates how digital storytelling can shape listeners' emotional and interpretive responses to music. Specifically, we examine the case of 20th-century Greek composer Nikos Skalkottas, whose life and work remain relatively unknown to the broader public. Using two digital storytelling experiences with demonstrated effect on establishing historical empathy, we explore whether engaging with a composer's historical context can influence listeners' appreciation and perception of their music, ultimately shedding light on how such information can shape the immediate, subjective responses of listeners to his compositions. To guide this inquiry, we pose the following research question: **"Considering the effect of digital storytelling on historical empathy and engagement with music archive material, does it also influence the perception and appreciation of the composer's work?"**

In this study, we adopted a mixed-methods approach, including pre- and post-experience music annotation tasks and semi-structured interviews with 25 participants. Thematic analysis of the annotations and interviews allowed us to explore how narrative and context might reshape music perception, stimulate aesthetic appreciation, and promote a more personal, empathetic understanding of the composer. By comparing pre- and post-experience annotations,

we examine how contextual knowledge informs interpretation and engagement with unfamiliar musical works.

The paper is structured as follows: Section 2 reviews related work on digital storytelling for historical empathy and its effect on aesthetic experience. Section 3 details the two storytelling experiences. Section 4 presents the methodology. Section 5 reports the findings. Section 6 discusses implications and limitations. Section 7 concludes the paper.

2. Related work

Digital storytelling has been effectively applied to heritage communication [Bed01], with its potential recognized in multiple studies [LD12, Pau17, Poo18, RK18, BF16, Coe16]. By merging narrative techniques with multimedia, it fosters emotional and cognitive engagement with history [KPV*20, MPKK20]. Coerver [Coe16] advocates moving beyond facts toward engaging stories, while Rousseau and Katifori [RK18] highlight the role of humor, relatable elements, and informal tone in supporting learning. This supports the preservation of tangible and intangible culture.

A key aim of digital storytelling is to foster historical empathy. The model by Endacott [EB13] includes three components: historical contextualization (learning about past events), perspective-taking (understanding historical viewpoints), and affective connection (relating to historical figures emotionally) [McK18]. Together, these deepen emotional and intellectual engagement with history. Historical contextualization also underpins historical reasoning [VDVB08, VDBVB15, Rei12] and the interpretation of art and music [Swa13]. It involves reconstructing the temporal, geographic, and social setting of historical events and understanding the motivations of past figures [Win91, Win98]. Wineburg outlines six components for this: spatio-temporal, rhetorical, biographical, historiographic, linguistic, and analogical dimensions.

This process is equally central to shaping aesthetic experiences. The perception of artworks—visual or auditory—depends on context, such as curatorial framing and personal background [HN10]. Music, in particular, fosters historical empathy due to its cultural depth and emotional resonance [Bar22, EWHHL24, GB10, SF07, Har04], while also revealing the cultural perspectives of marginalized communities [MW12, WM06]. Unfamiliar artworks may require contextual framing to reduce bias and deepen appreciation [CV14]. According to the aesthetic triad [CV14], aesthetic experience results from interactions between sensory-motor, emotion-valuation, and meaning-knowledge systems. Brattico and Pearce [BP13] identify three core outcomes of musical engagement:

- emotion recognition and induction (e.g., “this song is sad” / “I feel nostalgic”),
- aesthetic judgment (e.g., “this song is beautiful”),
- and liking or preference (e.g., “I like this song”).

Reception theory also emphasizes the audience's active role in meaning-making [Hal80]. Historical context thus plays a crucial role in appreciating intangible heritage, where music and art are tied to cultural and historical background.

Numerous studies explore the effect of context on music perception. Bradley [Bra72] found contextual cues like composer name

or analytic training affected appreciation, though confounded by exposure. Obriant [OW78] found mood cues had limited influence. Halpern [Hal92] showed historical information improved non-musicians' responses to a Debussy piece more than analytical or no background, highlighting the role of human context in music engagement.

In affective music computing, game-based platforms (e.g., Moodplay, MajorMiner) collect emotional responses using the valence-arousal model [Rus80, ME08, LVADC07, TLBL07, BFAS15]. The Music Enthusiasts project adds nuance with tools like the Pictorial Mood Reporting Instrument (PMRI), capturing perceived emotions, moods, and aesthetic judgments [WGB*21].

