Experiences and Emotions in Intangible Cultural Heritage

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Abstract

Intangible cultural heritage is an important part of a society's cultural heritage. It is the "living heritage" that provides the stories, functions, and ongoing cultural relevance of ancient aspects to contemporary society. In this paper, an ontology model is proposed for cultural heritage which integrates aspects of intangible heritage. Through a 3E lens for *Environment, Experience* and *Emotion* the model combines structured ontologies aligned with CIDOC CRM with more flexible controlled vocabularies. This hybrid integration allows to accommodate expressions related to personal experience and emotion to representations of heritage sites, maintaining the flexible and fluid characteristics of these intangible features.

Keywords

Intangible Cultural Heritage, Ontology, CIDOC-CRM, Semantic Web

1. Introduction

This work deals with the interrelation between tangible and intangible cultural heritage through a 3E lens for *environment, experience and emotion.* It is situated in the context of the INT-ACT project (Intangible Cultural Heritage, Bridging the Past, Present and Future)[1]. INT-ACT explores the relations between tangible and intangible aspects via the design of "demonstrator" systems, interactive extended reality (XR) applications that are built, displayed and evaluated [1, 2, 3] in the contexts of different cultural heritage sites across Europe. Underlying this process, ontologies are built to describe the many layers involved. These concern the environment (the sites themselves), the demonstrators and their elements, which are used to present renderings of experiential and emotional impressions communicated by members of the community and visitors in relation to the sites as well as their physical (tangible) features. To represent these experiential and emotional interpretations, the project has conducted a series of interviews with visitors and local actors. Based on these interviews, narratives are designed to be displayed in the demonstrators [4]. These narratives are the elements in the demonstrators that communicate experiences and emotions associated with the sites to the demonstrator's user.

We propose a representation aligned with the CIDOC-CRM[2] model, which provides a suitable framework for the study of cultural heritage, and equips the researcher with semantics suitable for the management of cultural heritage data [5]. CIDOC-CRM enables the integration and exchange of data from different sources to aid in the understanding of the past. While there are many proposals for CIDOC extensions related to cultural heritage [6], and despite the model's robustness and wide adoption, it provides no specific support for representing subjective, experiential and emotional dimensions

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[1]https://int-act.aalto.fi/index.html
[2]https://www.cidoc-crm.org/

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of intangible cultural heritage. Recent heritage studies have highlighted the growing importance of emotional and experiential meaning-making in visitor interaction with cultural heritage sites [7, 8, 9]. Furthermore, tourism and heritage experience research increasingly conceptualises heritage experiences as subjective, emotionally situated, embodied, and identity-related processes rather than merely informational encounters [10, 11].

Considering that concepts related to experience and emotion are complex and fluid, we propose a model that integrates these features in CIDOC-CRM by means of controlled vocabularies that can be formally associated to the ontology through the Simple Knowledge Organization System (SKOS) framework [12]. In the context of the INT-ACT project, the role of the controlled vocabulary is to label the presence of these concepts in the narratives used in the demonstrators, since these narratives are digital objects that can be shared with semantic metadata provided by the ontology. Thus, we present a model that integrates a controlled vocabulary as a way of categorizing concepts concerning experience and emotion to indicate their occurrence in narratives, while related to specific environments that are represented in ontologies [13].

The paper is organized as follows. Section 2 presents the conceptualization structure of the demonstrators. Section 3 introduces the concepts of experience and emotion in the context of cultural heritage, and provides examples of narratives conveying these concepts. Section 4 presents a proposal for integrating intangible dimensions of experiences and emotions into the CIDOC-CRM model, and Section 5 concludes the paper with some final remarks on the proposed framework.

2. INT-ACT demonstrators

The INT-ACT project's demonstrators present relations between tangible and intangible elements through representations of specific heritage sites integrated into XR applications [1, 2]. While images and 3D models may invoke experiences associated with the sites, interview-based narratives connect the sites to the personal experiences and emotions that individuals have shared regarding their visits to, or associations with, the heritage locations. Thus, experiences and emotions associated with the actual site are communicated to visitors of the demonstrator installation through the use of the XR application and the surrounding exhibition.

