



Universitat
de les Illes Balears

Title: **To Touch or not to Touch**

**Multimodal Experience in the Aesthetic Appreciation of Sculptures
in an Art Gallery**

AUTHOR: **Ana Sánchez Clemente**

Master's Thesis

Master's degree in **Human Evolution and Cognition**

(Itinerary: Experimental Aesthetics)

at the

UNIVERSITAT DE LES ILLES BALEARS

Academic year 2016/2017

Date September 21, 2017

*UIB Master's Thesis Supervisor: **Marcos Nadal Roberts***

To Touch or not to Touch

Multimodal Experience in the Aesthetic Appreciation of Sculptures in an Art Gallery

Ana S. Clemente and Marcos Nadal

University of Balearic Islands

Author Note

Ana S. Clemente and Marcos Nadal, Human Evolution and Cognition Research Group, University of Balearic Islands, Palma De Mallorca, Spain.

The authors declare that there is no conflict of interest in the conduct and reporting of this research. Preparation of this article was supported in part by grants from the Spanish Ministry of Education, Culture, and Sports. We gratefully acknowledge CCA Andratx, especially Malou Solfeld, Hawa Lassanah, and Jackie Herbst, for their warm welcoming, openness and positive attitude and inestimable collaboration. Besides, a special thank is owed to HRH Prince Henrik for his permission to use his sculptures as target artworks to be touched. Finally, the authors appreciate the kind participation of Marco Bertamini, Letizia Palumbo, Robert Pepperell, and Nicole Ruta, who spontaneously contributed with thought-provoking ideas. Pablo Tinio deserves particular recognition, especially for his advice on the quantitative analysis and further collaboration in the qualitative research. All authors contributed to the conception of the work, the experiments' design, and in drafting/revising the manuscript. All authors have approved the final version and agree to be accountable for all aspects of the work. The data collection was carried out by Ana S. Clemente, and data were analyzed and interpreted by Marcos Nadal and Ana S. Clemente, who also drafted the manuscript. The study is a Master's thesis defended in September 2017.

Correspondence concerning this paper should be addressed to Ana S. Clemente, University of Balearic Islands, Universitat de les Illes Balears, Cra. de Valldemossa km 7.5, 07122 Palma (Illes Balears), phone: +34 645091773, e-mail: ana.sanchez3@estudiant.uib.cat

Abstract

The present research explores the visual-tactile experience in the aesthetic appraisal of artworks in an art gallery. We examined the effects of order (direct and reverse) and multisensory (visual and tactile) vs. unisensory (visual) engagement with sculptures upon their aesthetic appraisals (valence, arousal, and liking). Our results show that, instead of being enhanced, visitors' ratings on aesthetic judgments were lower in the multimodal condition. Additionally, order also influenced appraisals, and the two experimental manipulations interacted significantly: artworks were rated lower when touched than when only viewed in the reverse condition. In line with the principles of situated cognition and Leder, Belke, Oeberst, and Augustin's (2004) model of aesthetic appreciation of art, our several interpretations point to a complex, dynamic and multidimensional interplay of the subject, object, and context in the aesthetic appreciation of art. We, therefore, conclude that aesthetic experience of art is not in the eye nor the hand of the beholder, but in her actual embodied mind.

Keywords: aesthetic appreciation, multimodal integration, vision and touch, art gallery, cognitive psychology

TO TOUCH OR NOT TO TOUCH

Art is a unique feature of human experience. It involves the complex interplay among stimuli, persons, and contexts.

-Leder, Gerger, Dressler, & Schabmann, 2012, p. 2

Humans rely on the integration of information from multiple sensory modalities to interact successfully with their environment.

-Kritikos & Brasch, 2008, p. 73

Aesthetic evaluation was influenced both by vision and touch.

-Jansson-Boyd & Marlow, 2007, p. 170

The main aim of our study was to examine the effects of two experimental manipulations—i.e., engagement mode (*touching* and *no touching*) and visit order (*direct* and *reverse*)—upon the aesthetic appraisal of 11 original sculptures in an art gallery, measured by the participants' judgments on valence, arousal, and liking scales (Brieber, Nadal, Leder, & Rosenberg, 2014). We primarily based our experiment on the work of Brieber, Nadal, and Leder (2015); Chatterjee (2008); Gallace and Spence (2011); Jansson-Boyd and Marlow (2007); Leder, Gerger, Dressler, and Schabmann (2012); Leder and Nadal (2014); Lederman and Klatzky (2007); Pye (2016); Smith and Wolf (1996); Smith and Smith (2006), and partially replicated Nadal, Tinio, Brieber, and Leder's (2014, unpublished) study on the *Caribbean crossroads of the world* exhibition, at Queens Museum of Art, New York. We considered and tried to overcome its flaws with improved strategies and methods while addressing our core research interest: multimodal experience in aesthetic appreciation of art.

Theoretical Framework

In art galleries, museums, and almost any kind of art exhibitions, there is a more or less direct proscription against touching the exhibits, implicitly expected in visitors behavior

TO TOUCH OR NOT TO TOUCH

(Argyropoulos & Kanari, 2015; Pye, 2016; Raffray, 1988). Multisensory or tactile exhibitions often have to emphasize their nature overtly: “Please, do touch” (Chatterjee, 2008; Dann, 2012). However, such a constrained unisensory behavior has a relatively recent origin. Artists have often used the sense of touch in both visual and tactile forms of art throughout the centuries (Gallace & Spence, 2011), and there was no restriction towards a haptic interaction with artworks, principally sculptures, in the past (Raffray, 1988). On the contrary, restraints originated with the increasing creation of art institutions and curators’ need of preserve, protect and cure the works of the past in the eighteenth and nineteenth centuries (Dann, 2012; Pye, 2016; Raffray, 1988). This peculiar socio-political context was the cradle of the modern western concept of aesthetics and a well-established relation with art: rather receptive and unisensory (Dann, 2012; Leder & Nadal, 2014).

The fact that most aesthetic experiences of art and non-art are eminently multisensory (unisensory are indeed very rare) has not been enough to promote a general change in the way people relate with, appreciate, and enjoy art, especially in museum-like contexts. Moreover, artworks are mostly multimodal and seldom fully explored and appraised. However, emotional and physical distance usually define this relationship, most notably in art establishments. Notwithstanding, a current trend of artists, art institutions, and researchers have declared the virtues of multimodal approaches, and promote an active interplay between creators, artworks, and audience (Ahmad, Abbas, Yusof, & Taib, 2015; Chatterjee, 2008; Dann, 2012; Dima et al., 2014; Gallace & Spence, 2011; Pye, 2016; Yoshida et al., 2015).

The study was conducted at the Centre of Contemporary Art Andratx, Mallorca (henceforth CCA). The 4,000 sqm building has a minimal but traditional style integrated into its natural surroundings. It comprises four studios, an art gallery, and a *Kunsthalle*: an intermediate figure between art gallery and museum—although it means “art gallery” in English (Langenscheidt Digital, 2017). While the artists in residence’s works were exhibited

TO TOUCH OR NOT TO TOUCH

for sale in the art gallery, the Kunsthalle hosted *Rencontre Fabuleuse*: a collective exhibition of HRH Prince Henrik of Denmark, sculptor *con amore*, and the Danish painter Carl-Henning Pedersen, a renowned “CoBrA” artist. Besides, part of the Prince’s private collection of masks and figures offered an additional link between the authors. Although the Kunsthalle lacked any prices’ list, it was clearly unlike a museum where the pieces are contemplated, cured, studied, and conserved.

As Dima et al. (2014) asserted, “we make sense of the world by enacting in it” (p. 8). Aesthetic appraisal of artworks is an active, embodied, cognitive, and emotional experience (Brieber et al., 2014; Brieber, Nadal, & Leder, 2015b; Dima et al., 2014; Gamboni, 2002; Leder et al., 2004; Leder & Nadal, 2014; Pepperell, 2004; Tschacher et al., 2012; Yoshida et al., 2015). Besides, certain peculiar aspects of touch, in particular its strong link to body movement and emotions, together with its more “primitive” nature, seem to characterize tactile aesthetics as distinct and independent from visual aesthetics (Gallace & Spence, 2008, 2011; Jansson-Boyd, 2011; McGlone et al., 2012). Although a more detailed discussion on this topic remains out of the scope of the present study, our purpose was to ascertain whether a visual-tactile interaction with sculptures would enhance their aesthetic evaluation, perhaps modulated by the participants’ motivations, expectations, education, and relationship with art (Chatterjee, 2008; Dann, 2012; Dima et al., 2014; Gallace & Spence, 2011; Leder et al., 2012; Leder & Nadal, 2014; Pye, 2016; Silvia, 2009; Smith & Wolf, 1996; Smith & Smith, 2006; Yoshida et al., 2015). Our purpose was actually in line with the artist’s intention: he conceived the figures for being integrated into open spaces like gardens or parks (M. Solfjeld, personal communication, April 2017). In such contexts, sculptures could likely be touched and enjoyed in many ways, still more considering their friendly and fantastical character.

Recent data suggest that multisensory evaluation increases objects’ appreciation and preference (Jansson-Boyd, 2011; Pye, 2016; Yoshida et al., 2015) as well as fosters purchase

TO TOUCH OR NOT TO TOUCH

intentions and confidence in judgments (Balaji, Raghavan, & Jha, 2011; Citrin, Stem, Spangenberg, & Clark, 2003; Jansson-Boyd, 2011; Krishna & Morrin, 2007; Peck & Childers, 2003). Besides, some studies support the notion that multiple sensory cues can be more diagnostic and accurate in product evaluation than unisensory information (Balaji et al., 2011; Jansson-Boyd, 2011; Krishna & Morrin, 2007; Klatzky, Lederman, & Reed, 1987). An object's diagnosticity is defined by the relative salience of its material properties (Kritikos & Brasch, 2008). To what extent the qualities of these particular sculptures are more salient in one sensory modality and whether context modulates salience are appealing questions (Brieber et al., 2015a, 2015b; Leder et al., 2004; Leder & Nadal, 2014; Smith & Wolf, 1996). Regarding the first, the sculptures are expected to be both visual (shape, size, color) and touch diagnostic (texture, temperature; see Guest & Spence, 2003; Klatzky et al., 1987; Kritikos & Brasch, 2008). In relation to the second, if the artworks are considered objects to be exclusively viewed (e.g., in a museum context), the possibility to engage with them in a visual-tactile manner might be interpreted as either a unique opportunity to enjoy (and consequently enhance participants' expectancies and/or experience), or an unusual and uncomfortable way to interact, which visitors may not need nor wish (thus hinder their appraisal; see Krishna & Morrin, 2007). Besides, lay persons may feel strange and frustrated trying to get clues (Leder et al., 2004; Smith & Smith, 2006), especially from a sensory modality they are not familiar with in this context.