The psycho-historical framework (PHF) [BR13] posits that historical context can affect appreciation of art and music, though evidence is mixed. A review by Chmiel and Schubert [CS19] found 26% of studies supported this link, 56% did not, and 18% were inconclusive. Still, some cases showed that greater understanding led to greater appreciation, affirming PHF in part. Methodological factors such as sample size and exposure significantly influenced results.

These findings underscore the complexity of context-emotion interaction in music appreciation. The strength and type of context—whether emotional, historical, or biographical—can influence interpretation. In our case, the limited familiarity of Greek audiences with Nikos Skalkottas' work makes contextual framing especially relevant in shaping appreciation of his music.

3. The Digital Storytelling Experiences

As a foundation for this study, we focus on two developed digital storytelling experiences, examining the effect of digital storytelling to promote the communication of a composer's archive. Our case study is that of the music archive of Nikos Skalkottas, housed in the “Lilian Voudouri” Music Library of Greece. Nikos Skalkottas was a prominent Greek classical composer of the 20th century. His work, however, still remains relatively unknown to the public. These experiences were created to make his life and work more accessible and emotionally resonant to broader audiences by integrating archival material (i.e. photographs, letters, and personal objects) into interactive narrative formats. Both experiences offer immersive engagement with the composer's biography and musical work, and serve as the contextual backdrop for the present study. The two experiences [PKS*24, SSG*25] were developed based on our earlier study exploring the challenges and considerations in creating audio-centric immersive experiences for music perception [RKS*22], and are presented in detail in the following sections.

3.1. Collaborative digital storytelling

The collaborative digital storytelling experience for the archive of Nikos Skalkottas (Figure 1) [PKS*24] is designed for groups of 2 to 8 participants, who engage with the application either using their own mobile devices or those provided by the institution. Developed as a web-based multimedia experience with The Story Maker tool [VLK*20], it presents the story as a series of web pages with menu-based choices. The narrative unfolds in four chronological episodes

that depict different periods of the composer's life. A journalist is tasked to reconstruct the composer's life through interviews with real and fictional figures, offering insights into his artistic evolution and historical context. The interviews are presented as audio dramas. Users can navigate between interview periods and engage in a variety of activities. These include exploring archival material, discussing what they have learned about the composer, listening to his music, and reflecting on questions. The reflection questions range from personal connections to composition and music, to broader societal issues, as well as aspects of Nikos Skalkottas' own life journey. Each period includes 2-5 interviews and interactive micro-experiences, encouraging discussion and reflection within the visitor group on themes inspired by his life and work. Different sets of interviews are offered through two alternative versions of the experience, A and B. The archival material is prevalent throughout the experience as visual material to accompany the narration, as well as the focus of group activities promoting joint exploration and reflection. The composer's music is presented through activities that turn the visitors' focus on understanding and appreciating the music pieces.



Figure 1: Snapshots from the digital storytelling: Left - narrative. Right - integration of archival material.

3.2. The composer's immersive VR memoryscape

The second digital storytelling experience [SSG*25] (Figure 2) created with the objective to promote engagement with the composer's archive was an immersive VR "memoryscape" [RKC*21, MZM*21, KPV19], set in 1930s' Berlin, where he studied and worked for a certain period of his life. The experience offers the user an interactive atmospheric exploration of three locations the composer frequented daily- his small apartment, the cabaret where he worked at night and the neighborhood where he lived. The experience is designed as a fusion of authentic archival material and fictional narrative audio segments portraying the composer's thoughts, combined with interactive elements, all presented in a black-and-white film noir aesthetic. Although we do not see the composer, we listen to his thoughts while interacting with his memoryscape. This immersive single-user experience complements the

collaborative mobile experience by emphasizing emotional resonance and subjective immersion. These two digital storytelling approaches serve as the narrative environments within which our study investigates how historical contextualization can influence listeners' perception and appreciation of a composer's work.

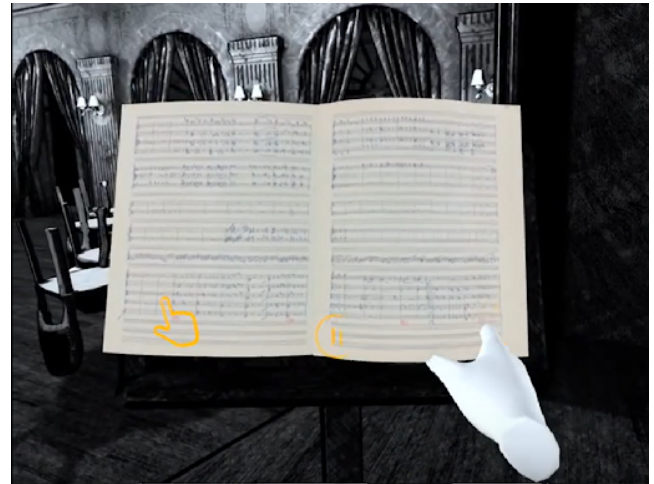


Figure 2: Snapshot from the immersive VR memoryscape: Interacting with the archival content.

