ADVANCES IN KNOWLEDGE ORGANIZATION
Proceedings of International ISKO Conference - ISSN: 0938-5495 - 2026 - São Paulo

Knowledge Organization as a Framework for Storytelling in Museums: Participation, Authority, and Narrative Connections

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Abstract

This paper examines the relationship between Knowledge Organization and storytelling in museum contexts. The study adopts a qualitative approach based on a critical literature review. The research aims to analyze how knowledge organization processes and systems can support storytelling practices in museums. Specifically, the paper examines how participatory metadata can foster more inclusive interpretations of museum collections and how provenance warrant and Linked Open Data can contribute to the creation of authoritative and interconnected narratives about cultural heritage objects.

1.0 Introduction

People are naturally "narrative thinkers" who use stories to understand and relate their experiences, framing personal interpretation and multiple perspectives (Schank and Abelson 1995). In the field of cultural heritage, narratives serve as a bridge between discrete objects, allowing museums to organize items in a way that reveals their relationships to one another (Wolff 2016). Since the foundational article of Bedford (2001), museums assumed themselves as storytellers in their own right, using storytelling approaches to improve learning and emotional engagement with visitors (Economou et al. 2025).

Museums function as physical spaces of storytelling, presenting narratives about their collections. These narratives are communicated through various practices, including the selection and classification of objects for display, the ways artefacts are grouped and categorized, and how information is structured and presented in labels and catalogues (Dunn et al. 2019). These practices involve knowledge organization processes, as defined by Hjørland (2008), including activities such as description, indexing and classification. They also require knowledge organization systems, like controlled vocabularies, metadata schemas, and ontologies, that provide semantic tools (Pan and Shi 2025). Together, these technical practices and systems allow the creation of interaction settings between people, artefacts, and information within a bounded physical or digital environment.

To further explore the relationship between Knowledge Organization and storytelling in museum contexts, this paper seeks to clarify how knowledge organization processes and systems contribute to the construction and interpretation of narratives around cultural heritage objects. The aim of the paper is to analyze how knowledge organization processes

and systems can frame storytelling practices in museum contexts. In order to achieve this aim, the study assumes two specific objectives: to examine how participatory metadata can support more inclusive narrative interpretations of museum collections, and to analyze the role of provenance warrant and Linked Open Data in establishing authoritative and interconnected narratives about cultural heritage objects.

The next section presents the methodological approach adopted in this study. Subsequently, the paper discusses the concept of storytelling in museum environments and the role of knowledge organization in museum. Finally, it analyses participatory metadata, provenance metadata, and Linked Open Data as complementary approaches that support richer and more interconnected museum narratives.

2.0 Methodology

This study adopts an interpretative and qualitative approach, with a focus on understanding the link between Knowledge Organization and Storytelling in museum settings. Because the interconnection of narrative structures with Knowledge Organization (including processes and systems) is a developing field, the study is exploratory in nature, aiming to provide a preliminary theoretical framework for how these two domains interact.

The core of the research involves a literature review, based on content analysis from a critical perspective. This method was selected because it allows for the synthesis, with a critical approach, of diverse perspectives, ranging from Knowledge Organization, Storytelling and Museology, providing a preliminary understanding of how museums function as physical and digital storytelling spaces, grounded on knowledge organization processes and systems.

3.0 Storytelling

According to McDowell (2021, 1224), storytelling can be understood as the act of narrating within a dynamic triangular relationship involving the story, the storyteller, and the audience [Figure 1]. The relationships among these three elements are mutually influential. The audience's connection with the storyteller, for instance, partly depends on how they perceive the storyteller's relationship to the story, as well as on the particular story the teller chooses to present to that audience.