As Kritikos and Brasch (2008) emphasized, the ability to integrate multisensory information has a significant impact on the selection of relevant information for the implementation of goal-directed actions. Lindauer, Stergiou, and Penn, (1986) noted that sculpture optimizes the unique characteristics of the tactile sense: temperature, the feel of different substances, texture, weight, resistance, three-dimensionality, and so on. Even though this integration could be weighted favoring one sensory modality (Ernst & Banks, 2002;

TO TOUCH OR NOT TO TOUCH

Guest & Spence, 2003; Lederman, Thorne, & Jones, 1986; Vaishnavi, Calhoun, & Chatterjee, 2001), sculptures' three-dimensional nature and their specific tactile attributes (Klatzky, Lederman, & Matula, 1993; Whitaker, Simões-Franklin, & Newell, 2008) might contribute to a more complete, informative and enjoyable aesthetic experience (Chatterjee, 2008; Dann, 2012; Dima et al., 2014; Pye, 2016; Yoshida et al., 2015).

Objectives and Hypotheses

In consequence, this article seeks to investigate the following:

1. Visual vs. visual plus tactile engagement with artworks.
2. Influence of visit order upon aesthetic appreciation of artworks.

Taken together, the studies above suggest a plausible improvement of the aesthetic appraisal when the interaction is multimodal. As far as we know, such hypothesis has never been examined before in an art gallery context, so the present is the first approach to this particular issue in an ecologically valid environment with genuine artworks (Tschacher et al., 2012). Following the extant literature on aesthetic appreciation of art, our goal was to inquire into participants' aesthetic appraisal when engaging with sculptures in visual vs. visual-tactile ways. In addition to our primary concern, we included a manipulation of the visit order to control for unexpected effects and to ascertain whether, how, and why immediate context affects aesthetic appreciation of artworks (Ackerley, Saar, McGlone, & Wasling, 2014).

Thus, we set forth two main hypotheses:

- H1. Aesthetic experiences will be heightened by the multimodal integration of touch and vision, captured by the rise in scorings in the touching condition.
- H2. Order will affect aesthetic judgments.

Methods

Experimental Design

The study consisted of a 2 x 2 experimental design, in which two visit orders, itineraries or directions (*direct* and *reverse*), were crossed with an experimental manipulation of engagement with the artworks: *touching* vs. *no touching*. For the *touching* condition, participants were allowed and encouraged to see and touch, whereas in the *no touching* condition they were restricted to use only vision. *Direct* means entering the exhibition directly from the main entrance, thus respecting the curator's original configuration and resulting in the following order: *Pholange, Fantasy animal, Dragon, Queen, Pawn, Rook, Knights, King, Rhinoceros, Giraffe, and Janus*. Participants in the *reverse* condition were led through an atrium with lateral arcades and a central fountain and went into the exhibition hall through a side glass door. Hence, they appraised the target artworks in order exactly opposite to that in the direct condition: *Janus, Giraffe, Rhinoceros, King, Knights, Rook, Pawn, Queen, Dragon, Fantasy animal and Pholange*. We conveniently assigned conditions to particular randomized days: *no touching direct, no touching reverse, touching direct and touching reverse* (hereafter *nt-d, nt-r, t-d and t-r*, respectively). In this way, we avoided any conflict between groups of participants, while provided a means to randomize the assignment of conditions. This procedure ended up with: $n_{nt-d} = 34$; $n_{nt-r} = 23$; $n_{t-d} = 21$; $n_{t-r} = 21$.

Our predictors or independent variables were: motivations (itemized as *content, art in general, CCA, and accompany others*), expectations (including *learning, great art, and enjoy*), the experimental manipulations described above (i.e., *engagement and order*), as well as sociodemographic data. As usual in this kind of questionnaires, we allowed for *other* responses. Dependent variables for each artwork were valence, arousal, and liking. We operationalized independent variables through multiple-response items. Likert scales ranged

TO TOUCH OR NOT TO TOUCH

from 1 to 6 were used to measure the dependent variables anchored by *very calming* (1) and *very exciting* (6) for arousal, *negative* (1) and *positive* (6) in relation with valence, and *dislike a lot* (1) and *like a lot* (6) concerning liking. Additionally, we included further open questions regarding other aspects, combining quantitative and qualitative methods to document visitor experiences (Smith & Carr, 2001). Notwithstanding, we will address qualitative analyses in a separate paper because the present work focuses on the impact of the experimental manipulations upon the dependent variables applying quantitative analyses.

Participants

One hundred spontaneous visitors at CCA (57 women, 37 men, and six nonavailable; mean age range: 55 to 64 years old) volunteered to take part in the study, representing a rough acceptance rate of 51%. Participants were people visiting alone and small groups, although the experiment was conducted on an individual basis. All expressed verbal informed consent before taking part in the study and reported normal or corrected to normal vision and no somatosensory disorder. Participants were unaware of the aim of the study and treated in accordance with the Declaration of Helsinki.

Materials

Stimuli consisted of 11 sculptures created by HRH Prince Henrik of Denmark, part of the exhibition *Rencontre Fabuleuse*. The figures were all large bronzes painted in a dark tone except for the *Knights*, in a yellowish color. *Queen*, *Pawn*, *Rook*, *Knights*, and *King* were part of the *Chess set*. *Janus* was the most abstract and angular. *Pholanguie* was also abstract but curved, smooth and dynamic. *Fantasy animal*, *Giraffe*, *Dragon*, and *Rhinoceros* were more figurative and fabulous. The *Giraffe* was the most complex, dynamic and slender. Further information and spatial arrangement are enclosed as Appendix A.

TO TOUCH OR NOT TO TOUCH

We presented the instructions and response items in a three-blocks paper-based questionnaire provided in several languages to facilitate comprehension and proper participation in the study. As per CCA's demographic estimate, we elaborated four versions corresponding to the most preferred linguistic groups: Danish (suitable for most Scandinavians), English, German and Spanish. The first and third blocks were common to all experimental conditions. The first page corresponding to the first block referred to motivations and expectations. It included three quantitative and two qualitative questions. The second block comprised 11 pages, one for each target artwork. All had the same format: number, name, and general information about the artwork, together with three questions about arousal, valence, and liking (in this order). Questionnaires solely differed in the artworks order, which was reversed for conditions t-r and nt-r when compared to t-d and nt-d (i.e., reverse vs. direct order). Therefore, the questionnaires remained similar for paired conditions t-d with nt-d, and t-r with nt-r (i.e., touching vs. no touching). The last two pages, third block, concerned sociodemographics and more qualitative issues about the overall experience. A final message thanked again for participation and informed about anonymity and data privacy.

After drafting the interview format, we met CCA staff to gather reactions about procedure and questionnaire. We discussed all items and concluded with the agreed English version (attached as Appendix B) that improved the one implemented in a previous experiment (see Introduction). Subsequently, we proceeded with the translation into Danish, German and Spanish. Native speakers fluent in English revised and refined the versions through direct and inverse translations, and the researchers carried out a final check.

TO TOUCH OR NOT TO TOUCH

Procedure

Potential participants were asked to participate and offered a gift in exchange as they entered the building and approached the information desk, after a brief welcoming and introduction to the CCA. Noteworthy, the staff excluded individuals considered as potential buyers as well as tour guided groups. Following an expression of gratitude, the staff introduced their *companion*, who accompanied them in a nondisruptive manner. Either one of the researchers or a member of CCA personnel played this role, the latter only in the no touching direct condition. Companions' duty was to assist and help participants to understand and obey the instructions, fill in the questionnaires, as well as control timings, adjustment to the experimental manipulation of order (i.e., direct vs. reverse), and actual engagement (touching vs. no touching). They politely answered participants' questions without providing differential information, always maintaining a kind and comfortable atmosphere: helpful but not pushing, friendly while unobtrusive. Participants accepted being accompanied, except for one who refused in the no touching direct condition. However, he was effectively supervised from a distance, and the task lasted notably shorter than usual (11 min), reducing the likelihood of improvisating a new route or reckoning the scores. Moreover, there was no trace of correction in his questionnaire.

Once introduced, the companion provided the participants with the questionnaires in their preferred language and specific experimental condition, together with a merchandising folder as support for writing, and a pen or pencil. Participants were then instructed orally and reminded through the written questionnaire to first complete the front page before entering the Kunsthalle. Either some seats at a quiet corner close to the main entrance or the info desk were most preferred and conveniently used. Afterwards, participants appraised and immediately rated the artworks, while and right after their interaction with each of them, in the order and manner according to the assigned condition. Time for the task was not

TO TOUCH OR NOT TO TOUCH

constrained ($M_{\text{task}} = 41.73$ min; $SD = 19.64$). When all sculptures were appreciated, the companion checked this block and collected it together with the first one. Participants could then access further information through the catalog or by asking the staff. They were thanked, encouraged to continue with their visit on their own, and asked to complete the last block before leaving the CCA at either the café, the patio, or any facility at will. Following completion, subjects were debriefed and rewarded with a postcard and a poster, and thanked again before leaving.

Data were collected from April 18 to May 7, 2017, on Fridays from 10:30 a.m. to 7 p.m., and on Saturdays and Sundays from 10:30 a.m. to 4 p.m. The questionnaires were transcribed verbatim and translated into English as detailed in Materials.

Data Analyses

Following Cattaneo et al.'s (2015) procedures, we analyzed the impact of independent variables on participants' responses by means of generalized linear mixed effects models (Hox, Moerbeek, & van de Schoot, 2010; Snijders & Bosker, 2012). This method accounts simultaneously for the between-subjects and within-subjects effects (Baayen, Davidson, & Bates, 2008). It is thus especially suitable for understanding aesthetic appreciation, which may vary between persons and between stimuli (Silvia, 2007, 2009). In setting the models up, we followed Barr, Levy, Scheepers, and Tily's (2013) guidelines. All analyses were carried out within the R environment for statistical computing (R Development Core Team, 2017), using the "lmerTest" package (Kuznetsova, Brockho, & Christensen, 2012) to estimate the p -values for the t -tests based on the Satterthwaite approximation for degrees of freedom.