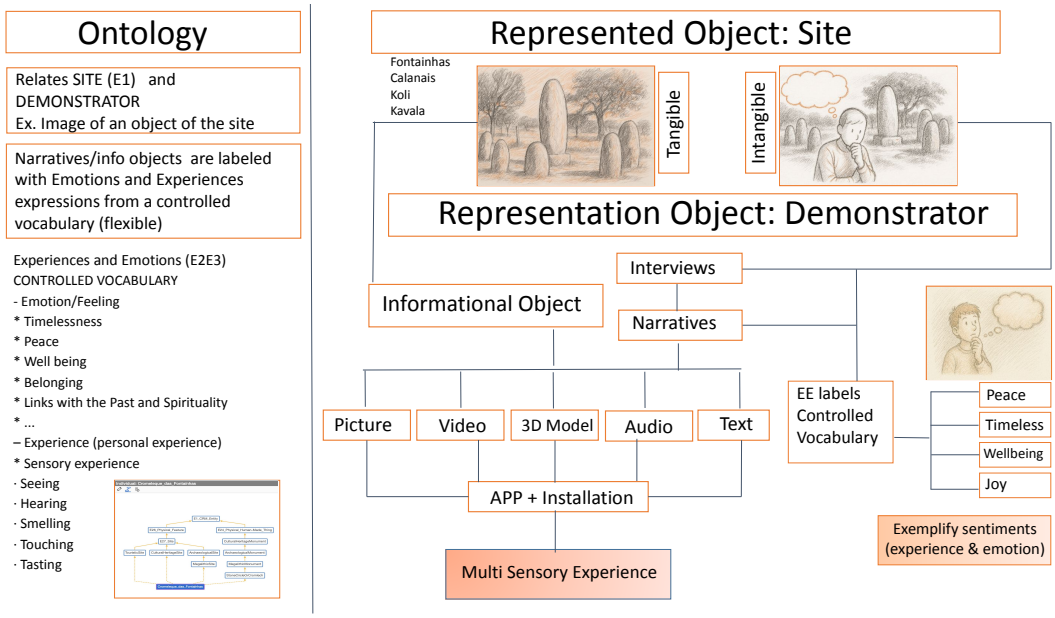


Figure 1: Ontology scheme

Figure 1 illustrates the relation of representations (informational objects) and the environment (physical sites). Fontainhas, Calanais, Koli and Kavala are the four case study sites, namely: a cromlech

in Portugal, a stone circle in Scotland, a natural park in Finland and the old city of Kavala, Greece. The environment and its digital representations may be experienced by visitors and may give rise to emotional responses. The heritage sites therefore act as stimuli that support experiences which may be emotional and affective. In the ontologies, we describe both the original physical tangible elements of the sites, and the media objects used in the demonstrators to represent these elements. Narratives reflect the experiences and emotions identified through the analysis of interviews conducted with visitors and local actors associated with the sites. They communicate intangible aspects of heritage that are related to personal experience, interpretation, and emotional engagement. In the ontology we intend to identify features related to experiences and emotions that may be present in the narratives. Narrative excerpts can then be labelled with such features, which are organized into a hierarchy of concepts, as discussed in the next section.

3. Hierarchies of concepts for experiences and emotions

The project focuses on intangible values associated to tangible heritage sites. While the enduring physical evidence is provided by the sites themselves (tangible heritage), the intangible heritage is the ”living heritage” that provides the stories, functions, and ongoing cultural relevance of these ancient sites to contemporary society. In other words, while tangible elements are linked to the environment, the intangible elements are linked to interpretations, personal experiences, emotions, and feelings, as well as the shared, living cultural expressions passed from generation to generation through the community, such as social practices, and oral and artistic traditions.

In the case of XR environments these associations (tangible and intangible) are established through representations of tangible informational objects, such as image and audio. Experiences and emotions may be then associated with these representations. The collected narratives related to the tangible heritage sites environment represents some of these intangible perceptions. Although other sources, such as literature, might be considered, the interviews are the primary source of these intangible elements in the current analysis. Such intangible elements are complex concepts. They are states of being and perceptions that are intimately linked to the experience of cultural heritage, psychological well-being, and spiritual or social contexts.

Recent research increasingly positions cultural heritage not only as a repository of historical and cultural meaning, but also as a form of wellbeing infrastructure. This means that heritage sites, practices, narratives and representations may enable emotional regulation, social connectedness, identity formation, intergenerational continuity, place attachment, and experiences of meaning and purpose [14, 15, 16, 17, 18]. From this perspective, engagement with both the tangible and intangible dimensions of heritage contributes to wellbeing because it can be accessed, experienced, interpreted and activated through cultural practices, tourism, education, participation, social interaction and digital mediation [18, 15]. This is particularly relevant in the context of digital and XR heritage applications, where engagement with heritage is mediated through images, sounds, narratives, 3D models and multisensory interaction. Such elements may activate aesthetic, sensory, emotional, cognitive and social processes that are known to contribute to health and general well-being [14, 17]. In heritage contexts, these processes are also interpretive: experiences and emotions are not separate from meaning-making, but are intertwined with how visitors understand, remember and relate to cultural sites [19].

The value of heritage can therefore be understood through several interrelated pathways. These include *direct experiential pathways*, such as sensory engagement, aesthetic appreciation and emotional response; *identity-related pathways*, such as belonging, memory, place attachment and continuity; and *capability-related pathways*, such as learning, confidence, participation, social connection and civic engagement [15, 16]. Tourism research similarly suggests that heritage may be experienced through dimensions such as meaningfulness, active pleasure and release [11]. The representation of experiences and emotions within heritage ontologies may therefore contribute to understanding how heritage environments foster such experiences are how they are communicated through digital heritage applications. Given the subjective, context-dependent, and culturally mediated nature of

these experiences and related outcomes, we consider that this domain is better represented through a controlled vocabulary. In fact, multiple visions may be considered.