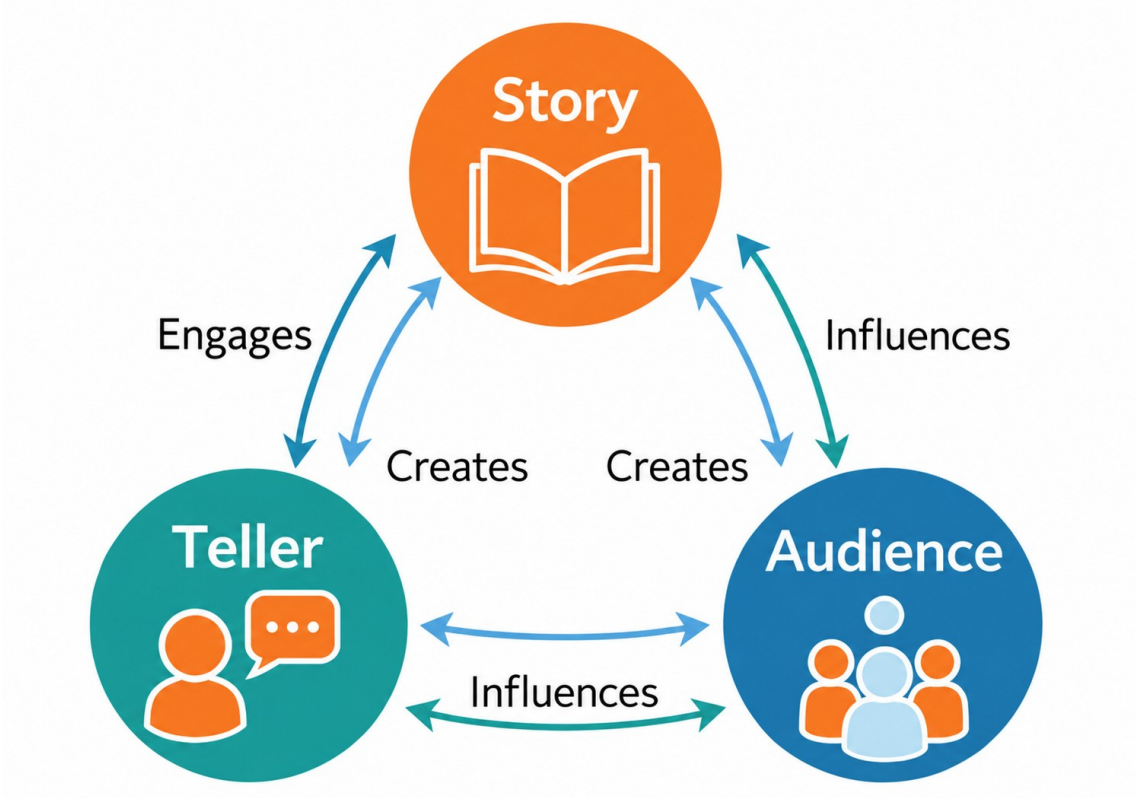

Figure 1. The storytelling triangle (source: adapted by the author from McDowell (2021))

Thus, storytelling is the practice of conveying ideas, experiences, and/or information through a structured narrative. This structured narrative is a way of making meaning: it organizes information into a coherent, engaging form that helps audiences understand, remember, and connect with the message being communicated. It typically involves characters, a setting, a sequence of events, and an emotional or thematic arc.

In cultural heritage settings, storytelling is an ideal strategy for realising the 'constructivist museum', an environment where visitors of all ages and backgrounds are encouraged to create their own meaning and find the place, the intersection between the familiar and the unfamiliar, where genuine learning occurs (Calvi et al. 2024). Stories are, to a large extent, the "essence" of museums, that core of authenticity that we seek to identify and preserve (Bedford 2001).

Increasing attention has been given to the need for cultural organizations to rethink how they collect, manage, and communicate cultural content. Perouli (2021) states storytelling has been one of the most prominent attempts to modernise the way in which museums showcase their collections and engage with public. This effort aims to open up exhibitions and to attract visitors of various age groups generating an environment which increases the visitor's confidence. The central premise is to invite all participants to construct stories through their personal experiences. This has multiple effects: 1) it broadens communication; 2) the historical events or exhibits come alive and participants develop a

closer understanding for the past; 3) storytelling creates emotional links that are more profound compared to intellectual understanding.

