DOCUMENTING OBJECT EXPERIENCES IN THE ART MUSEUM WITH CIDOC-CRM

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Abstract. This paper explores using CIDOC-CRM to document affective aspects of viewer experiences of art objects, such as they can be recorded through scholarly research. This proposal is based on my Master's thesis on affective metadata for art object experiences, in which I developed a schema and controlled vocabulary with which to document affective qualities of viewer-artwork experiences, and validated it through empirical research (Canning 2018)**.** On this basis, I explore applying CIDOC-CRM to this knowledge representation challenge; the event-centricity of the CRM makes it well-suited for documenting the event of experiencing artworks. I consider the extent to which the CRM can serve to document affective properties, which leave no lasting material evidence. I propose a solution of how affective experiences may be represented with CIDOC CRM, and consider whether an extension is required to account for aspects of the issue that may not be accurately represented by the CRM.

This proposal looks at an area of object research and documentation not yet directly considered by CIDOC-CRM or existing extensions. It introduces an interdisciplinary view of documentation that includes affect theory, empirical aesthetics, and visitor research as collaborators in a strategy of holistic object documentation, and seeks to engage CIDOC-CRM in continuing to push the boundaries of what is conceptualized as object information worthy of documentation. Additionally, proposing a formal representation of affective visitor-object experiences suggests the potential for new visitor-facing museum practices, such as digital visitor guides making recommendations based on the affective potential of museum objects.

Keywords: Affect, Knowledge Management, Documentation, Ontologies, CIDOC-CRM

1 Introduction

Artworks have been known to elicit a range of affective responses in viewers, both within and outside of the museum context. These connections constitute an important part of the museum visit experience, as has been increasingly recognized with the developments in contemporary understanding of visitor experience in museums over recent decades. However, although ideas of affective experiences can be found in museological literature and contemporary public-facing museum practices, they are not considered in the design of the information systems used to document and manage museum collections. This has led to a critical gap in the capability of museum collections information systems to support information work in museums and to leverage this information to support visitor-centric missions.

Affective metadata, with a corresponding data model and knowledge organization system to establish the vocabularies used to populate the metadata elements, is a necessary component of a strategy that addresses these issues at the level of the information structures on which collections information systems are developed. In this paper, I propose that affect needs to be considered within the scope of art museum object metadata, and that existing museum metadata standards should be extended or revised to accommodate this knowledge. This revised system – composed of appropriately defined schemas and vocabularies, and procedures of implementing, populating, and using them in the context of an actual museum collections information system – should be able to reliably represent the diversity and complexity of information related to the affective dimensions of the art viewing experience. Furthermore, I explore the use of CIDOC-CRM to model this data, and propose a small extension in order to accomplish this goal, named CRMaff. In this paper I present the proposed extension and related proposed content standards, as well as the relevant findings of an empirical research study intended to validate the proposed system.

1 Related Theory and Research

1.1 Affect

Affect in the art museum

Museological theory relating to affect draws primarily from Dewey's (1934) theory of aesthetic experience and Iser (1978) and Jauss' (1982) reception theory. Dewey (1934) is concerned with a specific kind of felt experience, and this line of theory finds contemporary engagement with theorists such as Latham (2007, 2012) and her notion of the numinous experience. In this theory, Latham (2007) expands Dewey's (1934) theory to apply to any and all evocative objects, as opposed to solely objects of art and beauty. In doing so, she challenges Dewey's provision that aesthetic experience is solely derived from an encounter with art and beauty, which she sees as imposing unnecessary limitations on the theory (Latham 2007).

Osborne (1983) and Mitias (1988) turn this line of thinking from focusing on the experience to focusing on the object that is the subject or instigator of the aesthetic experience. They both argue that aesthetic (affective) qualities are pregnant within an artwork, and that an aesthetic experience is the actualization of those qualities which exist in potential within the artwork. Osborne (1983) argues that when we experience an artwork as feeling a particular way, we are in fact recognizing those qualities from within the artwork, and therefore, the affective quality of the artwork exists whether or not each viewer experiences it as such. Mitias (1988) takes up this argument, presenting similar arguments to those of Osborne. What Osborne (1983) and Mitias (1988) fail to account for, however, is the complex personal histories, knowledges, and experiences that viewers bring to their art-viewing experiences. As the phenomenon of viewing cannot take place without both the artwork and the viewer, a conceptualization of the nature of this experience that fails to account for the viewer's unique contributions to the experience threatens to over-simplify its true nature. As such, affective attributes must be understood in the context of object-as-experienced. These attributes are thus located in the experience, involving the artwork, the viewer, and the experience itself, and not solely the artwork involved.