Experiences can contribute to identity and belonging through processes of meaning-making, as individuals interpret lived situations in relation to their values, practices, social relationships, and sense of self. Many areas examine these processes in a variety of contexts, they demonstrate how experience can shape self-perception and a sense of belonging [23,24]. Note that here we are not dealing with these notions out of context, therefore emotions here are not considered as "basic emotions", in the classic psychological sense, instead we consider them within the general scope of cultural heritage. The notions of experiences and emotions we characterize here are shaped by interpretation, embodiment, memory, social relations, place attachment and cultural meaning [7, 8, 10, 9, 11, 18, 15].

Also, it is not the focus of the work to propose a final conceptualization of heritage-related experiences and emotions. Rather, this is an initial proposal, an example or illustration for how such concepts could be incorporated into heritage ontologies as a dynamic, fluid and variable hierarchy. The aim is to support the representation of such intangible aspects of heritage in an ontology designed as an extension of CIDOC, while maintaining sufficient flexibility for different heritage contexts, interpretive frameworks and research purposes. Nevertheless, a series of concepts based on the heritage, tourism, and wellbeing literature were considered for this proposal and are presented in Tables 1 and 2.

Table 1: Experiences

Name	Description	Reference
Sensory Experience	Sensory experience is understood as embodied lived experience, in which the body constitutes the primary medium of perception and engagement with the world. It is inherently multisensory and culturally mediated.	[20]; [21]
Cultural Practices and Expressions	Heritage safeguarding, as defined by UNESCO, focuses on the preservation and transmission of cultural practices to ensure their continuity over time. It is a dynamic process, actively mobilized in the construction of identities, memories, and meanings.	[22]; [23]
Identity and Belonging	Shared beliefs, values, and practices, form an individual's personal sense of belonging shaping their self- perception with meaning and depth.	[24]; [25]
Emotional Connection	Emotional connection is considered in more detail and expanded in Table 2.	see Table 2

Table 2: Emotions

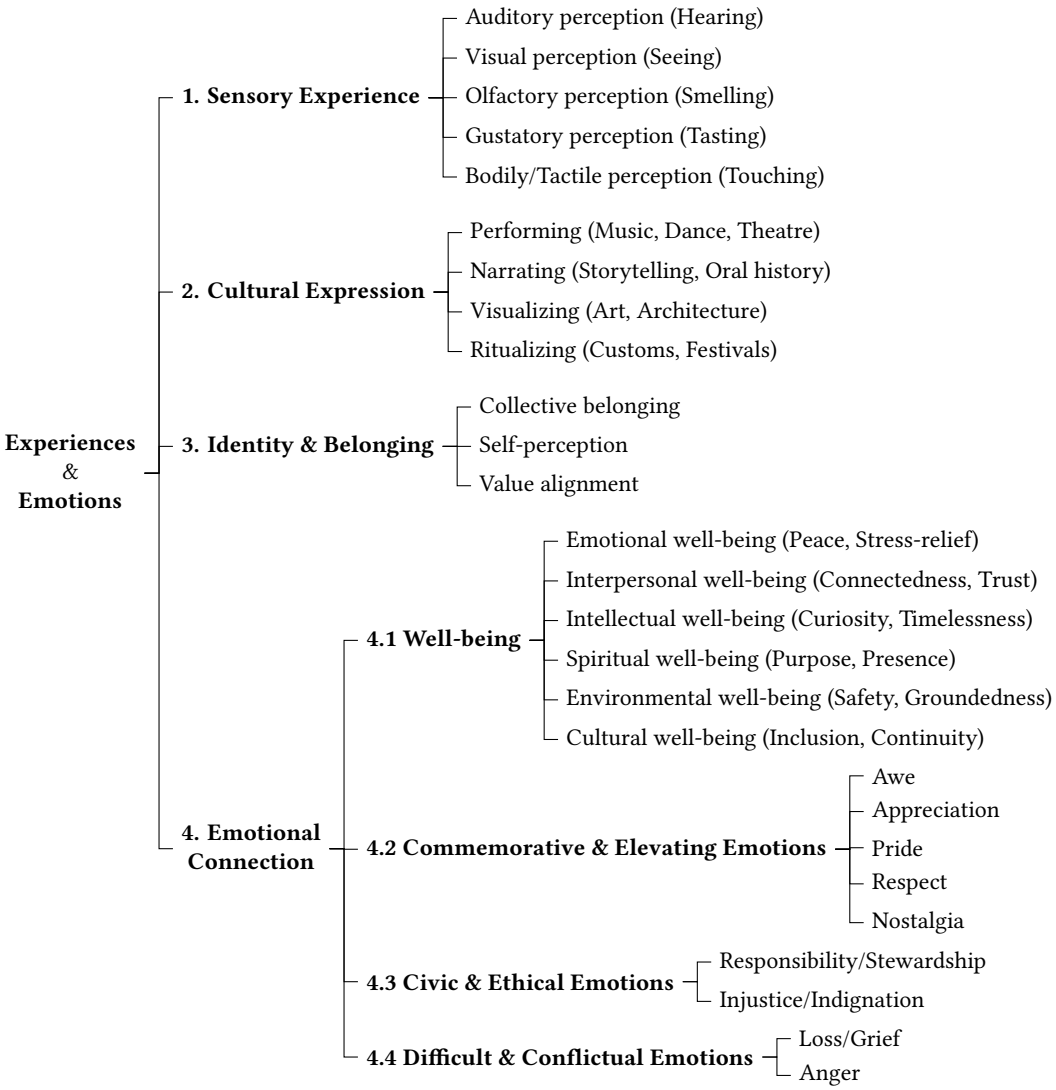
Name	Description	Reference
Well-being	Cultural heritage may support subjective well-being when it is activated through tourism, education, interaction, and cultural practices.	[18, 11, 18, 15]
Awe and Appreciation	Awe and appreciation functions as a pivotal emotional mechanism in intangible cultural heritage emerging from involvement and experience quality	[26]
Nostalgia	Nostalgia emerges as an emotional result of existential authenticity in cultural heritage and tourism.	[27]
Pride	The local community can feel pride, and this emotion arises through external recognition of its cultural assets. Therefore, cultural heritage can strengthen identities and develop a greater sense of responsibility for heritage preservation.	[28]