Within this context, digital storytelling has emerged as a recent approach that can enhance the museum end-user experience. It involves conveying narratives through the use of digital technologies, such as audio, video, animation, and graphical visualization (Lambert 2013). According to Nosrati and Detlor (2022), digital stories can incorporate digital technologies in two different approaches: they may be disseminated across multiple media platforms (cross-media storytelling), or the narratives may be developed through different forms and perspectives across various media channels (transmedia storytelling). In both cases, digital technology helps convey stories that connect information with emotion and interaction, improving learning results. Shiri et al. (2022, 97) argue that digital storytelling involves the creation of personal narratives through the combination of multiple media formats, such as images, audio, video, and text, typically developed within a workshop setting. These narratives are subsequently shared in a public context, highlighting both the commonalities and the diversity present within collective experiences.

4.0 Knowledge organization in museum settings

The development of digital technologies and the widespread digitization of museum collections transformed traditional museum cataloguing systems (Eylat Van Essen 2024). Historically, museum documentation relied on analogue records, locally maintained catalogues, and classification practices shaped by institutional routines and curatorial expertise. With the transition to digital infrastructures and networked cataloguing environments, since computerization on the 1960s to AI-driven digitization from 2018, these systems have become more interconnected, interoperable, and accessible across institutions and user communities (Pan and Shi 2025). This shift highlights the sociotechnical character of museum information systems, in which conceptual structures, such as classification schemes, controlled vocabularies, and metadata standards, interact with technological platforms, institutional practices, and the interpretative work of professionals (Turner 2017; Eylat Van Essen 2024).

Unlike libraries, museum knowledge organization is inherently object- and context-dependent, taking into account the singular nature of each artefact and its temporal, spatial, and cultural relationships (Gill 2017). Therefore, because museum collections encompass a wide variety of objects, their description requires complex and specialized knowledge organization systems capable of representing both the material characteristics of artefacts and the contexts in which they were created, used, and collected (Gill 2017). These contextual dimensions are also fundamental for storytelling practices in museums, as they provide the informational connections that allow objects to be interpreted within broader narratives and to be meaningfully communicated to audiences.

Knowledge organization literature also emphasizes that systems for representing cultural heritage are not neutral repositories of information but structured frameworks that reflect epistemological choices, disciplinary traditions, and social contexts (Turner 2017). Digital

environments to perform knowledge organization processes (description, classification and indexing) therefore not only expand possibilities for access and reuse but also make more visible these underlying cultural and political models through which museum objects are described, related, and interpreted (Pan and Shi 2025). In this sense, the digital transformation of museum foregrounds the role of knowledge organization as a mediating layer between cultural heritage collections, information technologies, and diverse communities of users (Eylat Van Essen 2024). Consequently, knowledge organization systems also provide the conceptual framework through which museum objects can be connected and contextualized within narratives, enabling storytelling practices.

The following sections examine how knowledge organization can support storytelling in museums from different, yet complementary, perspectives.

5.0 The Role of Knowledge Organization in Storytelling

Next, we discuss how participatory metadata, provenance metadata, and Linked Open Data offer new possibilities for connecting objects, incorporating multiple perspectives, and supporting richer forms of museum storytelling.