Affect in empirical aesthetics

While museology and aesthetics has been interested in theorizing about aesthetic response, empirical aesthetics focuses on documenting empirical evidence, including physiological reactions and brain activity, of responses to aesthetic objects and artworks (Freedberg 1989; Leder, Markey, and Pelowski 2015). Empirical aesthetics researchers seek to understand not just how response takes place but also what actually happens, and why artworks have the potential to elicit extraordinary experiences for viewers. Empirical aesthetics takes its theoretical foundations partly from reception theory: empirical aestheticists such as Freedberg (1989), Cupchik (1995), and Shimamura (2013) all ground their work in Iser (1978) and Jauss' (1982) reception theory. Shimamura (2013) links reception theory with empirical aesthetics through his argument that responses to artworks affect the entire body and can be in part identified through observable changes and physiological feedback.

Shimamura (2013) discusses the nature of "aesthetic emotions," a term also discussed by Cupchik (1995) and others (Elkins 2004; Leder 2013; Leder, Markey, and Pelowski 2015; Pelowski 2015; Silvia 2009, 2010). These are emotions that occur in response to aesthetic stimuli and differ from "regular" emotions, which are driven by evolutionary factors and needs (Shimamura 2013). There are many kinds of aesthetic emotions, and they can occur at different stages of aesthetic experience (Cupchik 1995). While Cupchik discusses them solely as a part of response, Shimamura (2013) argues that aesthetic emotions begin with the artist and that eliciting emotions, particularly strong and even transcendental feelings, is the primary intention of many artists. Aesthetic emotions are still controversial, however: there is ongoing debate over whether or not emotions elicited by aesthetic objects are different in quality or intensity from everyday emotions (Leder, Markey, and Pelowski 2015). Some empirical aestheticists feel that aesthetic experiences are too cognitive to be truly emotional in nature. Konecni (2013, 2015a, 2015b) in particular is highly critical of the concept of aesthetic emotions. However, many empirical aestheticists disagree with Konecni's criticisms, and feel that there are nuances to the feelings and states elicited by aesthetic objects that require considerations different from those of general emotions (Leder, Markey, and Pelowski 2015).

Empirical research on aesthetic experience has very rarely been conducted in the museum setting, instead tending to take place in lab settings (Tröndle and Tschacher 2012). Given the importance of context, as discussed by Shimamura (2013), this may constitute a concern for the applicability of empirical aesthetics findings to the museum context (Leder 2013). For proper, reliable, empirical research, the artworks under consideration must be studied in their museological context (Tröndle and Tschacher 2012).

1.2 Affect and art museum information systems

Existing practices

Information systems used by museums today typically focus primarily on physical object information management, which can result in downgrading complex artefacts to objects with only a single meaning. Furthermore, these same information systems have been focused on the management of collections as physical assets, rather than as the information embodied by the objects in museum collections (Peacock, Ellis, and Doolan 2004). This approach stands in contrast to new museological approaches that accept meaning as being contextual and plural (Cameron and Mengler 2009; Trant and Wyman 2006). Even in instances where these information systems allow for multiple values to be connected to an object, they do not often account for the contextual nature of that information (Cameron 2008; Posner 2016).

The information environment created by systems such as these is insufficient for gaining a full understanding of a museum object: it is important to create richer systems to contextualize and holistically document museum objects and collections (Dietz 1999). If museum information systems are to be used effectively for the development of further cultural knowledge, they must overcome the current limitations placed upon them through their structure and constrained focus (Dallas 1994). They must address the need to provide for different kinds of complexity of museum object information, and also integrate various sources of object information, which introduces additional complexities to the requirements of the information system (Dallas 1994). After all, museum documentation is not simply what is known about an object, but what is known at particular points in time, based on what has been conveyed by the individuals who have made, discovered, collected, or researched an object, and the individual(s) who then inserted that information into a museum documentation system (Bearman 2008).