Results

For the sake of clarity and conciseness, only significant results directly relevant for understanding the effect and interaction of the experimental manipulations are reported here.

Effects of Motivations

Only participants who were motivated by the exhibition's content awarded higher ratings on arousal [$\beta = 0.45$; $t = 2.13$; $p = .035$], valence [$\beta = 0.47$; $t = 2.86$; $p = .005$], and liking [$\beta = 0.54$; $t = 3.07$; $p < .003$] than those who did not mark this option.

Effects of Expectations

No significant effects resulted from the analysis of expectations on the dependent variables. Feasible reasons for this lack of significant impact are discussed later.

Effects of Experimental Manipulations

Effects of experimental manipulations upon valence.

Artworks received lower valence scores in the touching condition than in the no touching condition [$\beta = -0.38$; $t = -2.92$; $p = .004$]. However, a significant interaction between order and mode of engagement indicated that these lower valence ratings in the touching condition were awarded by participants in reverse order [$\beta = -0.66$; $t = -2.55$; $p = .012$]. Noteworthy, the sculptures were scored above the median in all conditions (all estimates > 3.50 ; i.e., rather positively). Table 1 summarizes these results.

Table 1. *Estimates of the Valence Ratings in each of the four Experimental Conditions*

direction	engagement	estimate	95% CI lower	95% CI upper
direct	no touching	4.31	4.01	4.61
reverse	no touching	4.89	4.56	5.22
direct	touching	4.26	3.92	4.60
reverse	touching	4.18	3.85	4.52

Effects of experimental manipulations upon arousal.

Participants who viewed and touched the sculptures judged them calmer than those who only viewed them [$\beta = -0.43$; $t = -2.58$; $p = .011$]. Again, such effect of engagement appeared only in the reverse order [$\beta = -0.82$; $t = -2.47$; $p = .015$], as Table 2 shows.

Table 2. *Estimates of the Arousal Ratings in each of the four Experimental Conditions*

direction	engagement	estimate	95% CI lower	95% CI upper
direct	no touching	3.84	3.51	4.16
reverse	no touching	4.04	3.67	4.40
direct	touching	3.82	3.43	4.21
reverse	touching	3.20	2.82	3.57

Effects of experimental manipulations upon liking.

Likewise, sculptures were overall liked, as accounted by the lower bound of 95% CI above 3.50 in all conditions. Liking ratings were higher when participants did not touch them [$\beta = -0.37$; $t = -2.68$; $p = .008$] but, again, the significant interaction between order and mode of engagement indicated that the responsible of this effect were the participants' liking scores in the reverse order [$\beta = -0.84$; $t = -3.02$; $p = .003$]. Table 3 accounts for a more detailed description.

TO TOUCH OR NOT TO TOUCH

Table 3. Estimates of the Liking Ratings in each of the four Experimental Conditions

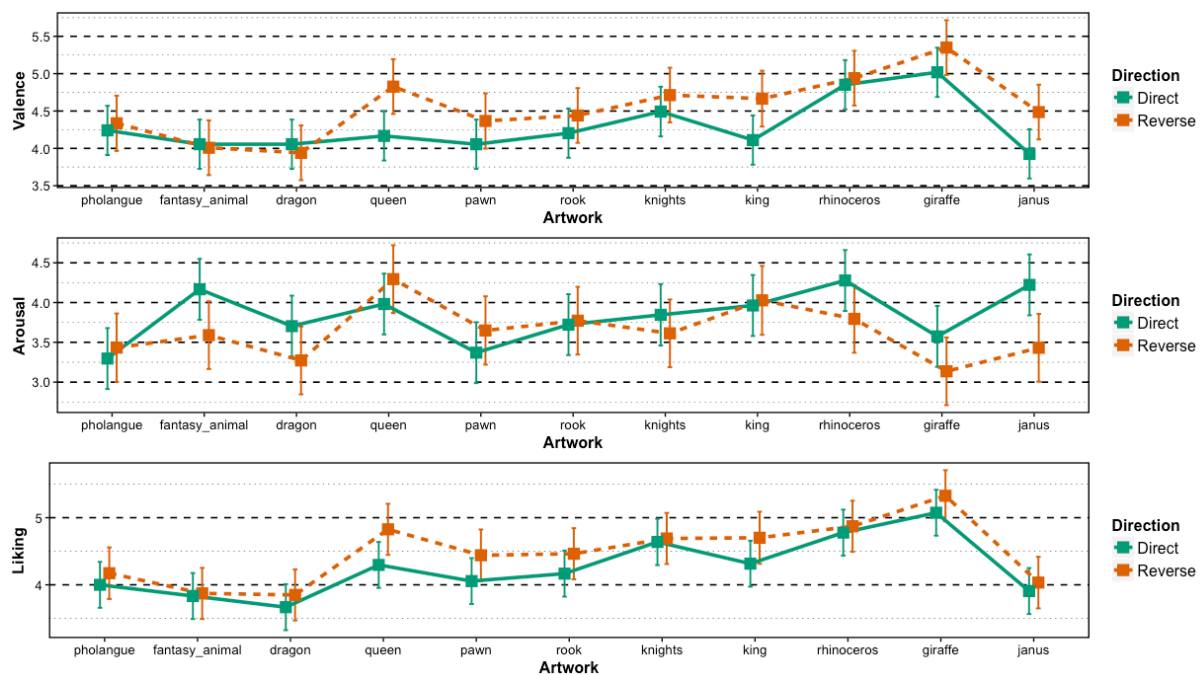
direction	engagement	estimate	95% CI lower	95% CI upper
direct	no touching	4.23	3.88	4.58
reverse	no touching	4.85	4.48	5.23
direct	touching	4.28	3.89	4.67
reverse	touching	4.07	3.68	4.45

Differences Between Successive Artworks

Order.

Figure 1 shows the effects of order on the aesthetic appreciation of consecutive artworks, with an overall preference for the reverse itinerary.

Figure 1. Summary of Differences Between Artworks Depending on Visit Order



Effects of order upon valence.

The *Queen* was found more positive in valence than the *Dragon* [$\beta = 0.50$; $t = 3.20$; $p = .001$], but only in reverse order [$\beta = 0.78$; $t = 2.49$; $p = .013$]. Independently on order, the

TO TOUCH OR NOT TO TOUCH

Rhinoceros was rated more positive in valence than the *King* [$\beta = 0.51$; $t = 3.24$; $p = .001$], and the *Giraffe* than *Janus* [$\beta = -0.98$; $t = -6.28$; $p < .001$]. The *Giraffe* was the most positively appreciated [estimate_d = 5.02; estimate_r = 5.35], and *Janus* obtained the lowest scores [estimate_d = 3.93], followed by the *Dragon* [estimate_r = 3.94].

Effects of order upon arousal.

Fantasy animal was judged more exciting than *Pholangué* [$\beta = 0.51$; $t = 2.96$; $p = .003$], but only in the reverse direction [$\beta = -0.71$; $t = -2.05$; $p = .040$]. Similarly, the *Queen* was appraised as more exciting than the *Dragon* [$\beta = 0.65$; $t = 3.76$; $p < .001$] only in reverse condition [$\beta = 0.74$; $t = 2.15$; $p < .032$]. Regardless the order, *Fantasy animal* received higher scores in arousal than the *Dragon* [$\beta = -0.39$; $t = -2.26$; $p = .024$], the *Queen* scored higher in arousal than the *Pawn* [$\beta = -0.63$; $t = -3.62$; $p < .001$], and the *Giraffe* was rated as more calming than the *Rhinoceros* [$\beta = -0.68$; $t = -3.94$; $p < .001$] and *Janus* [$\beta = 0.47$; $t = 2.73$; $p < .007$]. The *Giraffe* was the calmest in reverse order [estimate_r = 3.14], and the *Queen* achieved the highest ratings in excitement also in the reverse itinerary [estimate_r = 4.29].

Figure 1 captures the essence of these outcomes.

Effects of order upon liking.

The *Queen* was more liked than the *Dragon* [$\beta = 0.80$; $t = 5.03$; $p < .001$], the *Giraffe* was preferred to *Janus* [$\beta = -1.23$; $t = -7.68$; $p < .001$] and the *Rhinoceros* [$\beta = 0.38$; $t = 2.35$; $p = .019$], the *Knights* to the *Rook* [$\beta = 0.35$; $t = 2.18$; $p = .029$], and the *Rhinoceros* to the *King* [$\beta = 0.32$; $t = 1.97$; $p = .049$]. No other discrepancies were significant, although there was a trend between the *Queen* and the *Pawn* [$\beta = -0.31$; $t = -1.96$; $p = .051$]. The general profiles of both conditions look quite alike, the reverse just higher, not significantly though (see Figure 1). The sculpture most liked was the *Giraffe* in both directions [estimate_d = 5.07;

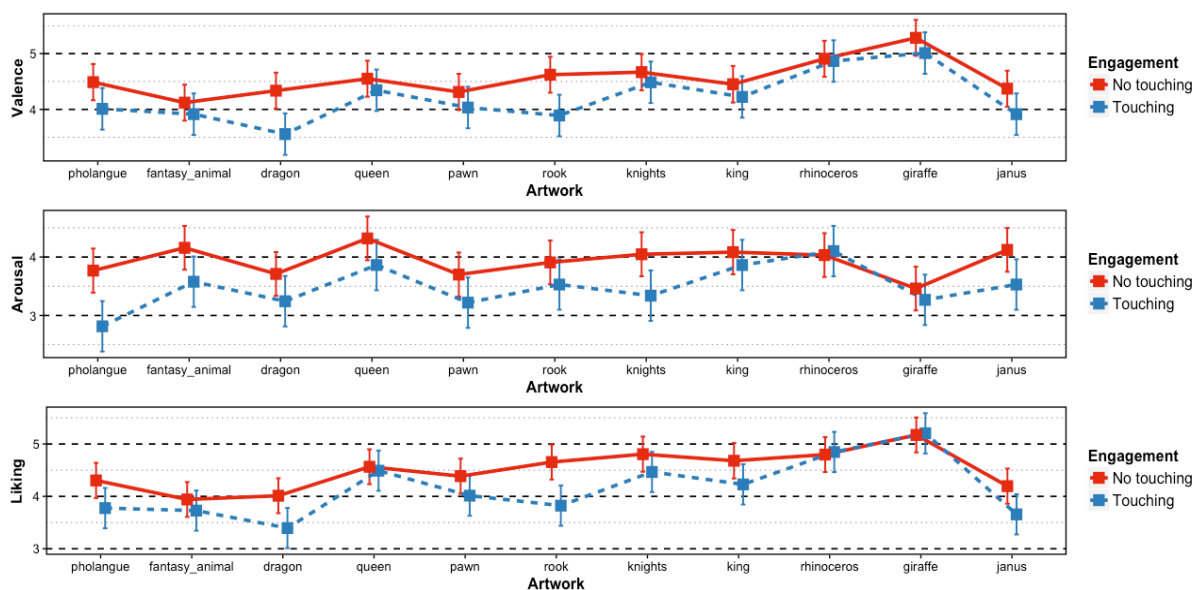
estimate_r = 5.33], as, conversely, the *Dragon* was the last [estimate_d = 3.67; estimate_r = 3.85].