Table 2 Emotions (Continued from previous page)

Name	Description	Reference
Respect/Responsibility	Respect for heritage implies recognition of intangible meanings, spiritual values, and living relationships with communities, not just care for the tangible component.	[29]
Injustice	This is understood as a structural problem rooted in unequal access to power and decision-making over cultural assets, disproportionately affecting historically marginalized communities.	[30]
Loss/Grief	The loss of heritage is associated with challenges in conservation practices. By recognizing the possibility of loss, heritage comes to be understood as a field in which new values, forms of attachment, practices of care, and meanings can emerge.	[31]

3.1. Proposed hierarchy

Inspired on the concepts seen in Tables 1 and 2, an initial hierarchy for expressing heritage related experiences and emotions, is presented below.



3.2. Narratives associated with Experiences and Emotions

The main purpose of the ontology is to serve as metadata for the media objects produced in the INT-ACT project. In the case of the concept hierarchy presented above, the idea is to allow the labelling of informational objects (digital resources) created to communicate cultural heritage via demonstrators. These labels can be used, for instance, to inform about the presence of intangible features in the narratives, such as sensory engagement, emotional connection, identity, belonging, or well-being related outcomes.

In this section, we present some examples of narratives associated with intangible features in the case of megalithic sites related to the INT-ACT project [13]. In this context, narratives are not treated only as descriptions of the sites, but also as traces of how tangible heritage is perceived, interpreted and emotionally experienced by visitors. They therefore provide a basis for identifying expressions of experiential and emotional features. We exemplify considering concepts related sensory engagement. Some references found in the interviews allow us to reflect on the different ways an environment may affect the personal experiences of visitors through the senses.

Some examples of narratives associated with the different senses are:

> ...And when I got there, when I dropped the bicycle, and **I saw that circle of stones**, an ancestral thing came to me, a feeling so good, and that was so significant, and I got closer to the stones, **I was... incredulous about how we can touch these stones**...
> ...So you looked over there, there was light, but **what you saw was the outline of the stones** | the music echoed in a way, it was very difficult for the sound to have this, for those who liked that sound, sound technicians and the incidence of the sound, **the sound here was hitting the stones from one side to the other and creating a different dimension**...
> ...I think that to have a complete experience, i**t is good to be able to touch**, feel the heat of the sun, the earth...
> ...Because suddenly **you touch the stone and it's hot, like when you touch someone else**, so there was a lot of that feeling...
> ...The lights were behind the stones, So **you looked over there, there was light**, but what you saw was the outline of the stones...

4. Demonstrator's ontology

The proposed ontology specializes predefined concepts from CIDOC-CRM [32]. In this sense, to represent the demonstrators of the project, we created the concept Demonstrator as a subclass of *E71 Human-Made Thing*. Another important CIDOC concept in this context is *E31 Document*, which is specialized by the concepts App, Audio, Image, Video, 3D Model, and Text. They are informational objects that communicate aspects of the site and its environment (Table 3).

These documents are digital elements associated with the heritage site. When shared publicly, they can be connected to a URL through the data property *link* specified in the ontology (Table 4). The demonstrator is related to these informational objects through the CIDOC object property *P46 is composed of* (Table 5). Through the ontology these representational objects are identified and connected to the real sites by the relation *P129 is about* as shown in Figure 2, where the megalithic site of Cromeleque das Fontainhas is represented.

In the ontology, the heritage sites and their monuments are described by concepts that specialize the CIDOC concepts *E27 Site* and *E24 Human Made Thing* respectively. There is, in fact, a much more detailed description that includes several other elements, such as actors, geographical features, and other contextual entities. However, in this paper, we concentrated on the concepts required to represent the demonstrator and its alignment with controlled vocabularies for experiences, and emotions.