4. Methodology

As established from previous work, digital storytelling is capable of promoting the meaningful communication of music archive content. The objective of this study is to examine the effect of historical contextualization and empathy on the visitor's perception and appreciation of the composer's music. Our ultimate aim is to explore whether digital storytelling can not only serve as a means of communicating archival material about a composer, but also use that material to foster a more meaningful connection with the composer's music. Our study included the annotation of four excerpts of the composer's representative music pieces. Participants were asked to annotate the music pieces, experience the two digital storytelling applications about the composer and then re-annotate the pieces. This section outlines the study methodology in more detail.

4.1. Selection of annotation method

In our previous work [KSK*22], we presented the results of a design and evaluation workshop aimed at examining different approaches to affective annotation as a means of promoting engagement with music archives. Participants were invited to express their emotional reactions using three distinct methods: (1) writing on paper, (2) selecting emotions from a board within a Virtual Reality (VR) environment, and (3) embodied interaction in VR.

The workshop included two participant groups: one composed of expert VR designers with no prior musical background or familiarity with Nikos Skalkottas, and another consisting of music experts. This division allowed us to explore how domain-specific expertise influences affective engagement with archival music. The findings

highlighted key insights into both the physical and digital design of activities that can enhance user interaction with archived music. Moreover, they revealed the individual and social dynamics of emotional expression through different modalities—verbalization, annotating, and movement. Notably, participants found writing on paper to be the most suitable and convenient medium for emotional expression. To this end, we included this annotation method in our study process.

4.2. Participants

The study process involved 25 participants, the majority of whom (84%, $n=21$) were female, with a smaller representation of male participants (16%, $n=4$). The recruitment strategy aimed to include participants across a broad age range and with varying levels of prior knowledge regarding the life and work of Nikos Skalkottas. Regarding their familiarity with the composer, the majority of participants (72%, $n=18$) reported having rudimentary to limited knowledge, while the remaining 28% ($n=7$) indicated possessing considerable to extensive information about him.

4.3. Materials

The materials employed in this study included four selected musical excerpts derived from four distinct works by Nikos Skalkottas. The musical pieces were the same in both of the annotation phases and include 1-minute segments of: (1) “The Sea”, (2) “Kleftikos”, (3) “Bolero for Cello and Piano” and (4) “Concerto No.3 for Piano, 10 Wind Instruments and Percussion”. The music pieces were selected in collaboration with experts knowledgeable about the composer, to be representative of the breadth of the composer’s work, taking into account the diversity of genres and styles and the degrees of popularity of the pieces (from well known to unknown for the general Greek audience). For the annotation tasks, participants were provided with two separate paper sheets, one for each of the music listening sessions. Data collection also utilized a participant profile questionnaire to gather demographic information. Finally, a brief semi-structured interview protocol with open-ended questions was developed to gather qualitative data from the participants.

4.4. Process

Our study employed a mixed-methods approach to investigate the impact of historical contextualization through digital experiences on emotional responses to music. Participants were recruited through an open call and attended a one day evaluation workshop at the location of the Athens Concert Hall organization. Upon arrival, participants were welcomed by the research team and were provided with comprehensive information regarding the project’s aims, the scope of the research, and the procedures involved in the session.

The evaluation and data collection process included several stages. Initially, participants completed a participant profile questionnaire to gather demographic information and relevant background data. Subsequently, participants engaged in a music listening task involving four distinct musical pieces composed by Nikos Skalkottas. During the first exposure to these musical stimuli, participants were instructed to provide written annotations of their

responses to each piece on provided paper sheets— whether that response was emotional, memories, scenery, imaginary etc. They were given 20 minutes and could replay the four songs as needed.

Following the initial music listening task, participants interacted with two distinct digital experiences as described in Section 3. The first experience involved the collaborative digital storytelling application on mobile devices. The second experience was the single-user VR environment. This phase lasted about one hour.