In short, order affected all dimensions of aesthetic appraisal between adjoining artworks, which were overall liked (i.e., all estimates were above 3.50).

Engagement.

Figure 2 offers an overview of the impact of engagement mode. Participants who touched the sculptures awarded lower ratings overall. Hence, the most preferred interplay was unisensory in reverse order. Such findings will be discussed in the next section.

Figure 2. Summary of Differences Between Artworks Depending on Engagement Mode



Effects of engagement upon valence.

Valuations were more positive for the *Rhinoceros* than for the *King* [$\beta = 0.55$; $t = 3.50$; $p < .001$], the *Giraffe* than *Janus* [$\beta = -1.00$; $t = -6.41$; $p < .001$], for the *Queen* than for the *Dragon* [$\beta = 0.50$; $t = 3.19$; $p = .001$], and the *Knights* than the *Rook* [$\beta = 0.32$; $t = 2.04$; $p = .041$]. In general terms, artworks were more positively appraised when not touched [$\beta = -0.35$; $t = -2.64$; $p < .010$]. Once again, the *Giraffe* was awarded with the highest values in

TO TOUCH OR NOT TO TOUCH

both conditions [$\text{estimate}_{\text{nt}} = 5.28$; $\text{estimate}_t = 5.01$], and lowest rates went to the *Dragon* in the touching condition [$\text{estimate}_t = 3.56$]. Figure 2 displays these results.

Effects of engagement upon arousal.

Higher arousal scores were given to the *Queen* than to the *Dragon* [$\beta = 0.61$; $t = 3.51$; $p < .001$] and the *Pawn* [$\beta = -.63$; $t = -3.61$; $p < .001$], the *Rhinoceros* than the *Giraffe* [$\beta = -0.702$; $t = -4.03$; $p < .001$], *Fantasy animal* than *Pholangue* [$\beta = 0.58$; $t = 3.29$; $p = .001$] and the *Dragon* [$\beta = -0.39$; $t = -2.23$; $p = .026$], and *Janus* than the *Giraffe* [$\beta = 0.46$; $t = 2.64$; $p = .008$]. Artworks were judged more exciting in general when only perceived visually [$\beta = -0.45$; $t = -2.70$; $p = .008$]. As shown in Figure 2, the pieces were generally rated as more exciting when not touched, and a distinct pattern characterized the *Chess set*. No touching the sculptures generated valuations around 4 out of 6 (i.e., rather exciting), and touching got scores between 3 and 4. *Pholangue* was perceived the calmest when touched [$\text{estimate}_t = 2.82$], and the most exciting was the *Queen* when not touched [$\text{estimate}_{\text{nt}} = 4.32$].

Effects of engagement upon liking.

The *Queen* was more liked than the *Dragon* [$\beta = 0.82$; $t = 5.18$; $p < .001$] and the *Pawn* [$\beta = -0.33$; $t = -2.06$; $p = .0401$], in the same way that the *Giraffe* was preferred to *Janus* [$\beta = -1.26$; $t = -7.91$; $p < .001$] and the *Rhinoceros* [$\beta = 0.37$; $t = 2.30$; $p = .022$], the *Knights* to the *Rook* [$\beta = 0.40$; $t = 2.49$; $p = .013$], and the *Rhinoceros* over the *King* [$\beta = 0.37$; $t = 2.30$; $p = .021$]. Participants in the unisensory mode liked the exhibits more than those who touched them [$\beta = -0.35$; $t = -2.48$; $p < .015$]. No other significant effects were found. The *Giraffe* was liked the most [$\text{estimate}_t = 5.20$; $\text{estimate}_{\text{nt}} = 5.17$], while the *Dragon* got the lowest scores when touched [$\text{estimate}_t = 3.40$], being the only piece slightly disliked (i.e., $\text{estimate} < 3.50$; see Figure 2).

Discussion

A reflection on Kunsthalle's dual nature led us to review the literature on the effects of bisensory (tactile plus visual) vs. unisensory (exclusively visual) interaction with objects. It resulted in two competing hypotheses, with an expected advantage of multimodal engagement, which had never been tested before using artworks in an art gallery. Thus, our main objective was to examine the multisensory experience in the aesthetic appraisal of sculptures. The experimental manipulations indeed had an impact on participants' aesthetic experience, but in an unexpected way. Our results show a superiority of the *no touching* and *reverse* conditions, with an interaction between them, and are consistent in all studied dimensions (valence, arousal, and liking). We discuss each finding in more detail below.

Demographics, Motivations, and Expectations

No significant effect of gender, age, education, and nationality in our setting was found (cf. Leder et al., 2010; Essick et al., 2010; Jansson-Boyd, 2011). Larger samples would be useful to confirm or dismiss such outcomes. The fact that 50% of participants ticked more than one response option in the first block (despite the experimenter's efforts and the questionnaire instructions) may be a reason for the absence of statistically significant effects of expectations and motivations (except for content). We are aware that multiple responses hamper analyses, and that a possible restriction to one option suffered by half of the sample may have diluted our results. Hence, a follow-up study will undoubtedly improve internal consistency employing larger samples with equal group sizes, and either force only one response option or rate all of them regarding expectations and motivations. A digital interactive device would be tremendously handy: it offers an effective restriction in responses (e.g., iPad or similar, see Ackerley et al., 2014) as well as clear advantages in relation to

procedure and data treatment (e.g., reducing human error, time, and effort; facilitating participation, data access and analysis, and lessening the likelihood of unavailable data).

Overall Aesthetic Preference or Liking

First and foremost, our results show an overall favorable appraisal of the sculptures. Among the reasons for this, such as artistic merit, artworks' attributes, a positive impact of the building and its surroundings, and participants' favorable predisposition (Brieber et al., 2014, 2015a, 2015b), it is interesting to underline the phenomena of "museum density" and "object competition" (Bitgood, McKerchar, & Dukes, 2013; Brieber et al., 2014, 2015b; Leder et al., 2004; Lindauer, 1986; Mastandrea, Bartoli, & Bove, 2009; Melton, 1935). Our study allowed participants to focus on only 11 pieces for as long as they wanted: they did not feel under pressure to appraise an overwhelming number of exhibits in a crowded place for a restricted time. Interaction with the artworks lasted 41.73 min on average, equivalent to 227.62 s per artwork. This is well above the mean reported by studies in museums (e.g., Smith & Smith, 2001, found an average viewing time of 27 s, and Melton, 1935, recorded a mean of 10 s). Total visit time remained within normal parameters, though ($M = 96.44$ min, $SD = 41.60$; see Bitgood, 2009; Smith & Carr, 2001; Smith & Wolf, 1996; but cf. Melton, 1935). Reasonably, an augmented engagement time might arise from the increased attention required by the task, suggesting that a longer engagement may enhance the aesthetic experience (Bitgood, 2009; Smith, 2014). Moreover, many respondents recommended "taking a long time" for future visits. Further studies will clarify to what extent longer is truly better, controlling for viewing time in similar settings. Our findings suggest that having enough time to properly savor every stimulus, any detail offered to the senses, may surely enhance aesthetic experiences. If it turns to be the case, maybe the time has arrived for art institutions to reconsider strategies aimed at improving visitors' experiences.

Artworks

Our results indicate that participants' aesthetic appraisal was modulated by the experimental manipulations, resulting in different judgments for the same pieces in two ways: a general preference for the reverse and unisensory conditions, and the degree of divergence between artworks. However, the overall appraisal of figures went in the same direction: the rankings remained stable in general terms. Moreover, the divergences among sculptures were consistent with their character: they defined the *Chess set*, and *Janus* contrasted sharply in style with the rest of the collection, especially with the contiguous and favorite *Giraffe*. Therefore, artworks' attributes may have largely contributed to their aesthetic appeal (Ackerley et al., 2014; Essick et al., 2010; Etzi, Spence, & Gallace, 2014; Klatzky et al., 1987; Leder et al., 2012; Smith, 2014). Our results, in line with most literature on the topic, suggest a preference for smooth, curved, figurative, unambiguous, complex, balanced, and dynamic attributes that may be common to both sensory modalities (Bertamini, Palumbo, Gheorghes, & Galatsidas, 2016; Brieber et al., 2014, 2015a; Chatterjee, Widick, Sternschein, Smith, & Bromberger, 2010; Jacobsen & Höfel, 2002; Klatzky et al., 1993; Gamboni, 2002; Leder et al., 2004, 2012; Leder, Tinio, & Bar, 2011; Leder & Nadal, 2014; Mastandrea et al., 2009; Pepperell, 2004; Smith & Carr, 2001; Smith, 2014; but cf. Peck & Childers, 2003). The field will benefit from further research that assessed specific attributes and their weighting among sensory modalities, as well as their correlation with aesthetic preferences.

Order

The impact of the order was expected due to competition between objects and influence of previous experiences (Ackerley et al., 2014). In our study, not only the appraisal of unique artworks acted upon subsequent encounters, but the route itself was subtly different. The reverse itinerary started with the atrium, aesthetically appealing in itself.