Table 3
Demonstrator/Classes

Name	Description	Superclass
Demonstrator	Prototype or tool that showcases a concept	E71 Human-Made Thing
App	Software application to guide or assist users	E31 Document
Audio	Audio files	E31 Document
Image	Image files	E31 Document
Video	Video files	E31 Document
3DModel	3D model files	E31 Document
Text	Text files	E31 Document

Table 4
Demonstrator/Data Properties

Class	Property	Value
E31 Document	link	(anyURI) https://....

Table 5
Demonstrator/Object Properties

Domain	Relation (Property)	Range
E18 Physical Thing	P46 is composed of	E18 Physical Thing
E89 Propositional Object	P129 is about	E1 CRM Entity

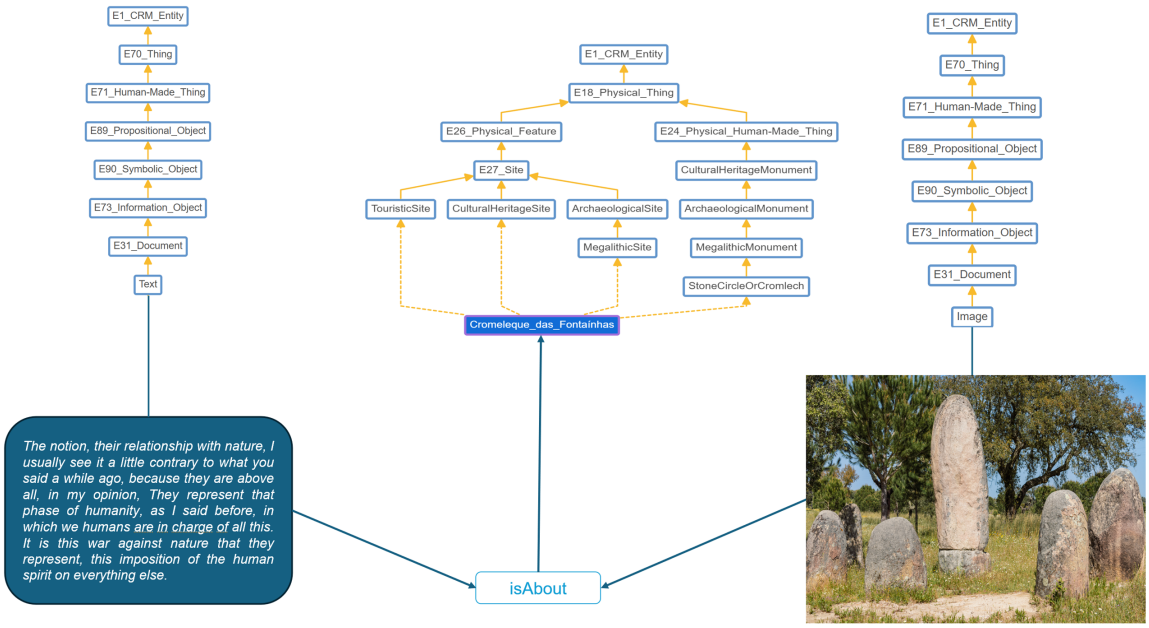


Figure 2: Representation of the Images and Texts associated to the site Cromeleque das Fontainhas

4.1. Representing experience and emotion in the ontology

As discussed earlier concepts for intangible features such as experiences and emotions are complex and fluid. Unlike material heritage entities, emotions and experiences cannot be easily reduced to rigid taxonomies because their meaning is context dependent [33]. For this reason, there are no specific

concepts in CIDOC-CRM to directly represent or connect them to heritage-related experiential features.

In response to these semantic challenges, we propose a hybrid semantic approach which integrates the ontology with a controlled vocabulary to preserve semantic interoperability while enabling more flexible representations of experiential and emotional heritage interpretation. One reason for this choice is that controlled vocabularies are less rigid and therefore more appropriate for the purpose. A second reason is that they may be combined with an OWL ontology when represented in SKOS (see [12]).

As a controlled vocabulary, represented in SKOS, this hierarchy is coded as follows:

```
skos:Concept "Intangible Feature" (Top concept)
skos:Concept "Experience" (skos:broader "Intangible Feature")
skos:Concept "Sensory_Experience" (skos:broader "Experience")
skos:Concept "CulturalExpression" (skos:broader "Experience")
...
skos:Concept "EmotionalConnection" (skos:broader "Experience")
skos:Concept "WellBeing" (skos:broader "EmotionalConnection")
...
```

The SKOS relation *broader* is a hierarchical relation that is less strict than the subclass (*is_a*) relation in an ontology. However, these hierarchy of concepts can still be incorporated into the ontology model[12]. Also controlled vocabularies can use simple links like ”Related Term” (RT), which can mean ”used with,” ”opposite of,” or ”similar to, whereas Ontologies use strict, explicit properties like hasPart or subClassOf. Since the main role of this vocabulary is to label the presence of experiences and emotions in narratives, we do not need to characterize these concepts by formal axioms, they are then represented as instances rather than classes.