5.1 Participatory Metadata

As underlined by Brodefrank (2022), a semantic gap exists between the language and descriptive practices used by museum professionals and those employed by the public. Tagging content initiatives can help bridge this divide by incorporating perspectives and vocabularies that resonate more closely with visitors' ways of describing and interpreting cultural objects. Subject metadata generated from tags assigned by users in digital platforms can be understood as the outcome of a participatory knowledge organization process (Rasmussen Pennington and Spiteri 2019), popularized since the advent of Web 2.0 and foundational to user interactions on social media networks. Recently, another way of creating tags to represent the resources of a collection has emerged through the use of AI tagging models based on machine learning. These systems automatically generate descriptive terms, identifying patterns and associations within large datasets. By doing so, they can suggest subject tags, at scale and with considerable speed, supporting the description and organization of large collections (Brodefrank 2022). Unlike controlled vocabularies created exclusively by professionals, these user-generated or AI-generated descriptors reflect the language, associations, and interpretive frameworks commonly shared by the public. When incorporated into storytelling strategies, such metadata can serve as a bridge between institutional knowledge and visitors' perspectives. Because the terms originate from the museum's public, they may enhance accessibility and facilitate comprehension of the narrative being communicated. Farnel (2017) proposes that metadata can be understood as the *history of data*, that is, the history of the item being represented. From this perspective, community-contributed metadata may be seen as a form of digital storytelling, enabling communities to articulate the narratives they wish to construct about their resources in the ways they consider most appropriate. In doing so,

such practices challenge and potentially reconfigure traditional power structures that have historically shaped the representation and organization of knowledge. In this sense, user-generated subject metadata can support more inclusive and effective storytelling practices, aligning curatorial interpretation with the linguistic and conceptual references (Farnel et al. 2018) of museum audiences. At the same time, such mutualizing museum knowledge (Cairns 2013) approaches create meaningful opportunities for the public to engage more directly with museums, contributing to the description and interpretation of collections while fostering a more participatory relationship between institutions and their visitors (Brodefrank 2023).

5.2 Provenance metadata

Knowledge organization serves as an essential infrastructure for museum storytelling, ensuring that narratives are grounded in scientific validity and historical rigor. This contributes to countering the scepticism expressed by some domain experts, who regard the use of storytelling in museums and heritage contexts as a form of “Disneyfication” or as the commodification of the past (Economou et al. 2025, 4). At its core, the "provenance warrant" validates the stories by establishing an object's authority through historical association and donor attribution at the time of entry (Turner et al. 2024). According to Turner et al. (2024, 1421) “(...) historic or provenance warrant is crafted through donor attribution or association and through object naming; the concept of geo-cultural location; and the imposition of unique identifiers, numbers and direct labels that physically mark belongings”. The physical application of unique identifiers is an “act of authority” that stabilizes cultural categories; without these links, an object becomes disassociated from its records (Turner et al. 2024, 1431), making accurate storytelling nearly impossible. To maintain ethical and scientific responsibility, museums must utilize rigorous authority records to counteract historical biases inherent in legacy data. The literature (Dunn et al. 2019; Turner et al. 2024) highlights how inconsistent identification, such as the wrong translation of a city name or poor transcription of Indigenous names, leads to fragmented records and obscured identities.

Furthermore, by publishing provenance data as Linked Open Data (LOD), museums enable third parties to search and query their collections. This facilitates “reparative data extraction”, allowing external researchers to identify objects whose histories are linked to injustices, such as colonial looting or Nazi-era confiscations, that might otherwise remain hidden within non-searchable free-text fields (Rother et al. 2022). LOD addresses these legacies by transforming siloed, unstructured texts into transparent, machine-readable datasets. By employing stable URIs and standardized vocabularies like the Union List of Artist Names (ULAN), museums can reconcile disparate records and provide a verifiable base for their narratives (Rother et al. 2022). The integration of rigorous provenance warrants and LOD standards ensures that museum storytelling is not merely a public-facing exercise, but a scientifically robust and ethically responsible act of writing history.

Furthermore, as Eylat Van Essen (2024, 237) states “The ability to contextualize data provided by museums through additional resources paves the way for new interpretations

and alternative histories. (...) It can turn object-related data into knowledge about the museum as an institution". Thus integrating metadata concerning the provenance of museum records into narrative and storytelling approaches can create meaningful pathways for visitors to engage more deeply with museum collections.