The space for information afforded by systems that base their structure on these historical practices is not flexible enough to accommodate affective metadata, which is inherently subjective, complex, and multiple – even contradictory – in nature. A system that seeks to incorporate this data would require a change in structure.

Data standards

Three kinds of data standards form the basis for museum collections data structures: data structure standards, data value standards, and data content standards (Coburn and Baca 2004). Data structure standards are the metadata element sets that structure the model; and data value and content standards are the terms used to populate the metadata elements, such as controlled vocabularies, authority records, and thesauri, and how these terms are formatted. Adherence to these standards provides many benefits to museums especially as networked institutions: it allows the data to be linked, re-purposed, accessible, and generally useful to a wider number of people over a long period of time (Baca, Coburn, and Hubbard 2008; Coburn and Baca 2004; Parry 2007). There are no existing standards that include metadata for affect or experience.

1.3 Affective metadata

The incorporation of affective metadata is an essential area for consideration for museum information structures, as it seeks to provide a counterpoint to the traditional prioritization of physical object description and management. There are currently not any museums actively implementing the use of affective metadata, although Williams College Museum of Art has begun exploring the integration of experience data into their collections information

(Weinard, 2017). Additionally, the importance of affect for museum information was recently asserted in the field of cultural anthropology by Krmpotich and Somerville (2016), who studied the absence of affective knowledge in museum information systems, despite the growing curatorial and scholarly interest in affect. Krmpotich and Somerville (2016, p. 179) argue for the need for a critical inquiry into museum collections information systems and their ability and potential to support affect as a "foundational way of knowing material culture" – this is not just including affective elements, but supporting an epistemology where affect structures our knowledge of museum objects. Overlooking affect in museum cataloguing has consequences for the kinds of meanings that are supported about an object by museum infrastructures, and thus the understandings and experiences that researchers and visitors can come to have with an object. The absence of affect in catalogue records "impoverishes museum records and limits researchers' … capacity to understand social context and values of objects" (Krmpotich and Somerville, 2016, p. 179). In essence, this means that a catalogue record without affective elements is one that only demonstrates partial knowledge of an object.

Krmpotich and Somerville's (2016) analysis of affect in museum catalogues also acknowledges an important consideration for the generation of affective metadata: the source of that information, and the experience being reflected through the attribute. Along with determining how to measure affect, it is essential to take into consideration whose affective experiences get documented, and how this aspect is preserved in the record and system structure.

1.4 Event-centric data modeling

A recurring element of potential solutions to the issues discussed above is the shift from seeing object information as stable and consistent to variable and contextually known. This is accompanied by a shift from object-centric information models to the new development of event-centric information models. An object-centric information model is one that centers the object and places other pieces of information as belonging to that object, while an event-centric model centers an event, which then links an object to a piece of information. Since affect in the museum context involves an individual (who is experiencing the affect) and a given context (the exhibition and museum), and is temporally based (the time being the moment of response to an object in an exhibition), an event-centric ontology is necessary to document affective experiences (Figlerowicz 2012; Smith and Campbell 2016). As such, it, in addition to affective metadata, is a key component of modeling complex, context-specific information such as affective experiences.

2 Applicability of CIDOC-CRM

CIDOC-CRM, the Conceptual Reference Model proposed by the International Council of Museums' Committee for Documentation, was developed precisely to address the needs discussed above, by conceptualizing points of data as occurrences of events, such as meetings between (human) actors, physical and/or conceptual objects, in places, during timespans (Doerr, 2003). This event-centric information model highlights the contextual nature of information. CIDOC-CRM was also designed to adhere to the design principle of alternative views, meaning that the model is able to capture multiple alternative propositions about any fact; in fact, CIDOC-CRM was designed "to accommodate alternative opinions and incomplete information" (Le Boeuf et al. 2017, p. xiii). This works to supports the inclusion of multiple alternative perspectives and sources of knowledge about an event or object.