After interacting with both digital experiences, participants engaged in a second music listening task involving the same four musical pieces by Nikos Skalkottas. As in the initial listening phase, participants were asked to provide written annotations of their responses to each musical piece on paper and were allowed to listen to any piece more than once. Upon completion of the second music listening task a semi-structured interview was conducted to explore their perceived influence on their emotional responses to the music. The qualitative data obtained was analyzed through a thematic analysis method to identify recurring patterns, key themes, and nuanced insights into the participants’ experiences and emotional responses.

5. Results

5.1. Analysis of the annotation data

In this section we present the results of the analysis of participants’ annotations. Through a comparative examination of responses before and after the digital storytelling experiences, we explore how emotional, visual, and conceptual interpretations of the musical pieces were affected by contextual knowledge about the composer. The analysis reveals a nuanced shift in the participants’ engagement with the music. For the purposes of this analysis, a change in annotation refers to any meaningful alteration in the participant’s descriptive input between the pre- and post- experience phases. This includes shifts in emotional tone, the emergence of new thematic content, increased specificity, or references to contextual information. This was manifested with changes in the annotations of all participants after having completed the digital storytelling experiences (Table 1). All participants exhibited change for at least one

Music piece	Participants	Participants %
1. “The Sea”	21	84%
2. “Kleftikos”	18	72%
3. “Bolero for Cello and Piano”	17	68%
4. “Concerto No.3 for Piano, 10 Wind Instruments and Percussion”.	20	80%

Table 1: Number and percentage of participants who demonstrated changes in their annotations per music piece.

of the four music pieces. As Figure 3 shows, the majority of participants exhibited changes in three or all four music pieces and a smaller number of participants showed changes in only one or two pieces. This indicates that the majority of participants responded to multiple music pieces differently after the storytelling experiences. Table 1 breaks down the number of participants whose annotations showcased changes pre and post-experiences per musical

piece. While there were slight differences in the number of changed responses per piece these variations were minor and did not suggest any strong bias toward a particular piece. In Figures 4 - 7 we can

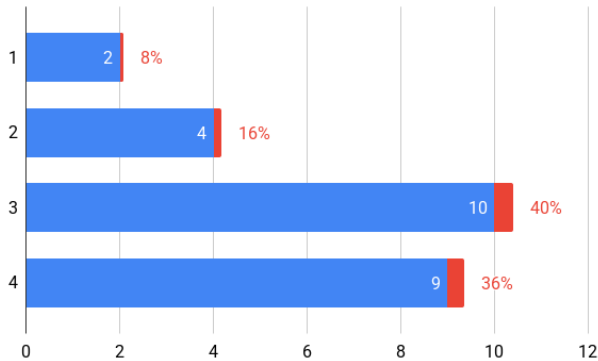


Figure 3: Number of participants that demonstrated change in their before and after annotations per number of music pieces this change was recorded.

see the before and after tag clouds of annotations for two music pieces.

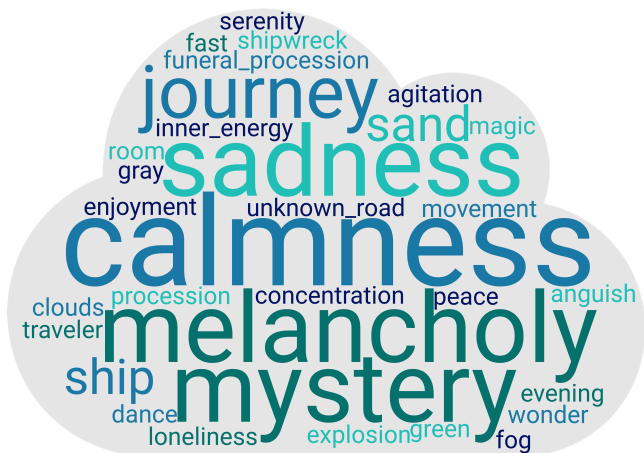


Figure 4: Tag cloud for music piece "The Sea", before the digital storytelling.

5.2. Thematic analysis of the annotations

The thematic analysis of participant annotations before and after the digital storytelling experiences revealed distinct patterns in emotional, visual and associative responses to the musical pieces. Across all four compositions the following overarching categories emerge: emotions/ emotional tones, imagery, concepts and symbolisms, references (direct or indirect) to the composer and in an instance shapes (drawings). Emotional responses included the articulation of emotions or emotional states or moods, such as "sadness", "calmness", "joy", "anxiety" etc, reflecting the participants'



Figure 5: Tag cloud for music piece "The Sea", after the digital storytelling.