Nevertheless, with a controlled vocabulary represented in SKOS, we can connect its terms to CIDOC-CRM based ontology. Each term is an instance of *E55 Type* in the ontology. The top concept of the controlled vocabulary is Intangible Feature, see scheme in Figure 3 which shows the term Touching connected to both the SKOS controlled vocabulary and the ontology.

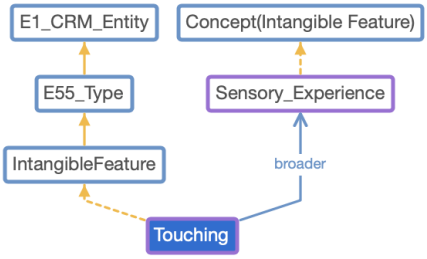


Figure 3: Representation of intangible features.

The informational objects of demonstrators, such as texts, videos and audio, may refer to physical things, that is, to tangible heritage elements, and they can incorporate narratives from the interviews. Therefore, narratives refer to the contents of informational objects, such as text, audio or video files. Narratives may be a part of the interviews, or a new construction based on them. In general, other sources for narratives may also be considered, such as literature.

Narratives are linguistic objects, which, in turn, may explicitly mention or implicitly refer to experience, emotions and other intangible features. In other words, these linguistic objects can contain expressions or convey ideas related to experiences and emotions, as qualified in the chosen controlled vocabulary. In the vocabulary, these features are organised as subclasses of the general concept Intangible Feature. This distinction is important because some emotional or experiential features may be directly named in a narrative, while others may only be suggested indirectly through context or interpretation.

Different possible relations can then be established:

- Texts/Audio/Images/Videos/3DModels being about physical things
- Texts/Audio incorporating narratives
- Texts/Audio/Narratives mentioning intangible features (explicit mention)
- Texts/Audio/Images/Videos/3DModels/Narratives connecting to intangible features (implicit reference)

In the ontology, *mentions* and *connectsTo* are proposed as sub-properties of CIDOC *P67 refers to*, in order to distinguish between explicit and implicit references. The property *mentions* is used when an intangible feature is directly expressed in the informational object or narrative. The property *connectsTo* is used when the relation is interpretive, for example when a narrative, image, sound or 3D model evokes an experience or emotional response without naming it directly. The concepts proposed are presented in Table 6, and properties in Table 7.

Table 6
Intangible Features/Classes

Name	Description	Superclass
Interview	Conversation with personal or collective testimonies	E33 Linguistic Object
Narrative	Story that transmits meaning, sentiments and memories of a site	E33 Linguistic Object
Intangible Feature	Feature used to label a type of experience or emotion	E55 Type

Table 7
Intangible Features/Object Properties

Domain	Relation (Property)	Range
E89 Propositional Object	P165 incorporates	E90 Symbolic Object
E31 Document	connectsTo – derived from P67 refersTo, indicates implicit mention to an intangible feature	Intangible Feature
E31 Document	mentions – derived from P67 refersTo, indicates explicit mention of an intangible feature	Intangible Feature

The controlled vocabulary can be integrated in the ontology as a special sub-class of the concept *E55 type* (Intangible Feature). In Figure 4, we see the instance of a text document, *S1_TextFont1* which incorporates a narrative. The narrative *S1_NrtFont1* which is a linguistic object, mentions the intangible feature *Touching*, related to the concept *Sensory_Experience* defined in the controlled vocabulary. If we go back to Figure 2 we see that the text document can also be linked to the site it is connected to, together with other documents such as images or 3D models, as well the sites conceptual hierarchy. Figure 5 provides an illustrative overview of the general proposal of using SKOS labels associated to narratives present in informational objects.

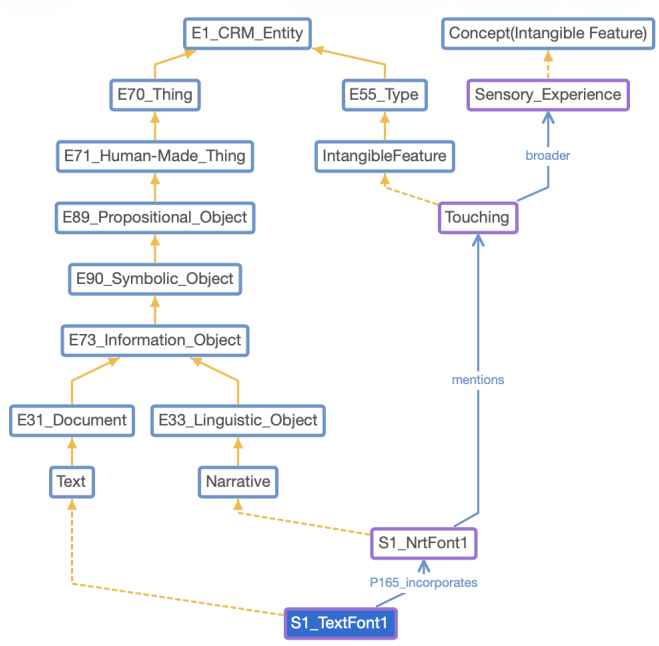


Figure 4: Connecting narratives to intangible features via controlled vocabularies in SKOS



Figure 5: Framework for the representation experiential and emotional dimensions within demonstrators via labels

5. Final remarks

Personal experiences related to heritage are subjective, multisensory interactions with cultural practices and traditions, often expressed as rituals, performances, or storytelling. They foster personal connections, emotional engagement, and a deeper understanding of the values, meanings and identities embedded in heritage. Narratives may evoke the past and promote empathy and connection, making heritage relatable and emotionally resonant.