In addition to the main model, the CIDOC-CRM domain includes a number of compatible extensions designed to enhance the main model to fit the needs of specific information domains. These extensions include CRMinf for argumentation and CRMsci for scientific observation (Doerr et al. 2015; Stead et al. 2015). CIDOC-CRM does not yet have a set of classes and properties to document affective characteristics of viewer-artwork experiences, or the information items that are the result of the initial research and documentation of these experiences; however, the structure of the CRM and support for extensions make it a valuable source for modeling this information.

3 Proposed Extension: CRMaff

3.1 CIDOC-CRM profile and proposed extension

Table 1 presents the CIDOC-CRM entities actively used or directly referred to in the proposed CRMaff profile, as well as five newly proposed entities that constitute the CRMaff extension. The model and proposed extensions follow the naming conventions used in CIDOC-CRM (Le Boeuf et al. 2017): CIDOC-CRM classes are identified by "E", newly proposed entities are identified by "AE", and newly proposed properties are identified by "AF". The newly proposed entities and properties are described following the table.

Table 1. CIDOC-CRM existing and proposed entities used or directly referred to in CRMaff profile

CIDOC- CRM ID	Hierarchy Level	Name
E7	— — — — 5	Activity
AE2	— — — — — 6	Session
E13	— — — — — 6	Attribute assignment
AE1	— — — — — — 7	Affective potential assignment
E12	— — — — — 6	Production
E22	— — — — — — 7	Man-made object
E32	— — — — — — — 8	Authority document
E33	— — — — — — 7	Linguistic object
E35	— — — — — — — 8	Title
E41	— — — — — — 7	Appellation
E42	— — — — — — — 8	Identifier
E75	— — — — — — — 8	Conceptual object appellation
E82	— — — — — — — 8	Actor appellation
E51	— — — — — — — 8	Contact point
E28	— — — — 5	Conceptual object
E55	— — — — — 6	Type
E56	— — — — — — 7	Language
E58	— — — — — — 7	Measurement unit
E39	— — 3	Actor
E21	— — — 4	Person
E52	— 2	Time-Span
E53	— 2	Place
E54	— 2	Dimension
E60	— 2	Number
E62	— 2	String
E61	— 2	Time primitive

Additional entities proposed

1. AE1_AffectivePotentialAssignment
   Subclass of: E13_AttributeAssignment
   Superclass of: None
   Scope Note: AE1_AffectivePotentialAssignment is the action of assigning an affective potential characteristic to an object by an actor. As a subclass of E13_AttributeAssignment, AE1_AffectivePotentialAssignment is a sibling entity to E14_ConditionAssessment, E15_IdentifierAssignment, E16_Measurement, and E17_TypeAssignment. Affective Potentials themselves are treated as a kind of E28 Conceptual Object, that are assigned as part of the AE1_Affective Potential Assignment activity.

Properties: AF1_occurs_in _context_of; AF2_captured; properties and references inherited from E13_AttributeAssignment

2. AE2_Session
Subclass of: E7_Activity
Superclass of: None
Scope Note: AE2_Session refers to the activity of a research session
Properties: PN2_captured; PN3_elicited; properties and references inherited from E7_Activity

Additional properties proposed

1. AF1_occurs_in_context_of (was_context_to)
Doman: E5_Event
Range: E5_Event
Scope Note: AF1_occurs_in_context_of ties one Event or Activity to another, while explicitly stating the nature of the relationship. This is what makes it different from P9_consists_of, P10_falls_within, or P117_occurs_during: the AF1_occurs_in_context_of relationship states that Activity1 occurs within the temporal, physical, and conceptual area of Activity2. The elements that are relevant to Activity2 are thus relevant to the understanding of Activity1.