Figure 6: Tag cloud for music piece "Kleftikos", before the digital storytelling.

emotional response to the music piece. Imagery referred to mental visualizations or metaphorical representations evoked by the music, such as "waves", "forest", "bicycle ride" etc. Conceptual annotations captured abstract ideas or interpretative reflections, such as "freedom," "transformation", etc. The colour category included ref-



Figure 7: Tag cloud for music piece "Kleftikos", after the digital storytelling.

ferences to specific hues or shades of colour, and the shape involves visual, non-verbal annotations such as drawings and sketches (one user). Commentary encompassed meta-reflections or evaluative statements regarding the musical structure, style, or performance of the piece, i.e. “allegro,” “lack of melody,” “minimalism”. Finally, references to Nikos Skalkottas denoted instances where participants invoked the composer explicitly or implicitly—such as by naming him, referring to his life events, or his historical / geographical context, indicating the degree to which contextual information was integrated into the perceptual and interpretive process. This categorization enabled a rich thematic analysis of participant responses, illuminating both the subjective variability in music perception and the interpretive impact of contextual narrative exposure.

Annotations (pre-) for the first musical piece, “The Sea”, were predominantly characterized with emotional responses and imagery from nature. In the first piece, themes of “calmness”, “melancholy” and “sadness” were prevalent, often accompanied by references to nature such as “sea”, “waves”, “fog” etc and visual metaphors / concepts such as “journey”, “mystery” etc (see Fig. 4). There were also aesthetic descriptions such as “blue” and “gray”. After the experience, participant’s annotations reflected a small increase in personal and historical references, particularly connected to the composer’s identity and geographic context. Although recurring emotional descriptions such as “calmness”, “sadness” and “melancholy” remain, the responses become more specific and grounded in geographic and descriptive information about the composer. As shown in Fig. 5, words like “Nikos Skalkottas”, “Aegean Sea”, “Berlin”, and “Chalkida” emerged, suggesting heightened cognitive and narrative engagement and new themes such as “memory”, and “homeland”, seem to point to a deeper contextual interpretation. These responses suggest a more personal and meaningful engagement with music, reflecting its qualities and also an understanding of the historical context.

For the second piece, “Kleftikos”, initial responses were dominated by themes of action and energy. Terms such as “dance”, “joy” and “vitality” were mentioned more frequently, accompanied by kinetic imagery such as “chase”, “battle”, “feast” and references to colour “red” and “gold”. This song seemed to transmit a sense of celebratory mood, physical movement and public festivity as shown in Fig. 6. Following the storytelling experiences, these core themes persisted but just as with the first piece there were references to geographical and cultural specificity. Notable additions included “Athens”, “Greece”, and “Balkans”, which moved participant perceptions toward themes of cultural or national identity. Emotional descriptors such as “enthusiasm”, “optimism”, and “freedom” slightly increased in frequency, suggesting this piece was seen in an even more positive light (Fig. 7). There was also the inclusion of the concept “tradition” and the imagery of folklore objects such as “laterna” (Greek barrel piano). This means that participants might have started seeing the piece as connected to Greek/Balkan culture and potentially the experience of urban life within that context.

When it comes to the third music piece, “Bolero for Cello and Piano”, participants responded with surface-level emotional notes. Prior to the storytelling experiences, the most prominent emo-

tional response is “confusion”, predominantly indicating indecisiveness and a lack of clarity. Terms such as “playful”, “ironic”, and “strange” were frequently used as well as conceptual and imagery elements of “cinema,” and “mystery”. The presence of opposing emotions, ranging from “joy” and “curiosity” to “irritation” and “anxiety”, demonstrated a complex and unresolved response to the piece’s tonal and structural characteristics. Most prominent annotations/responses after the experiences are “playful”, “mystery”, “dance”, “ironic” and some mentions in specific musical qualities (western music, no musical coherence, polyphony) that are identified in Nikos Skalkottas’ music. More specifically, the initial descriptors of “playful” became prominent post-experiences instead of “confusion”, while new themes such as “family”, “cabaret” and “experiment”, emerged alongside contextual associations about musical and tonal qualities such as “western music,” “polyphony” “minimalism” and “experiment,” suggesting a shift in perception. Participants transitioned from viewing the piece as abstract or incoherent towards a more thoughtful and interpretive engagement, likely influenced by the biographical and historical information provided during the storytelling experiences.