5.3 Linked Open Data for connecting datasets in narratives

LOD serves as a tool for narrative creation by providing a framework to connect and contextualize information across various platforms and datasets. We can point out several ways by which LOD facilitates this process, including semantic encoding of narratives, linking distributed datasets, facilitating multivocality, and framing geographies of the narratives. LOD allows the semantic encoding of elements within narrative ontologies and this capability enables the development of narratives that are more responsive, contextual, and generative, which better reflect the complex "biographies" or "itineraries" of museum objects (Dunn et al. 2019, 264). This perspective is reinforced by Middle et al. (2025) who employed a semantic annotation tool (Recogito) which facilitates the annotation process by providing an interface through which researchers can highlight and tag entities and relationships in both texts and images. As the authors underline "(...) this is a wealth of information with exciting potential for data storytelling, revealing and visualising these objects' itineraries, i.e. their journeys through space and time" (Middle et al. 2025, 2).

Furthermore, LOD provide a mechanism for linking disparate data, such as formal museum catalogue entries, crowd-sourced visitor tags, and distributed datasets. By representing these as linkable RDF datasets, objects can be integrated into broader information networks rather than remaining isolated in single databases (Dunn et al. 2019, 266). This capacity of establishing connections will enrich storytelling possibilities, as it enables cultural objects to be contextualized through multiple relationships, linking them to places, historical events, people, and other artefacts, thereby supporting more complex, dynamic, and multi-layered narratives about their origins, movements, and meanings. Such linking of disparate datasets also acknowledges that multiple voices and perspectives may describe a single object. Curators can enrich an object's itinerary by pulling information from other LOD datasets, open webpages, or visitor experiences, allowing for a more diverse and comprehensive story (Dunn et al. 2019, 268). Through the connective powers of LOD, scholars and curators can better understand and develop the concept of spatial narratives and cultural geographies. This helps map the physical and conceptual journey of an artefact, its "itinerary", through time and space (Middle et al. 2025, 5) enabling diverse storytelling.

In summary, LOD transforms static data into a dynamic, interconnected web of meaning, allowing museum narratives to be more integrated, multi-layered, and scholarly robust.

6.0 Conclusions

The transition from seeing objects as discrete items to viewing them as part of a "dynamic triangular relationship" between the story, the teller, and the audience (McDowell 2021) is being integrated into museum practices and represents a good avenue to enhance the role and visibility of knowledge organization systems and processes in museum settings. In the context of museums, especially those that make an intensive use of digital technologies, knowledge organization has evolved from traditional descriptive and subject cataloging into complex systems that not only store information but also actively frame how cultural heritage is interpreted and shared through exhibitions and digital storytelling approaches.

Traditional knowledge organization processes (description, indexing, and classification) need to be re-evaluated as a structural foundation for narratives. Knowledge organization can expand the storytelling potential of museum collections while maintaining scholarly rigor. Participatory metadata allows museums to incorporate the perspectives of their audiences, helping to bridge the semantic gap between institutional description and public understanding. The narrative use of provenance information not only enhances transparency regarding the museum's internal functioning, such as collecting practices, institutional priorities, and historical decision-making, but also encourages critical reflection on broader issues. In particular, it can illuminate themes related to marginalized communities and critical legacies of the past, fostering a more inclusive and reflexive interpretation of cultural heritage. By contextualizing the diverse circumstances under which objects entered the collection, such practices allow audiences to recognize the historical, social, and political processes that shaped these acquisitions. In turn, LOD provides the technological and semantic infrastructure necessary to connect dispersed datasets, linking objects to broader networks of people, places, and historical events.

Grounded on knowledge organization processes and systems, museums can develop narratives that are both more rigorous, inclusive and more analytically robust, enabling richer and more connected forms of cultural storytelling.

This paper represents a preliminary approach to linking Knowledge Organization and storytelling, and further analysis is required to deepen this perspective. Future research could examine the role of ontologies in structuring museum knowledge and supporting more complex narrative connections between artefacts, places, and historical contexts.

AI usage statement

ChatGPT (OpenAI) was used to generate the image presented in Figure 1. After the manuscript had been written by the author, ChatGPT was also used to review the final text for English spelling and grammatical accuracy.

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