2. AF2_captured (captured_by)
Domain: AE1_AffectivePotentialAssignment
Range: AE2_Session
Scope Note: AF2_captured links AE1_AffectivePotentialAssignment and AE2_Session, to show that while affective properties do not require a research session to be actualized, a session is required to capture and contextualize the affective responses. AF2_captured refers to the AE2_Session content for information such as the date and time of the actualization, and actors involved in the actualization. This reliance on AE2_Session for this information shows that while actualizations do not require Sessions to occur, by capturing and recording them, an instance of AE2_Session has occurred: it would not be possible to have an instance of an actualization that is being captured and recorded here without the information required by AE2_Session. As such, AF2_captured replaces the need for P14_carried_out_by that exists in E13_AttributeAssignment, the parent entity of AE1_ AffectivePotentialAssignment.

3. AF3_elicited (elicited_by)
Domain: AE2_Session
Range: E28_ConceptualObject
Scope Note: PN3_elicited connects E28_ConceptualObject instances to an instance of AE2_Session, showing that the instances E28_ConceptualObject occurred during an instance of AE2_Session.

3. AF4_occurred_at (happened)
Domain: E28_ConceptualObject
Range: E61_TimePrimitive
Scope Note: AF4_occurred_at connects a recorded instance of E28_ConceptualObject with the exact time at which it was recorded. CIDOC-CRM currently only supports access to E61_TimePrimitive through the use of E52_TimeSpan, which would not be appropriate in this context: a recorded instance does not have a time span, but a single moment in time. It is only through analysis of many together can a time span be formed, as is seen through the use of E52_TimeSpan in regards to the AE2_Session that the E28_ConceptualObject is elicited (AF3_elicited) as part of.

3.2 CRMaff data model

Legend:
Black - CIDOC-CRM entities and properties
Blue - newly proposed CRMaff entities and properties

Fig. 1. CRMaff data model

3.3 Developing the model

The CRMaff data model, seen above in Figure 1, shows the major entities involved in an experience and the relationships between them:

- The object (E22_ManMadeObject), which is the focus of the experience
- The context (E7_Activity), in which the experience takes place
- The actor (E39_Actor), who has and is involved in an experience
- The session (AE2_Session), in which the affective experiences are documented
- The response (E28_ConceptualObject), which is the evidence of the nature of affective experiences
- The actualization (AE1_AffectivePotentialAssignment), which is an affective experience as understood using the content standard

It expands on the major entities required to understand an experience, and to document the affective attributes of an experience, illustrated below in Figure 2. As CIDOC-CRM focuses on documentation, this proposed model aims to accurately represent the elements required to structure the documentation of affective experience.
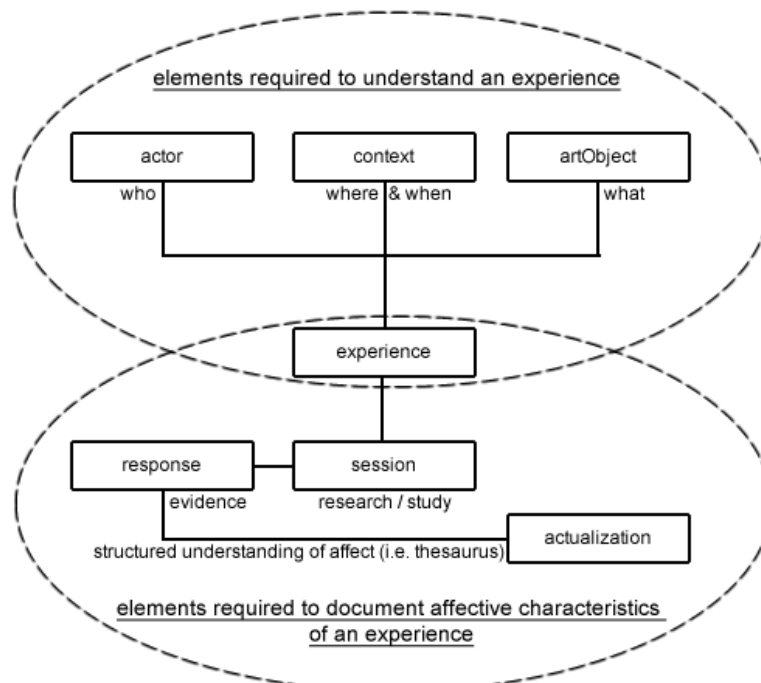

Fig. 2. Simplified model of experience

CRMaff simplifies aspects of the object, context, and actor in order to place priority on the modeling of the experience. This is done because this is the newly introduced aspect; event-centric models of people, objects, and contexts already exist through CIDOC-CRM.