Annotations for the fourth piece, “Concerto No.3 for Piano, 10 Wind Instruments and Percussion”, prior to the digital storytelling experience revealed a highly atmospheric and introspective response, grounded in natural imagery and emotional ambiguity. Annotations often included themes like “mystery”, “calm”, “forest”, and “relaxation”. Post-experience responses, however, reflected a more inquisitive tone. annotations retained the core thematic anchor of “mystery” but were supplemented by clearer emotional and biographical associations, indicating a heightened engagement with narrative context. Terms such as “Nikos Skalkottas”, “Berlin”, and “orchestration” demonstrated a shift toward historically-informed listening, indicating an increased awareness of the composer’s influence and intent. New references to “monophonic sound”, “trumpets”, and “orchestration” suggest a heightened attention to musical structure and instrumentation, possibly reflecting the influence of the storytelling content that emphasized the compositional style and the performance practices of the composer.

Based on the analysis of annotations before and after engagement with all four compositions, a general trend emerges: references to the composer increase following the storytelling experiences, as illustrated in Figures 8 - 11. For the first piece (Fig. 8), emotional annotations show a small decline (from 31 to 25), while concept and color-based annotations increased slightly. In the second piece, emotion, imagery and conceptual annotations showed a minor decrease (Fig. 9). As for the third piece, the most noticeable shift occurred in conceptual annotations, which went from 10 to 19 (Fig. 10). In terms of theme types for the fourth musical piece, we observe a reduction in imagery, emotional, and conceptual annotations following the digital storytelling, with only minor decreases. References to the composer remain the least frequent among all compositions (Fig. 11). Thus, across the four pieces, the increase in conceptual and composer-focused annotations suggests a general trend toward more reflective, informed listening.

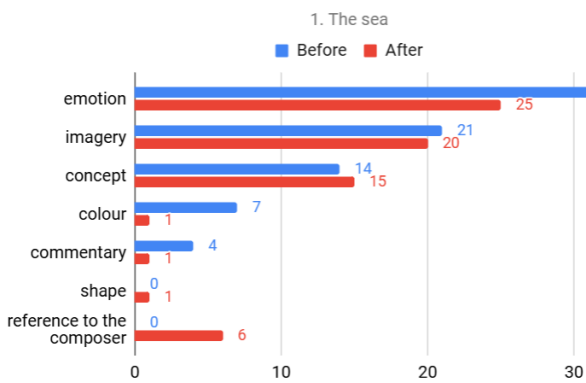


Figure 8: Annotation type occurrences before and after the digital storytelling, for the piece "The Sea".

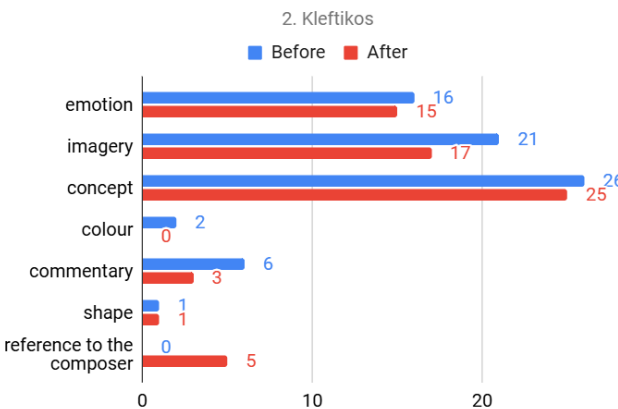


Figure 9: Annotation type occurrences before and after the digital storytelling, for the piece "Kleftikos".

5.3. Interview

During the interviews, we asked the participants whether they thought the digital storytelling experiences had affected their views on the composer and his music, as well as to identify elements that they found particularly interesting. Their responses were diverse, focusing on aspects such as the composer's talent (U1-03: "it is very interesting that he has had such talent since very young. This is maybe a common characteristic in all geniuses"), his personal life (U5-06: "To me, it is interesting that he left his wife and child when he left the country"), his life choices and various challenges he faced (U1-02: "He followed his dream, went abroad in a very difficult period, studied, he was good at it and never gave up."). In some cases, the digital storytelling led to reflection beyond the composer (U5-06: "All great creators have some imbalance in their personal life... social life... certainly, when it comes to being a parent — which requires everyday presence — he couldn't handle that at all..."). They all felt that they were able to get acquainted with his life and understand him better. Even the more knowledgeable ones reported learning aspects of his life they did not know about