TO TOUCH OR NOT TO TOUCH

Moreover, the first artworks of an unknown exhibition may define specific expectations about the tone or topic of the following pieces and the collection in general. Hence, *Pholangue* in direct and *Janus* in reverse orders may have been critical to the general experience. Additionally, immediate spatial context and previous judgments affected the appreciation of the figures: for instance, the *Queen* benefited from appraisal closing the *Chess set* but did not after the fabulous creatures (note that we allude now to liking and valence since arousal was also affected in similar pairs but followed a distinct pattern).

Furthermore, valuations adapt to the global evaluation of the exhibition around a general tone or taking an extreme value as a reference, establishing a ranking. Thus, if these figures were exhibited among other sculptures, the target ones might be rated differently. Nevertheless, they were the largest three-dimensional artworks in the Kunsthalle and quickly attracted visitors' attention. Although they were surrounded by paintings perhaps more captivating, they belonged to a different category and could be appraised separately. As Melton (1935) and Bitgood et al. (2013) showed, every object competes for attention, but judgments tend to comply with types. Besides, the task fostered attention toward the large bronzes, and even the little pieces also exhibited could be taken as motives of inspiration or drafts for the imposing figures. Therefore, the object competition most relevant here took place among them. However, testing different spatial arrangements and settings with the same pieces would allow clarifying how they affect their appraisal.

Even if we had expected the impact of order, what remains astounding is its interaction with the engagement mode. An additive effect was foreseeable, but it cannot account for such results. We find no satisfactory explanation except for the emergence from a reciprocal enhancement, a synergy between mutually enriching conditions. Our results suggest that aesthetic experience is a complex process within a complex system (human being), so its outcomes ought to be comprehended in their nature: nonlinear,

multidimensional, dynamic, and complex (Leder et al., 2012; Leder & Nadal, 2014). Larger samples with equal groups' size will undoubtedly shed more light on this issue.

Multimodal Experience

Our results yield significant findings on the impact of unisensory vs. multisensory engagement with the artworks. The multimodal experience acted in detriment of the aesthetic appraisal, resulting in lower ratings for the bimodal condition. Such outcomes are in line with the work of Ernst and Banks (2002), Jansson-Boyd (2011), Krishna and Morrin (2007), Lindauer et al. (1986), Picard (2006), and Whitaker et al. (2008), but cf. Argyropoulos and Kanari (2015), as well as a good part of the literature reviewed in the first section. Several interpretations are plausible and compatible, all of which may contribute to a comprehensive understanding of our findings.

An interesting explanation refers to the dual nature of the Kunsthalle as a museum and an art gallery, which implies two kinds of clientele: museum visitors and potential buyers (collectors), whose perspectives may differ notably. Extant literature on consumers' behavior and aesthetics offer competing hypotheses for our research. Our results seem to demonstrate that the participants acted rather as museum visitors than potential buyers, appraising the sculptures as artworks, not mere objects. Thus, assumptions about context defined the psychological disposition and the interaction with objects (Brieber et al., 2015a, 2015b; Leder et al., 2004; Leder & Nadal, 2014).

Considering the figures, they may be more visually salient, given that attribute's saliency determines its sensory primacy (Ballesteros, Reales, Leon, & Garcia, 2005; Guest & Spence, 2003; Klatzky et al., 1987, 1993; Picard, 2006; Whitaker et al., 2008). They were all equal in material, so temperature and texture did not differ substantially, which are specific tactile substance-related attributes (Jansson-Boyd, 2011; Jansson-Boyd & Marlow, 2007;

TO TOUCH OR NOT TO TOUCH

Klatzky et al., 1987, 1993; Lederman et al., 1986; Whitaker et al., 2008). Their most distinct quality was *shape*, a geometric or global structural property better appraised by vision, so a visual “explorative procedure” (“EP”; Klatzky et al., 1987) was most appropriate (Ballesteros et al., 2005; Bitgood et al., 2013; Jansson-Boyd, 2011; Klatzky et al., 1993; Lederman et al., 1986; Melton, 1935). There was no need for touch and its addition could distract, disturb, interfere, and thus hinder evaluation and enjoyment (Ernst & Banks, 2002; Guest & Spence, 2003; Jansson-Boyd & Marlow, 2007; Klatzky et al., 1987, 1993; Peck & Childers, 2003; Picard, 2006). Maybe sculptures’ superior visual appeal caused a depreciation of multisensory aesthetic evaluation and vision “dominated” touch. Moreover, touching is an exceptional opportunity in an art gallery, so a boosted motivation could lead to unfulfilled expectations as participants encountered the artworks.

Additionally, some participants in the touching conditions were reticent to touch (Raffray, 1988). Klatzky et al. (1987, 1993) and Whitaker et al. (2008) found that people touched when object evaluation was difficult, required fine discriminations, and involved a tactile material property. This may be not the case here. Another possibility is that individuals with high autotelic “need for touch” (“NFT”; Jansson-Boyd, 2011; Peck & Childers, 2003) could be less prone to visit a museum or an art gallery where they expect not to be allowed to touch. Whether participants in our study had low autotelic NFT is insufficient to account for the results, although could be considered as an object of further research. Moreover, we are more accustomed to gather information via the visual than the tactile modality. Practice appears to be crucial for aesthetic appreciation (Dima et al., 2014) and can lead to significant improvement in tactile sensitivity (Gallace & Spence, 2008). Further studies will help to elucidate whether expertise and relationship with art influence aesthetic appraisal depending on the sensory modality.

TO TOUCH OR NOT TO TOUCH

Noteworthy, visual engagement with the object occurs first and can lead and modulate further tactile and visual exploration (Klatzky et al., 1987; Whitaker et al., 2008). Moreover, implications of memory and attention are thought to be extremely relevant to aesthetic experience (Brieber et al., 2015b; Cupchik, Vartanian, Crawley, & Mikulis, 2009; Guest & Spence, 2003; Jansson-Boyd, 2011; Gallace & Spence, 2008, 2011; Kritikos & Brasch, 2008; Leder et al., 2004; Leder & Nadal, 2014; Lederman & Klatzky, 2007; Vaishnavi et al., 2001; Whitaker et al., 2008). Competition for attention (which may be endogenously modulated) may cause a degradation of the information provided by each sensory modality and impact negatively on the global evaluation (Guest & Spence, 2003). Besides, the access of concurrent information to consciousness is limited (Gallace & Spence, 2008), and when several sensory modalities carry non-redundant information, or their responses are dissociated, severe limitations and delays may arise. In our experiment, tactile interaction either did not offer any especially appealing input or, if did, a letdown may have counterbalanced or dominated any hedonic enhancement (Dima et al., 2014; Kritikos & Brasch, 2008).

A fascinating interpretation of the decreasing in liking by touch is that it precisely reduces the impression of grandiosity, stateliness, and inaccessibility. The intimacy artist-artwork appears to be violated by touching since touch is considered dirty, earthy, and even demonic. In consequence, the object loses its sacred, mystic or metaphysic quality, becoming more approachable physically and psychologically, less “aesthetic” and more mundane. Intangibility even enhances product evaluations (Jansson-Boyd, 2011; Krishna & Morrin, 2007; cf. Guest & Spence, 2003). The notion of elevated, sublime art is still dominant, at least in museums and art galleries (Brieber et al., 2015b). Alienation and psychological distance are essential: people look for other realities or merely wish to escape from the quotidian. Intimacy with the artwork stains those, especially when it shows sensory

TO TOUCH OR NOT TO TOUCH

incongruences that evince deceit. Indeed, touch provides information not only exteroceptive but interoceptive, accounting for inner states and homeostatic regulation: it is more visceral, intimate, active, and “primitive” than vision (Gallace & Spence, 2008, 2011; McGlone, Vallbo, Olausson, Loken, & Wessberg, 2007), which complicates delight and evasion. Thus, there must be a difference between aesthetic and material objects, and only the latter may be touched. Additionally, as Jansson-Boyd (2011) underlined, the idea of tactile contamination led people to avoid touching what others had touched previously (Silvia, 2009). However, Gallace and Spence (2011) noted that, for an artist, touch might lead to a closer and deeper knowledge of reality, consequently enhancing aesthetic experiences. Importantly, our participants generally had little art expertise. An intriguing question deserving further research is whether art experts would appraise the sculptures in our setting differently (Leder et al., 2004; Leder & Nadal, 2014; Mastandrea et al., 2009; Smith & Smith, 2006). Ultimately, the possibility that touching obscures “aura” (at least for laypersons) remains psychologically, philosophically and artistically thrilling.

Balance of a Field Study

Field studies, despite their superior ecological validity (Brieber et al., 2014; Leder et al., 2004; Leder & Nadal, 2014; Mastandrea et al., 2009; Tschacher et al., 2012), always deal with idiosyncratic difficulties resulting from a diminished control compared to laboratory settings. Several concerns and limitations specific to this research ought to be underlined.

The first addresses the misunderstanding of the task, the concepts arousal, valence, liking, or other questionnaire items. Despite our efforts to make them easily accessible, some participants asked for clarification. However, it is still possible that others did not properly understand the instructions, as we inferred from some nonavailable data.

TO TOUCH OR NOT TO TOUCH

The second main issue tackles the decisions on those missing and nonavailable data. For instance, we agreed to choose the upper value when the mark was equidistant to two consecutive digits, and there was no other hint about the participant's intentions. Some people drew on the hyphen even if the instructions insisted on circling the number. In fact, the format was faulty, with a relatively simple solution: avoid dashes. Nevertheless, such cases were scarce and had no significant impact on the results. Missing data made us cope with the quandary of keeping or discarding them from the sample. For the sake of scientific integrity, maintained them and thus avoided any single speck of "cherry picking."

Third, participants were randomly assigned to experimental groups depending on randomized collecting dates, resulting in unequal sizes (see Procedure for details). Given that the sample size was more than enough in every group ($n > 15$, assessed with G*Power statistical software; Faul, Erdfelder, Lang, & Buchner, 2007), and unavailable data appeared mostly in the largest group, we agreed upon keeping them and conclude data collection.

The fourth threat is the local nature of the present study that may limit generalizations to other contexts and thus lessen external validity. Therefore, replications in diverse sociocultural environments are needed to support or contradict our findings (Leder et al., 2004; Raffray, 1988; Jansson-Boyd, 2011).

A final matter of interest is whether another setting would lead to similar results (e.g., in a garden), or if different sculptures would provide with outcomes akin to that described here (i.e., made of different material, as pointed out by Klatzky et al., 1987, 1993; or with another style, level of abstraction, and so forth, see Leder et al., 2012; Leder & Nadal, 2014). Such considerations call for further investigation.