In this model, the actualization of an affective experience is presented as a form of object attribute that is assigned to an object by a particular person, and is tied to the date that the assertion is made and the session information, if applicable. This shows it to be similar to the assertion of other points of data about the object such as the medium, date, and size. Modeling the actualization this way allows it to be integrated into the information environment in a way that is equal to other points of data: all aspects are assertions made by particular individuals at a given point in time. However, while other details maybe modeled as being relatively straightforward, with properties of unit and value, actualization is modeled as the recorded final data point in a process that involves the actor, context, and exhibition in a session which is documented by the assertion of a point of affective metadata.

4 CRMaff in Context

4.1 Content standard for affective information

In addition to a data model, a taxonomy of affective language is a necessary part of documenting affective information as metadata, as this presents the content standard that supports and works along with the structure standard. This is important for supporting a shared understanding of affective experience and its documentation across researchers and institutions, and brings the same advantages to this area of documentation as adherence to shared standards provides for other kinds of data (Baca, Coburn, and Hubbard 2008; Coburn and Baca 2004).

To develop the affect thesaurus, I analyzed literature on affect modeling and designing ontologies of affect and emotion in the domain of the arts, with a focus on the fields of empirical aesthetics and affective computing (Bertola and Patti 2016; Hager et al. 2012; Hagtvedt, Patrick, and Hagtvedt 2008; Martinez, Yannakakis, and Hallam 2014; Scherer 2005; Schindler et al. 2017; Silvia and Nusbaum 2011; Trohidis et al. 2011). As a result of this analysis, the thesaurus has four key characteristics:

- Prototypical category and term structure – This combines categorical and dimensional methods by providing individual concepts of emotion and the hierarchical relationship between the terms within the group, allows for the grouping of sets of emotional terms into categories, while also supporting the development of hierarchical relationships between the terms in each group (Bänziger, Grandjean, and Scherer 2009; Liu et al. 2011; Scherer 2005; Trohidis et al. 2011).
- Poly-hierarchical category structure – A subclass may inherit from more than one superclass, and a subcategory of affect may inherit characteristics from more than one broader category (Bertola and Patti 2016; Doerr 2003).
- Relationships structured as ordinal values – This allows for a conceptualization of terms that are connected but not structured in an absolute scale, as human ratings of emotion do not follow an absolute, consistent scale, and thus the translation of affective terms to nominal values would result in models that are of unreliable quality and use (Martinez, Yannakakis, and Hallam 2014).
- Multi-label classification – Any single object may be connected to any number of affective terms from the affect thesaurus. This is because artworks may evoke more than one emotion at a time, and thus any accurate model of emotion in this context must allow for multi-label classification, where a single stimulus may belong to multiple categories simultaneously (Mikels et al. 2005; Trohidis et al. 2011).

This thesaurus of elicited aesthetic affective terms encompasses eight major categories – prototypical aesthetic emotions, epistemic emotions, activating feelings, calming feelings, amusement feelings, negative feelings, expertise, and self-reference (association with self and memories) – covering a total 30 categories, with four ranks within each. Each point indicates a different level of intensity of felt experience, as defined by valence, dominance, and arousal. By referring to a given point in this thesaurus, a user can refer to a specific kind or set of affective terms that can show relationship to other terms – such as its superclass and sibling classes – through its existence at a given location. I scaled each of the affective terms in the thesaurus using two affective computing term resources: AFINN ratings of valence value, and the valence-arousal-dominance affective ratings provided by the Center for Reading Research (CRR-VAD) (Nielsen 2011; Warriner, Kuperman, and Brysbaert 2013).

4.2 Integrating the content and structure standards

The affect thesaurus is modeled here as an authority record: a standardized form of reference for a domain, in this case, elicited affect. By creating the relationship as a link to an authority record, this ensures the extendibility of both the data model and affect thesaurus, while promoting clarity of the domain covered by each, and coherence in the relationship between them. It also allows potential users to engage with only certain aspects of the proposed standards, if so desired, without forcing full ontological commitment. Linking the affect thesaurus to the core ontology in this way allows access to the full descriptive range of the affect thesaurus without having to build it directly into the data model.