This paper proposes an ontology model aligned with CIDOC which formalises the relations of intangible cultural heritage with expressions of experiences and emotions in the context of XR demonstrators. We adopted a flexible approach based on a controlled vocabulary and SKOS for representing these intangible dimensions. This was motivated by the fact that these concepts are of a complex nuanced nature and should therefore remain flexible. Although such controlled vocabularies are not properly specialized from CIDOC concepts, they can be well integrated in the ontology via a special sub-class of E55 Type (Intangible Feature) while connected to a SKOS hierarchy. In this work, we consider them as semantically organized labels that may enrich narratives that communicate intangible aspects of heritage.

The present version of the framework has limitations. First, emotional and experiential interpretations remain inherently subjective and culturally situated, and as such no semantic structure can fully represent intangible heritage experiences in all contexts. In addition, the proposed controlled vocabularies are exploratory rather than exhaustive classifications. Different heritage environments may require substantially different experiential hierarchies and emotional vocabularies. While the framework explores conceptual interoperability between CIDOC-CRM and SKOS, future work will

further consider issues of computational implementation, ontology scalability, semantic querying, and integration with broader, linked open data infrastructures.

Declaration of use of generative AI Generative AI was used in grammar checking, to help answers some of the research questions, but not used for text generation.

Online Resources The ontology is available via Zenodo https://doi.org/10.5281/zenodo.21980612 and Github https://trentcouncil.github.io/E2E3-INTACT-Ontology/index-en.html.

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References

[1] M. Masoodian, I. Aula, R. Vieira, A. Rodrigues, I. Santos, A. L. Diniz, C. Campos, R. Prezado, L. Rocha, Preserving intangible cultural heritage of megalithic sites using immersive mobile XR, in: Proceedings of the Special Interest Group on Computer Graphics and Interactive Techniques, SIGGRAPH '25, ACM, 2025, pp. 24:1–24:3. doi:10.1145/3721250.3743013.

[2] M. Masoodian, I. Aula, A. N. nez García, S. de la Fuente García, S. Luz, Presenting intangible cultural heritage of megalithic sites using immersive XR environments, in: Adjunct Conference Proceedings of IEEE International Symposium on Mixed and Augmented Reality, ISMAR '25, IEEE, 2025, pp. 717–718. doi:10.1109/ISMAR-Adjunct68609.2025.00155.

[3] A. Núñez García, S. d. la Fuente García, E. Lowemi, M. Masoodian, R. Vieira, A. Rodrigues, S. Luz, A study protocol for assessing the effects of intangible cultural heritage experiences on human well-being, PLOS ONE 20 (2025) 1–14. URL: https://doi.org/10.1371/journal.pone.0336120. doi:10.1371/journal.pone.0336120.

[4] I. Aula, M. Masoodian, A. N. nez García, Ethnographic and narrative methods of enquiry for researching intangible cultural heritage, Ethnologia Fennica 52 (2025) 7–31. doi:10.23991/ef.146630.

[5] G. Bruseker, N. Carboni, A. Guillem, Cultural heritage data management: the role of formal ontology and cidoc crm, Heritage and archaeology in the digital age: acquisition, curation, and dissemination of spatial cultural heritage data (2017) 93–131.

[6] P. Ferreira-Lopes, E. González-Gracia, Performing a systematic literature review on the implementation of the cidoc crm in cultural heritage, J. Comput. Cult. Herit. 18 (2025). URL: https://doi.org/10.1145/3771098. doi:10.1145/3771098.

[7] P. Schorch, Cultural feelings and the making of meaning, International Journal of Heritage Studies 20 (2012) 1–14. doi:10.1080/13527258.2012.709194.

[8] L. Smith, Emotional heritage: Visitor engagement at museums and heritage sites, Routledge, 2020.

[9] G. D'Agostino[1], H. Serra, C. Zavattaro, The emotional impact of cultural heritage on the public: Physiological and psychological effects of multisensorial, Design for Inclusion 75 (2023) 103.

[10] E. Sthapit, B. Garrod, D. N. Coudounaris, S. Seyfi, I. Cifci, T. Vo-Thanh, Antecedents of memorable heritage tourism experiences: An application of stimuli–organism–response theory, International Journal of Tourism Cities 10 (2024) 1469–1487.