Conclusions and Prospects

Our study yields significant findings on the importance of multisensory experience in the aesthetic appraisal of artworks. In line with the postulates of situated cognition, we argue that context plays a central role in the experience of art (Brieber et al., 2015a, 2015b). Specifically, in our experiment, it defines the impact of order and sensory engagement in multiple dimensions. In other words, a dynamic complex interplay between subject, object, and time-space circumstances determines an (aesthetic) experience, marked by the dynamic interaction of multiple factors (Jansson-Boyd, 2011; Jansson-Boyd, & Marlow, 2007; Leder et al., 2004, 2012; Leder & Nadal, 2014; Tschacher et al., 2012). This claim concurs with Leder et al.'s (2004) model of aesthetic processing, where context is a fundamental part of aesthetic experience and pervades every stage of the process (Brieber et al., 2014; Brieber et al., 2015a, 2015b; Mastandrea et al., 2009; Leder & Nadal, 2014; Smith & Wolf, 1996). In this regard, social constraints for touching, especially in a museum context, have arisen at the core of aesthetic judgments. A continuous and iterative flow of interactions occurs between endogenous and exogenous conditions, with mutual enrichment and constriction, which influences motivations, expectancies, behavior, and aesthetic appraisal. To disentangle the coordinate effects of all factors and comprehend their interaction still require further research. Nevertheless, what seems to emerge from the current research is that aesthetic appreciation is not in the hand or the eye of the beholder, but in her embodied mind (cf. Leder et al., 2012; Jansson-Boyd & Marlow, 2007).

On the whole, the outcomes presented here suggest that bottom-up and top-down processes in a complex nonlinear interplay (an interaction among cognitive, sensorimotor, and emotional processes) result in the emergence of aesthetic emotions and judgments (Cattaneo et al., 2015; Chatterjee & Vartanian, 2014; Cupchik et al., 2009; Jansson-Boyd &

TO TOUCH OR NOT TO TOUCH

Marlow, 2007; Leder et al., 2004, 2012; Leder & Nadal, 2014; Nadal & Skov, 2013; Silvia, 2009; Tschacher et al., 2012). Certainly, the study of top-down mechanisms and high-order factors involved in the formulation of aesthetic tactile judgments is another aspect that deserves further investigation (Ackerley et al., 2014; Cupchik et al., 2009; Etzi et al., 2014; Gallace & Spence, 2011; Leder et al., 2011, 2012; Leder & Nadal, 2014).

A captivating issue to further address is the time course and time-space relations in the multimodal aesthetic appraisal of artworks. Vision provides a more immediate input, while touch requires being performed over time (Klatzky et al., 1993; Kritikos & Brasch (2008); Lederman et al., 1986; Whitaker et al., 2008). Moreover, as Brieber et al. (2014), Leder et al. (2004), and Leder and Nadal (2014) highlighted, aesthetic experiences happen over time. The study of time-space processes and their neural substrate would surely result in interesting clues on the unfold and outcomes of aesthetic experiences and their unimodal and multimodal nature (Brown, Gao, Tisdelle, Eickhoff, & Liotti, 2011; Ernst & Banks, 2002; Gallace & Spence, 2011; Ishizu & Zeki, 2011; Kritikos & Brasch, 2008; Leder & Nadal, 2014; McGlone et al., 2007; Nadal & Skov, 2013; Picard, 2006; Tschacher et al., 2012; Vaishnavi et al., 2001; Whitaker et al., 2008).

A deeper understanding of tactile aesthetics is not only of theoretical relevance but also extremely useful in the applied field (Gallace & Spence, 2011; Jansson-Boyd 2011; Jansson-Boyd & Marlow, 2007). Information concerning tactile preferences might help designers and engineers to create objects and materials more appealing and efficient in eliciting certain emotional responses from a potential consumer. Being aware of what makes an object pleasurable to touch (Ballesteros et al., 2005) appears to be certainly helpful if the aim is to create environments that enhance the well-being and mood of people coexisting within them. Furthermore, the knowledge of the mechanisms of tactile aesthetics might also be of great utility in a number of social settings (e.g., for therapeutic use), as well as to attend

TO TOUCH OR NOT TO TOUCH

and improve the experience of both visually impaired and sighted individuals while visiting museums and art galleries (Ahmad et al., 2015; Argyropoulos & Kanari, 2015; Gallace & Spence, 2011, 2014; Raffray, 1988; Yoshida et al., 2015). In fact, It will be interesting to explore the aesthetic appraisal of unsighted people in an unimodal (tactile) and multimodal experience (e.g., adding auditory input) in a museum or art gallery. Furthermore, as Leder et al. (2012) defended, art education is not a vain luxury that enables social distinction or canon-related refinement: an increase in art interest and expertise is associated with more positive and stronger art experiences (and richer socio-culturally peoples).

Last but not least, the use, enjoyment, and advantage of such findings by art and aesthetics are also enthralling. On the one hand, the comprehension of who, what, when, and how to implement unisensory or multisensory strategies could enrich aesthetic experiences. Moreover, it might help to achieve an integrated education of the senses, aesthetic sensitivity and creativity (Ahmad et al., 2015; Dann, 2012; Jansson-Boyd, 2011; Jansson-Boyd & Marlow, 2007; Raffray, 1988; Smith & Carr, 2001; Yoshida et al., 2015). On the other hand, art itself ought to take advantage of the knowledge gained through its scientific study. Artist's insights and intuitions may be supported or questioned, fostering the acquaintance of creative successes in both fields. We affirm that multidisciplinary approaches promote mutually and contribute to science and knowledge more comprehensively. Mutual benefit and cooperation between art and science are, in our opinion, entirely desirable and ideal.

References

- Ackerley, R., Saar, K., McGlone, F., & Wasling, H. B. (2014). Quantifying the sensory and emotional perception of touch: differences between glabrous and hairy skin. *Frontiers in behavioral neuroscience, 8*.
- Ahmad, S., Abbas, M. Y., Yusof, W. Z. M., & Taib, M. Z. M. (2015). Adapting Museum Visitors as Participants Benefits their Learning Experience?. *Procedia-Social and Behavioral Sciences, 168*, 156-170.
- Argyropoulos, V. S., & Kanari, C. (2015). Re-imagining the museum through “touch”: Reflections of individuals with visual disability on their experience of museum-visiting in Greece. *ALTER-European Journal of Disability Research/Revue Européenne de Recherche sur le Handicap, 9(2)*, 130-143.
- Baayen, R. H., Davidson, D. J., & Bates, D. M. (2008). Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language, 59*, 390–412.
- Balaji, M. S., Raghavan, S., & Jha, S. (2011). Role of tactile and visual inputs in product evaluation: a multisensory perspective. *Asia Pacific Journal of Marketing and Logistics, 23(4)*, 513-530.
- Ballesteros, S., Reales, J. M., de Leon, L. P., & Garcia, B. (2005, March). The perception of ecological textures by touch: does the perceptual space change under bimodal visual and haptic exploration?. In *Eurohaptics Conference, 2005 and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems, 2005. World Haptics 2005. First Joint* (pp. 635-638). IEEE.

TO TOUCH OR NOT TO TOUCH

- Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, *68*, 255–278.
- Bertamini, M., Palumbo, L., Gheorghes, T. N., & Galatsidas, M. (2016). Do observers like curvature or do they dislike angularity?. *British Journal of Psychology*, *107*(1), 154-178.
- Bitgood, S. (2009). Museum fatigue: A critical review. *Visitor Studies*, *12*(2), 93-111.
- Bitgood, S., McKerchar, T. L., & Dukes, S. (2013). Looking back at Melton: Gallery density and visitor attention. *Visitor Studies*, *16*(2), 217-225.
- Brieber, D., Leder, H., & Nadal, M. (2015a). The experience of art in museums: An attempt to dissociate the role of physical context and genuineness. *Empirical Studies of the Arts*, *33*(1), 95-105.
- Brieber, D., Nadal, M., Leder, H., & Rosenberg, R. (2014). Art in time and space: context modulates the relation between art experience and viewing time. *PloS one*, *9*(6), e99019.
- Brieber, D., Nadal, M., & Leder, H. (2015b). In the white cube: Museum context enhances the valuation and memory of art. *Acta psychologica*, *154*, 36-42.
- Brown, S., Gao, X., Tisdelle, L., Eickhoff, S. B., & Liotti, M. (2011). Naturalizing aesthetics: brain areas for aesthetic appraisal across sensory modalities. *Neuroimage*, *58*(1), 250-258.
- Cattaneo, Z., Lega, C., Ferrari, C., Vecchi, T., Cela-Conde, C. J., Silvanto, J., & Nadal, M. (2015). The role of the lateral occipital cortex in aesthetic appreciation of representational and abstract paintings: A TMS study. *Brain and cognition*, *95*, 44-53.
- Chatterjee, A., & Vartanian, O. (2014). Neuroaesthetics. *Trends in Cognitive Sciences*, *18*, 370–375.

TO TOUCH OR NOT TO TOUCH

- Chatterjee, A., Widick, P., Sternschein, R., Smith, W. B., & Bromberger, B. (2010). The assessment of art attributes. *Empirical Studies of the Arts*, 28(2), 207-222.
- Chatterjee, H. J. (2008). *Touch in museums: Policy and practice in object handling*. Berg.
- Citrin, A. V., Stem, D. E., Spangenberg, E. R., & Clark, M. J. (2003). Consumer need for tactile input: An internet retailing challenge. *Journal of Business research*, 56(11), 915-922.
- Cupchik, G. C., Vartanian, O., Crawley, A., & Mikulis, D. J. (2009). Viewing artworks: contributions of cognitive control and perceptual facilitation to aesthetic experience. *Brain and cognition*, 70(1), 84-91.
- Dann, R. J. (2012). *Touchy Objects* (review on *The Power of Touch: Handling Objects in Museum and Heritage Contexts*, by Elizabeth Pye (ed.) and *Touch in Museums: Policy and Practice in Object Handling*, by Helen J. Chatterjee (ed.)).
- Dima, M., Hurcombe, L., & Wright, M. (2014, June). Touching the past: haptic augmented reality for museum artefacts. In *International Conference on Virtual, Augmented and Mixed Reality* (pp. 3-14). Springer, Cham.
- Ernst, M. O., & Banks, M. S. (2002). Humans integrate visual and haptic information in a statistically optimal fashion. *Nature*, 415(6870), 429-433.
- Essick, G. K., McGlone, F., Dancer, C., Fabricant, D., Ragin, Y., Phillips, N., ... & Guest, S. (2010). Quantitative assessment of pleasant touch. *Neuroscience & Biobehavioral Reviews*, 34(2), 192-203.
- Etzi, R., Spence, C., & Gallace, A. (2014). Textures that we like to touch: An experimental study of aesthetic preferences for tactile stimuli. *Consciousness and cognition*, 29, 178-188.