The authority records referenced in CRMaff have six components:

- Authority Record Name: the name of the authority record
- Domain: the primary level of categorization (multiple domains in one authority record)
- Category: the secondary level of categorization (multiple categories in one domain)
- Intensity: the tertiary level of categorization (multiple intensities in one category)
- Description: the description of the level of the intensity of the category within the domain that is in the given authority record
- Aspect ID: the unique identifier of the point in the authority record being referred to

4.3 Validating the model

In order to gather a ground truth data set with which to validate the model and thesaurus, I conducted a small (n=12) visitor response study on three previously identified artworks at the Art Gallery of Ontario (Toronto, Canada) in November 2017 (Canning 2018). Participants were recruited from the University of Toronto via recruitment posters, and were accepted based on their availability during research sessions. My research instruments included a participant profile questionnaire, a field questionnaire, interviews, observational tracking, and physiological feedback in the form of heart rate variance. The inclusion of physiological feedback and behavior tracking supports a mixed-methods approach to data gathering, which has been noted as an important consideration for the development of empirical aesthetics research methods (Schindler et al. 2017). This allowed me to explore how to model these different kinds of documentation methods in the proposed model. Ultimately, the goal of selecting this combination of methods was to attempt to integrate a variety of types of information already prevalent in museum visitor studies and empirical aesthetics research, in order to confirm that the data model could accurately integrate the existing sources of information and documentation on affective experiences.

5 Discussion

5.1 Limitations

The model was validated through a small, proof-of-concept study with a tightly constrained scope. Therefore, the proposal must be understood as having been tested through one-on-one researcher-participant sessions with a small number of participations (n=12), and with a small handful of artworks (n=3) that share similarities in regards to medium, style, and subject.

5.2 Revisions to the model

Revisions made to the model as a result of the validation study are included in the Figure 1 model. Following the research sessions three major revision were made:

Revision 1: Relationship between expressed and elicited affects

The first version of the data model was unable to clearly present the relationship between expressed and elicited affects, as there was no structure to accommodate expressed affects due to the limit of the research scope being on elicited affects. However, participants did experience elicited affect as a result of recognition of expressed affect, and thus the data model needed to have a way to incorporate this information in order to present a full view of the affective experience.

To address this, an instance of E55_Type was added to E28_ConceptualObject to make explicit that the term is elicited, expressed, or intended. This moves this information out of AE1_AffectivePotentialAssignment. E62_String. Then, an instance of P15_was_influenced_by was added so that an instance of E32_AuthorityRecord.

P171_P1_E75_ConceptualObjectAppellation can refer to another instance of the same through the relationship of P15_was_influenced_by.

Revision 2: Relationship between actualizations and responses

While it was possible to trace a relationship between actualizations and responses, the way that the connection between these two aspects was modeled concealed the nature of that relationship. In order to produce a clear model of the affective experience that showed the relationship between affective attributes and the responses on which those attribute assignments were based, a relationship needed to be created to connect the two entities.

To address this, an instance of P15_was_influenced_by was added to show that an instance of E28_ConceptualObject. P1_E41_Appellation was the reason for the assignation of a given affective property (E32_AuthorityRecord.P171_P1_E75_ConceptualObjectAppellation).

Revision 3: Affects not covered by the current content standards (affect thesaurus)

The initial version of the affect thesaurus did not allow for the documentation of affective terms that were not listed. Therefore, although this was an issue with the affect thesaurus, the structure standard constraint impacted the accuracy of the information system. In order to address this need, an additional open category UNKNO was added to the thesaurus to be used in instances of the experience of affective attributes that are not yet covered.

To address this, I used AE1_AffectivePotentialAssignment.P3_has_note, and used an open category of UNKNO in the affect thesaurus in order to accommodate this information: this allows for E28_ConceptualObject to reference E32_AuthorityRecord as is necessary, while allowing for notes to be made on the entry to add details.