[11] F. Bagheri, M. Guerreiro, P. Pinto, Z. Ghaderi, From tourist experience to satisfaction and loyalty: Exploring the role of a sense of well-being, Journal of Travel Research 63 (2024) 1989–2004.

[12] T. Baker, S. Bechhofer, A. Isaac, A. Miles, G. Schreiber, E. Summers, Key choices in the design of simple knowledge organization system (skos), Journal of Web Semantics 20 (2013) 35–49. URL: https://www.sciencedirect.com/science/article/pii/S1570826813000176. doi:https://doi.org/10.1016/j.websem.2013.05.001.

[13] R. Vieira, R. Prezado, A. Diniz, A. N. Garcia, C. Campos, I. Santos, L. Rocha, Áurea Rodrigues, S. Luz, M. Massoodian, An ontology for megalithic heritage, in: Proceedings of the 18th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management - KEOD, 2026.

[14] D. Fancourt, S. Finn, What is the evidence on the role of the arts in improving health and well-being? A scoping review, World Health Organization. Regional Office for Europe, 2019.

[15] E. Gallou, Heritage and pathways to wellbeing: From personal to social benefits, between experience identity and capability shaping, Wellbeing, Space and Society 3 (2022) 100084.

[16] A. Pennington, R. Corcoran, Heritage and wellbeing-policy briefing (2019).

[17] R. Mughal, M. Polley, A. Sabey, H. J. Chatterjee, How arts, heritage and culture can support health and wellbeing through social prescribing, National Academy for Social Prescribing (2022).

[18] S. Kong, H. Li, Z. Yu, A review of studies on the mechanisms of cultural heritage influencing subjective well-being, Sustainability 16 (2024) 10955. doi:10.3390/su162410955.

[19] P. Schorch, Cultural feelings and the making of meaning, International journal of heritage studies 20 (2014) 22–35.

[20] M. Merleau-Ponty, Phenomenology of Perception, International Library of Philosophy and Scientific Method, Routledge, London, 1962. URL: https://books.google.pt/books?id=qUL7zuu-q-AC.

[21] D. Howes, Sensual Relations: Engaging the Senses in Culture and Social Theory, University of Michigan Press, Ann Arbor, 2003.

[22] UNESCO, Convention for the safeguarding of the intangible cultural heritage, United Nations Educational, Scientific and Cultural Organization, 2003. URL: https://ich.unesco.org, accessed: 2025.

[23] L. Smith, Uses of Heritage, 1 ed., Routledge, London, 2006. doi:10.4324/9780203602263.

[24] B. J. Pine, J. H. Gilmore, The Experience Economy: Work is Theatre & Every Business a Stage, Harvard Business School Press, Boston, 1999. URL: https://books.google.pt/books?id=5hs-tyRrSXMC.

[25] M. Csikszentmihalyi, Flow: The Psychology of Optimal Experience, Harper & Row, New York, 1990.

[26] X. Su, X. Li, Y. Wang, Z. Zheng, Y. Huang, Awe of intangible cultural heritage: The perspective of ich tourists, Sage Open 10 (2020) 2158244020941467. doi:10.1177/2158244020941467.

[27] J. H. Han, S. Y. Bae, Roles of authenticity and nostalgia in cultural heritage tourists' travel experience sharing behavior on social media, Asia Pacific Journal of Tourism Research 27 (2022) 411–427. doi:10.1080/10941665.2022.2075776.

[28] G. Butler, G. Szili, H. Huang, Cultural heritage tourism development in panyu district, guangzhou: Community perspectives on pride and preservation, and concerns for the future, Journal of Heritage Tourism 17 (2022) 56–73. doi:10.1080/1743873X.2021.1881524.

[29] S. Ogden, Understanding, respect, and collaboration in cultural heritage preservation: A conservator's developing perspective, Library Trends 56 (2007) 275–287. doi:10.1353/lib.2007.0056.

[30] D. Fincham, Justice and the cultural heritage movement: Using environmental justice to appraise art and antiquities disputes, SSRN Electronic Journal (2012). doi:10.2139/ssrn.2026679.

[31] C. DeSilvey, R. Harrison, Anticipating loss: Rethinking endangerment in heritage futures, International Journal of Heritage Studies 26 (2020) 1–7. doi:10.1080/13527258.2019.1644530.

[32] C. Bekiari, G. Bruseker, E. Canning, M. Doerr, P. Michon, C.-E. Ore, S. Stead, A. Velios, Definition of the CIDOC Conceptual Reference Model, Version 7.1.3, CIDOC CRM Special Interest Group, 2024. URL: https://www.cidoc-crm.org/sites/default/files/cidoc_crm_version_7.1.3.pdf, version 7.1.3, Release Date: February 2024.

[33] Y. Hou, S. Kenderdine, D. Picca, M. Egloff, A. Adamou, Digitizing intangible cultural heritage embodied: State of the art, J. Comput. Cult. Herit. 15 (2022). URL: https://doi.org/10.1145/3494837. doi:10.1145/3494837.