TO TOUCH OR NOT TO TOUCH

- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, 39(2), 175-191.
- Gallace, A., & Spence, C. (2008). The cognitive and neural correlates of “tactile consciousness”: A multisensory perspective. *Consciousness and cognition*, 17(1), 370-407.
- Gallace, A., & Spence, C. (2011). Tactile aesthetics: towards a definition of its characteristics and neural correlates. *Social Semiotics*, 21(4), 569-589.
- Gamboni, D. (2002). *Potential images: Ambiguity and indeterminacy in modern art*. Reaktion Books.
- Guest, S., & Spence, C. (2003). What role does multisensory integration play in the visuotactile perception of texture?. *International Journal of Psychophysiology*, 50(1), 63-80.
- Hox, J. J., Moerbeek, M., & van de Schoot, R. (2010). *Multilevel analysis: Techniques and applications*. Routledge.
- Ishizu, T., & Zeki, S. (2011). Toward a brain-based theory of beauty. *PloS one*, 6(7), e21852.
- Jacobsen, T., & Höfel, L. E. A. (2002). Aesthetic judgments of novel graphic patterns: analyses of individual judgments. *Perceptual and motor skills*, 95(3), 755-766.
- Jansson-Boyd, C. V. (2011). Touch matters: exploring the relationship between consumption and tactile interaction. *Social Semiotics*, 21(4), 531-546.
- Jansson-Boyd, C., & Marlow, N. (2007). Not only in the eye of the beholder: Tactile information can affect aesthetic evaluation. *Psychology of Aesthetics, Creativity, and the Arts*, 1(3), 170.

TO TOUCH OR NOT TO TOUCH

- Klatzky, R. L., Lederman, S. J., & Matula, D. E. (1993). Haptic exploration in the presence of vision. *Journal of Experimental Psychology: Human Perception and Performance*, *19*(4), 726.
- Klatzky, R. L., Lederman, S. J., & Reed, C. (1987). There's more to touch than meets the eye: The salience of object attributes for haptics with and without vision. *Journal of experimental psychology: general*, *116*(4), 356.
- Krishna, A., & Morrin, M. (2007). Does touch affect taste? The perceptual transfer of product container haptic cues. *Journal of Consumer Research*, *34*(6), 807-818.
- Kritikos, A., & Brasch, C. (2008). Visual and tactile integration in action comprehension and execution. *Brain research*, *1242*, 73-86.
- Kuznetsova, A., Brockho, P. B., & Christensen, R. H. B. (2012). *lmerTest: Tests for random and fixed effects for linear mixed effect models (lmer objects of lme4 package)*. <<http://www.cran.r-project.org/package=lmerTest/>>.
- Kunsthalle. (2017). In *Langenscheidt Digital GmbH & Co.*. Retrieved July 1, 2017, from <https://de.langenscheidt.com/deutsch-englisch/kunsthalle>.
- Leder, H., Belke, B., Oeberst, A., & Augustin, D. (2004). A model of aesthetic appreciation and aesthetic judgments. *British journal of psychology*, *95*(4), 489-508.
- Leder, H., Gerger, G., Dressler, S. G., & Schabmann, A. (2012). How art is appreciated. *Psychology of Aesthetics, Creativity, and the Arts*, *6*(1), 2.
- Leder, H., & Nadal, M. (2014). Ten years of a model of aesthetic appreciation and aesthetic judgments: the aesthetic episode—developments and challenges in empirical aesthetics. *British Journal of Psychology*, *105*(4), 443-464.
- Leder, H., Tinio, P. P., & Bar, M. (2011). Emotional valence modulates the preference for curved objects. *Perception*, *40*(6), 649-655.

TO TOUCH OR NOT TO TOUCH

- Lederman, S. J., & Klatzky, R. L. (2007). New directions in touch. *Canadian Journal of Experimental Psychology/Revue canadienne de psychologie expérimentale*, 61(3), 169.
- Lederman, S. J., Thorne, G., & Jones, B. (1986). Perception of texture by vision and touch: multidimensionality and intersensory integration. *Journal of Experimental Psychology: Human Perception and Performance*, 12(2), 169.
- Lindauer, M. S., Stergiou, E. A., & Penn, D. L. (1986). Seeing and touching aesthetic objects: I. Judgments. *Bulletin of the Psychonomic Society*.
- Lindauer, M. S. (1986). Seeing and touching aesthetic objects: II. Descriptions. *Bulletin of the Psychonomic Society*.
- Mastandrea, S., Bartoli, G., & Bove, G. (2009). Preferences for ancient and modern art museums: Visitor experiences and personality characteristics. *Psychology of Aesthetics, Creativity, and the Arts*, 3(3), 164.
- McGlone, F., Olausson, H., Boyle, J. A., Jones-Gotman, M., Dancer, C., Guest, S., & Essick, G. (2012). Touching and feeling: differences in pleasant touch processing between glabrous and hairy skin in humans. *European Journal of Neuroscience*, 35(11), 1782-1788.
- McGlone, F., Vallbo, A. B., Olausson, H., Loken, L., & Wessberg, J. (2007). Discriminative touch and emotional touch. *Canadian Journal of Experimental Psychology/Revue canadienne de psychologie expérimentale*, 61(3), 173.
- Melton, A. (1935). *Problems of installation in museums of art* (New Series No. 14). Washington, DC: American Association of Museums.
- Nadal, M., & Skov, M. (2013). Introduction to the special issue: Toward an interdisciplinary neuroaesthetics. *Psychology of Aesthetics, Creativity, and the Arts*, 7(1), 1.

TO TOUCH OR NOT TO TOUCH

Nadal, M., Tinio, P. P., Brieber, D., & Leder, H. (2014). *Caribbean crossroads of the world*.

Unpublished manuscript, Department of Psychology, University of Vienna, Austria.

Peck, J., & Childers, T. L. (2003). Individual differences in haptic information processing:

The “need for touch” scale. *Journal of Consumer Research*, 30(3), 430-442.

Pepperell, R. (2004). Potential Images: Ambiguity and Indeterminacy in Modern Art.

Leonardo, 37(2), 168-169.

Picard, D. (2006). Partial perceptual equivalence between vision and touch for texture

information. *Acta psychologica*, 121(3), 227-248.

Pye, E. (Ed.). (2016). *The power of touch: handling objects in museum and heritage context*.

Routledge.

Raffray, M. (1988). The arts through touch perception: Present trends and future prospects.

British Journal of Visual Impairment, 6(2), 63-65.

Silvia, P. J. (2007). An introduction to multilevel modeling for research on the psychology of

art and creativity. *Empirical Studies of the Arts*, 25, 1–20.

Silvia, P. J. (2009). Looking past pleasure: Anger, confusion, disgust, pride, surprise, and

other unusual aesthetic emotions. *Psychology of Aesthetics, Creativity, and the Arts*,

3(1), 48.

Smith, J. K., & Carr, D. (2001). In Byzantium. *Curator: The Museum Journal*, 44(4), 335-

354.

Smith, J. K., & Wolf, L. F. (1996). Museum visitor preferences and intentions in constructing

aesthetic experience. *Poetics*, 24(2-4), 219-238.

Smith, L. F. (2014). Trials, tribulations, and triumphs of applied research in museum settings.

Psychology of Aesthetics, Creativity, and the Arts, 8(2), 253.

Smith, J. K., & Smith, L. F. (2001). Spending time on art. *Empirical Studies of the*

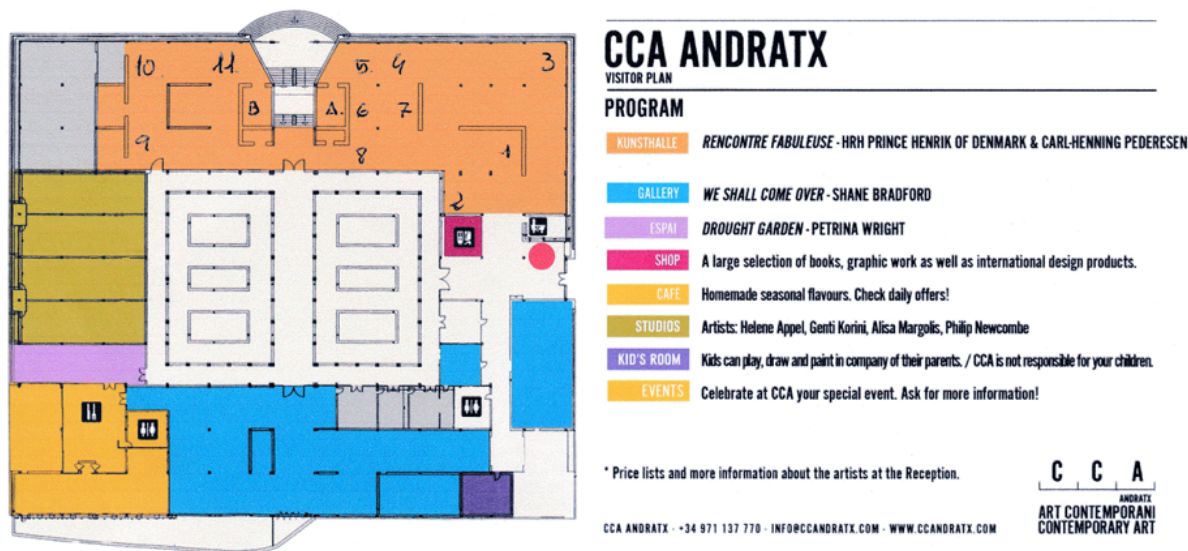
Arts, 19(2), 229-236.