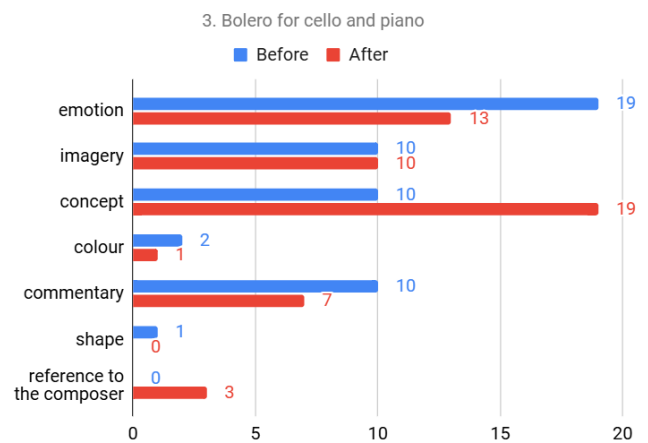


Figure 10: Annotation type occurrences before and after the digital storytelling, for music piece "Bolero for Cello and Piano".

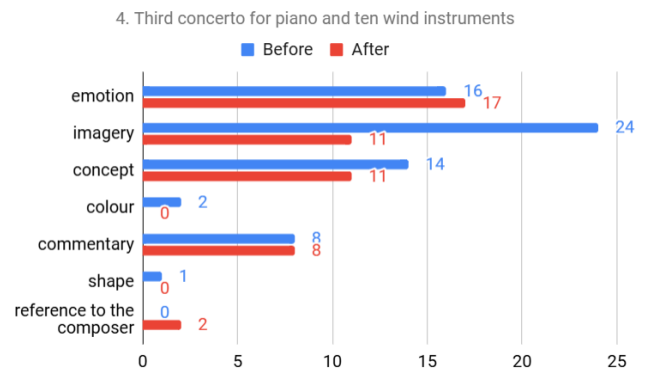


Figure 11: Annotation type occurrences before and after the digital storytelling, for the music piece "Concerto No.3 for Piano, 10 Wind Instruments and Percussion".

and establishing a more direct, personal and "human" view of his personality.

Our primary focus during the interviews was on the question: "How do you now perceive the composer's music? Do you appreciate it more or less?". The participants' responses can be grouped in 3 broader categories:

Positive change. 7 participants (28%) explicitly reported that the digital experiences helped them change their view on the composer's music. U1-02 mentions: "I was positively affected... I did not know all this information about his life and can now make the connection between him and his music." U5-07 clarifies that "it is not a matter of appreciating more or not, but rather shedding light in obscure parts of his life and work."

No change. 12 participants (48%). In this case, participants such as U1-01 clarified that they "already knew the context of his music" or that "the music was not prominent enough in the digital storytelling to affect my appreciation" (U4-08). Some of these users

expressed the wish for the music and its technical elements to be more prominent in the digital storytelling experiences.

No reported change but reported reflections. There was a certain part of the participants (6 - 24%) that, on one hand, did not explicitly report a positive change in appreciation, but, on the other, reported reflections and insights on the composer's music. U5-01 explains: "It is not a matter of not appreciating more. It is a matter of understanding more." And later on, she adds: "Now I would like to listen to more of his music." U1-04 discusses: "What happened to me after this experience is that I realized that a composer like him cannot be disconnected from his folk and eastern roots. He might compose "western" classical music, but I realized that this -maybe-eastern, mystic element is always there."

6. Discussion

In this work we explore the effect of historical contextualization, promoted by digital storytelling, on the perception and appreciation of a composer's music. A key objective of the digital storytelling was to present the composer's life and work through archival material in the form of photographs, music scores, concert posters, using these tangible content to create meaningful interactions with the intangible: the composer's music. The participants were asked to annotate freely their emotional, conceptual or other responses that came to mind, on a piece of paper. The comparison of pre- and post-experience annotations reveals that engaging with digital storytelling enriched by archival material not only deepens personal engagement with the music, but also enhances participants' contextual understanding and empathy towards the composer. These findings highlight the value of well-designed narrative experiences in fostering a more meaningful and emotionally resonant connection with both the music and its creator.