5.3 Future Work

In addition to the revisions already undertaken, there are three major areas for future work for this project: further validation, clarifying the relationship between expressed and elicited affects, and clarifying the complex nature of response, especially those involving empathy and identity-related connection-making.

The first area for future work is to expand the validation of this model to include larger numbers and greater varieties of participants and artworks. This is necessary to strengthen the reliability of the model, and to confirm that the proposed extension is both necessary and correct in its approach.

A second area of future work is to clarify the relationship between expressed and elicited affects. My research sessions supported the distinction between expressed and elicited affects in many cases. However, there is a relationship between expressed and elicited affects that I was not able to fully tackle in this study as it might require different evidence or methods in order to fully understand. Participants did discuss instances where the affects that they saw as being expressed by the artwork translated into felt experiences for them as viewers. As a result of the need for further consideration in order to address expressed affects and this relationship sufficiently, I am recommending this aspect to be considered for future work.

Lastly, the need to model affective relationships with artworks in addition to affective responses to artworks became clear as I analyzed my research data and realized that participants were engaging with artworks using empathy and identity-based connection. In these cases, the participants seemed to be engaging with the artworks in a manner that was more indicative of a kind of relationship than of a property or attribute. As the viewer is engaging in a process of empathy with the figure depicted in the artwork, this is more like an imagined event that links the viewer and a represented entity in the artwork. This is a complex area that requires additional research, and so I was unable to accommodate this information outside of the use of the UNKNO category in the revised version of the data model.

5.4 Findings

By working with the existing CIDOC-CRM and applying a small number of additions, along with providing a holistic data environment that also includes a corresponding knowledge organization system, the documentation of affective attributes can be structured so that it can be integrated into the proposed data environment while maintaining the agency of the object, the exhibition context, and the viewer.

However, there are gaps which remain: while affective responses are able to be integrated, there is difficulty in incorporating affective experiences that can be understood more as relationships that viewers have with artworks, as opposed to responses to artworks. This complicates the situation, as a relationship involves more complex interactions than a response, which is relatively straightforward in nature. However, it is a challenge that must be addressed: during the validation research sessions, it became clear that participants were responding to artworks in ways that moved beyond the clearly identified lines of expressed and elicited affect. In fact, instances of connection, empathy, and placing oneself in the mindset of the depicted figures in the artworks came up repeatedly. This showed that not only were participants experiencing elicited affects directly, but that these reactions came as a result of an empathetic connection they were developing between themselves and the artworks. Participants did not just recognize an affect as being expressed, nor were they directly experiencing it themselves: instead, they were placing themselves in the role of the subject, and imagining what it would be like to be that person, or in that space. While CRMaff is capable of incorporating the documentation of affective responses, it struggles to accommodate information about these kinds of empathy-based affective relationships with artworks. The question remains of how to structure, and integrate, this complex information.

6 Conclusion

The work presented in this project suggests a way for collections management systems to be augmented so that they can move beyond the prioritization of physical object information. This proposed data model works to create a richer information environment for objects in the museum collection, as described by Dietz (1999). It serves to further contextualize and bring understanding to museum objects by placing them within the context of their affective meanings and the roles that they play for museum visitors. This model works to create meaning by amalgamating affective information and placing the object within this context, thus working to do more than merely disseminate documented information (Peacock, Ellis, and Doolan 2004).

CIDOC-CRM is well positioned to include affective metadata due to its event-centric nature, ability to accommodate multiple and conflicting opinions, and acknowledgement that all information is contextual (Le Boeuf et al. 2017). With the inclusion of a small extension of two entities and four properties, CIDOC-CRM is fully capable of handling the integration of documentation of affective experiences with art objects in the museum setting. The complexities remaining for this knowledge representation challenge come largely from the need to clarify the understanding of how affective experiences to and with art objects occur, and not from technological limitations of the CRM. With further model refinement and validation, documentation of object experiences with CIDOC-CRM could become an attainable area for supporting a holistic view of object documentation, pushing the boundaries of what is conceptualized as object information worthy of documentation within collections information management systems.

7 Acknowledgement

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