TO TOUCH OR NOT TO TOUCH

- Smith, L. F., & Smith, J. K. (2006). The Nature and Growth of Aesthetic Fluency.
- Snijders, T. A. B., & Bosker, R. J. (2012). *Multilevel analysis. An introduction to basic and advanced multilevel modeling (2nd ed.)*. London: SAGE Publications.
- Team, R. D. C. (2011). R Development Core Team: R: a language and environment for statistical computing. Vienna: R Foundation for Statistical Computing; 2011.
- Tschacher, W., Greenwood, S., Kirchberg, V., Wintzerith, S., van den Berg, K., & Tröndle, M. (2012). Physiological correlates of aesthetic perception of artworks in a museum. *Psychology of Aesthetics, Creativity, and the Arts*, 6(1), 96.
- Vaishnavi, S., Calhoun, J., & Chatterjee, A. (2001). Binding personal and peripersonal space: evidence from tactile extinction. *Journal of Cognitive Neuroscience*, 13(2), 181-189.
- Whitaker, T. A., Simões-Franklin, C., & Newell, F. N. (2008). Vision and touch: Independent or integrated systems for the perception of texture?. *Brain Research*, 1242, 59-72.
- Yoshida, R., Tamaki, H., Sakai, T., Saito, M., Egusa, R., Kamiyama, S., ... & Inagaki, S. (2015, November). Experience-based learning support system to enhance child learning in a museum: touching real fossils and experiencing paleontological environment. In *Proceedings of the 12th International Conference on Advances in Computer Entertainment Technology* (p. 25). ACM.

Appendix A

List of Artworks and Spatial Arrangement



1. HRH Prince Henrik of Denmark (1969 -1970 / 2016). *Pholangué*. Bronze 180 x 160 x 85 cm (HxWxD). Edition of 6.
2. HRH Prince Henrik of Denmark (1970s / 2016). *Fantasy animal / Animal fabuleux*. Bronze 160 x 90 x 70 cm (HxWxD). Edition of 6.
3. HRH Prince Henrik of Denmark (1970s / 2016). *Fantasy animal: Dragon / Animal fabuleux: Dragon*. Bronze 95 x 95 x 210 cm (HxWxD). Edition of 6.
4. HRH Prince Henrik of Denmark (1985 / 2016). *Chess set: Queen / Jeu d'échecs: La Reine*. Bronze 224 x 80 x 70 cm (HxWxD). Edition of 6.
5. HRH Prince Henrik of Denmark (1985 / 2016). *Chess set: Pawn / Jeu d'échecs: Pion*. Bronze 170 x 55 x 70 cm (HxWxD). Edition of 6.
6. HRH Prince Henrik of Denmark (1985 / 2016). *Chess set: Rook / Jeu d'échecs: Tour*. Bronze 230 x 63 x 70 cm (HxWxD). Edition of 6.
7. HRH Prince Henrik of Denmark (1985 / 2016). *Chess set: Knight / Jeu d'échecs:*

TO TOUCH OR NOT TO TOUCH

Cheval d'Échecs. Bronze 225 x 70 x 80 cm (HxWxD). Edition of 6.

8. HRH Prince Henrik of Denmark (1985 / 2016). *Chess set: King / Jeu d'échecs: Roi*.

Bronze 230 x 63 x 70 cm (HxWxD). Edition of 6.

9. HRH Prince Henrik of Denmark (1970s / 2016). *Rhinoceros / Rhinocéros*. Bronze

110 x 70 x 210 cm (HxWxD). Edition of 6.

10. HRH Prince Henrik of Denmark (1970s / 2016). *Giraffe / La Giraffe*. Bronze 195 x 76

x 100 cm (HxWxD). Edition of 6.

11. Prince Henrik of Denmark (1970s / 2016). *Janus*. Bronze 160 x 95 x 95 cm

(HxWxD). Edition of 6.

A, B. Video rooms. 3 + 3 small bronzes in the adjacent small rooms.

Further information: <http://www.ccandratx.com/en/c1/home.html>

Appendix B

Questionnaire



Page 1

Initials: _____

NT-D

Welcome to the CCA. Thank you very much for taking part in this survey. We are interested in learning more about the people who visit museums, their motivations and their experience of art in museums, and your collaboration is very important to achieve this goal. The survey should not take too much of your time and should not interfere with your visit.

1. Why did you come here today? *(Please tick the main reason)*

- I'm interested in the contents of the exhibition
- The sculptures by HRH Prince Henrik The paintings by Carl-Henning Pedersen
- I'm here because I like art in general
- I'm here because I wanted to see the CCA
- I'm here accompanying others
- Other motivations: _____

2. Do you have any expectations about the exhibition, *Rencontre Fabuleuse*? *(Please tick the main reason)*

- I expect to see great art
- I expect to learn something new
- I expect to have a good time
- Other expectations: _____

3. Where did these expectations come from?

- Newspaper, magazines or guides *(please specify)*: _____
- Friends Social media Others: _____

4. What did they say about the exhibition?

5. How much do you know about the work in the *Rencontre Fabuleuse* exhibition?



Initials: _____

NT-D

We would now like to know what you think and feel about some specific artworks in the exhibition. Please view each artwork in the order listed and evaluate each artwork by making a circle around one of the numbers in the scales below.

ARTWORK 1

HRH PRINCE HENRIK OF DENMARK

Pholangue, 1969-1970/ 2016

Bronze

180 x 160 x 85 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 2

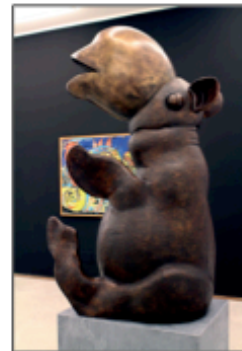
HRH PRINCE HENRIK OF DENMARK

Fantasy Animal, 1970s / 2016

Bronze

160 x 90 x 70 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 3

HRH PRINCE HENRIK OF DENMARK
Fantasy Animal: Dragon, 1970s / 2016
Bronze
95 x 95 x 210 cm (HxWxD)
Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 4

HRH PRINCE HENRIK OF DENMARK

Chess Set: Queen, 1985 / 2016

Bronze

224 x 80 x 70 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 5

HRH PRINCE HENRIK OF DENMARK

Chess Set: Pawn, 1985 / 2016

Bronze

170 x 55 x 70 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 6

HRH PRINCE HENRIK OF DENMARK

Chess Set: Rook, 1985 / 2016

Bronze

230 x 63 x 70 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 7

HRH PRINCE HENRIK OF DENMARK

Chess Set: Knight, 1985 / 2016

Bronze

225 x 70 x 80 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming

1 — 2 — 3 — 4 — 5 — 6

Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative

1 — 2 — 3 — 4 — 5 — 6

Positive

3. How much do you like this artwork?

Dislike a lot

1 — 2 — 3 — 4 — 5 — 6

Like a lot

Initials: _____



ARTWORK 8

HRH PRINCE HENRIK OF DENMARK

Chess Set: King, 1985 / 2016

Bronze

230 x 63 x 70 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 9

HRH PRINCE HENRIK OF DENMARK

Rhinocéros, 1970s / 2016

Bronze

110 x 70 x 210 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Initials: _____



ARTWORK 10

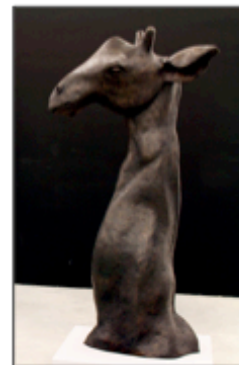
HRH PRINCE HENRIK OF DENMARK

Giraffe / La Giraffe, 1970s / 2016

Bronze

195 x 76 x 100 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming

1 — 2 — 3 — 4 — 5 — 6

Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative

1 — 2 — 3 — 4 — 5 — 6

Positive

3. How much do you like this artwork?

Dislike a lot

1 — 2 — 3 — 4 — 5 — 6

Like a lot

Initials: _____



ARTWORK 11

HRH PRINCE HENRIK OF DENMARK

Janus, 1970s / 2016

Bronze

160 x 95 x 95 cm (HxWxD)

Edition of 6



1. The emotions that you feel while engaging with the artwork are, in general:

Very calming 1 — 2 — 3 — 4 — 5 — 6 Very exciting

2. The emotions that you feel while engaging with the artwork are, in general:

Negative 1 — 2 — 3 — 4 — 5 — 6 Positive

3. How much do you like this artwork?

Dislike a lot 1 — 2 — 3 — 4 — 5 — 6 Like a lot

Thank you for your time. Please hand this survey to the instructor.

You are free to continue your visit as you like.

*Please do not forget to collect your gift at the entrance before you leave,
and answer some final questions.*



Initials: _____

NT-D

Before you leave, now that your visit is over, we would like to ask you some final questions.

1. How long was your visit (in minutes)? _____

2. Did you see the whole exhibition? No Yes

3. Did you take the guided tour? No Yes

4. Did you spend time in the cafe? No Yes

5. Had you seen the exhibition before? No Yes, How many times? _____

6. Did you read the leaflet? No Yes

7. What did the surroundings and the building itself mean to your visit?

8. What are your overall thoughts and feelings about the exhibition?

9. What would you tell a friend to do in order to get the most out of the exhibition?

10. What were your thoughts on the relation between the sculptures and the paintings?



Initials: ___ ___ ___

NT-D

11. Would you like to know more about the art that you saw? No Yes

12. Did you buy a catalogue? No Yes

13. How often (on average) do you visit art museums or galleries?

<input type="checkbox"/> Almost never	<input type="checkbox"/> Once a year	<input type="checkbox"/> Once every half year
<input type="checkbox"/> Once every 2 months	<input type="checkbox"/> Once a month	<input type="checkbox"/> Weekly

14. Are you?

<input type="checkbox"/> An artist	<input type="checkbox"/> Working with art	<input type="checkbox"/> Art collector	<input type="checkbox"/> Interested in art
------------------------------------	-------------------------------------------	----------------------------------------	--------------------------------------------

To help us better understand your experience and to help us prepare future exhibitions here at the CCA, please tell us more about yourself.

<u>Age</u>	<u>Are you?</u>	<u>Education</u>
___ Under 18	___ Male	___ High School
___ 18-24	___ Female	___ Some College
___ 25-34	___ Other: _____	___ BA/BS
___ 35-44		___ MA/MS/MFA/MB
___ 45-54		___ MD
___ 55-64		___ PhD
___ 65 and over		

Nationality: _____

*Thanks again for your time and help. We hope you have enjoyed the visit.
Remember that all your data are confidential and will be treated anonymously.*