Despite the recognized importance of the technical aspects of the music— such as rhythm, melody, and harmony— as dominant factors influencing their annotations, there is indeed a noticeable shift in their perception, as recorded both in the annotations and discussed in the interviews. This shift does not replace the initial responses and engagement, but rather complements them, suggesting that historical and biographical context enriches the listener's interpretation of the composer's music by adding narrative depth and meaning. These findings, though subtle, indicate that contextual storytelling facilitates a re-framing of the listening experience from surface-level affective reactions to richer, more interpretively layered responses.

More specifically, a notable outcome of our study was the comments and conversations during the interviews, which emerged in response to the question of whether the digital storytelling had transformed participants' perception and appreciation of the composer. Besides the explicitly positive answers, a noteworthy outcome was the reflective stance expressed by several participants, sparked by the historical contextualization, resulting from the digital storytelling. These participants, without being prompted, went on to express different thoughts and views on the composer's music as a product of his period and life experiences, often expressing a more affective stance in their analysis. These outcomes further highlight the potential of carefully crafted digital storytelling experiences to enhance engagement with the composer and his life, as

well as to spark curiosity and appreciation of his work. But more importantly, it can enable deeper reflection on the music as art created in a specific historical context and expressing the thoughts and feelings of a person that experienced that context. In this sense, the annotation process by itself seems to have value as an activity promoting this reflection. Of course, further exploration is needed to identify meaningful ways to integrate annotation as part of a multimodal experience for the communication of the composer's archive.

We could envision multimodal digital experience scenarios, available during the visit in the organization housing the music archive, or even as post-visit museum education activities, which combine digital storytelling with music annotation as an incentive for reflection. The annotation process could be integrated in the digital experience or kept as a separate, pen and paper activity. Through collaborative annotation, participants would engage not only with the music and its context but also with each other's perspectives and interpretations. This practice has the capacity to transform the personal experience of listening into a shared one, where participants could build on one another's insights and co-create richer, more nuanced understandings of the music and its historical background.

In summary, our findings highlight the potential of digital storytelling to deepen engagement with a composer's music by bridging archival material and historical context with personal interpretation. By fostering emotional connection, reflective thought, and historical empathy, such experiences enrich the listener's understanding and appreciation of both the music and its creator. Moreover, integrating collaborative annotation offers a promising direction for transforming individual listening into a shared, interpretive process— ultimately opening new pathways for cultural engagement and education through multimodal, narrative-driven interactions with music archives.

6.1. Limitations and future steps

While the experiences offer opportunities to see how historical contextualization affects the way participants engage with music and develop personal interpretation, some limitations in regard to the annotation process must be acknowledged. First, the inherently subjective nature of response to music may have influenced participants' annotation, as individual listeners bring their own personal preferences, biases, emotional states and predispositions to the task. Specifically participants' emotional states and mood at the time of the listening and annotation task might have likely influenced the tone and content of the annotations, which is a variability that can't be easily controlled. Furthermore, the context in which the music was experienced, such as the physical environment, the social setting and other factors, may have subtly impacted the way the music was perceived and interpreted. An additional limitation is that the titles of the musical pieces were visible during the listening and annotation process, which may have affected or biased participants' responses by introducing preconceived associations or narrative cues.

7. Conclusions

Intangible cultural heritage, such as music, presents unique challenges due to its elusive nature and the complex layers of context that influence its interpretation. As such, understanding and conveying the significance of music requires not only presenting the music itself but also the broader historical, cultural, and personal narratives that shape it. This study investigates how the context in which music is created—including the composer's life and experiences—can influence how listeners respond to and annotate the content of the music. The theoretical framework of this experiment is grounded in contextualism, which suggests that an artwork's meaning and reception are enriched by understanding the cultural, historical, and personal context in which it was created.

In our study, we explore how listeners with varying levels of knowledge about music theory and a specific classical music composer, Nikos Skalkottas, interpret and annotate his music after engaging with his music archive content through two digital storytelling applications. A total of 25 participants, with differing familiarity with both the composer and music theory, were selected to engage in a two-stage annotation process. Results showed that participants' annotations shifted to some extent after exposure to these experiences. Their responses demonstrated a more nuanced understanding of the music, with annotations reflecting a greater awareness of the composer's personal background and the historical context in which the music was created. By examining how knowledge of a composer's personal and historical context influences listener interpretation, we aim to promote music archives not just as artistic objects, but as dynamic cultural artifacts that can play a key role in fostering public engagement with intangible cultural heritage.

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