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The impact of specific versus general art expertise on art experiences – The case of the Sistine Chapel

Christina Lidegaard*, Trine Bille** and Andrea Baldin***

ABSTRACT

From the literature on art experience, we know that art experts and non-art experts have different cognitive information processes when encountering an artwork, but we don't know how this difference might influence the art experience. The purpose of this article is to test how expertise affects art experiences. Expertise is measured on several dimensions, one of them being the level of knowledge on the specific artwork, which is a new contribution to the literature. Our case is the Sistine Chapel at the Vatican Museum in Italy where the investigations took place in a real museum context.

Keywords: Art experience, art expertise, The Sistine Chapel, Rank-ordered probit

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1. Introduction

There exists a considerable amount of research on art preferences providing knowledge on the types of art different people like (Furnham and Chamorro-Premuzic 2004), but we do not have all the components to understand the underlying question of art experience, i.e. why we like art. Through former research we know about the differences in the cognitive processes for art experts and non-experts, where art experts assess an artwork mostly in relation to the style, medium and its context drawing on their art specific knowledge and accumulated art experiences, while non-experts, in the lack of these focus on recognizable objects, use personal experiences to evaluate an artwork (see for example (Cupchik and Laszlo 1992; Nodine, Locher, and Krupinski 1993; Leder et al.2004).

With this article, we want to contribute to the understanding of art experience by examining how art expertise affects the art experience. We do it by testing different levels of art knowledge, one of them being the level of knowledge of the specific artwork, and we do it in a real museum. Both are new additions to the literature.

The former empirical research related to art experience are almost all done in a lab context, which do not properly represent the museum experience of an artwork: different demographics, social setting, and viewing distances, not real size and quality, lack of authenticity and the experience not being self-chosen (Carbon 2017), and with student participants, leaving out important demographic and socioeconomic differences (Chamorro-Premuzic et al. 2009). The research in this paper is conducted along what (Carbon 2019) denotes as Path #1, the rarely used ecological path, where testing is done in the actual museum (the Sistine Chapel), to get as close as possible to the “true art experience”.

Another limitation of the research in this area is that expertise is often only measured as formal training, not encountering for the actual knowledge about the artwork. (Hasenfus, Martindale, and Birnbaum 1983) have shown that non-experts successfully classified artworks according to their historical classes, and therefore conclude that non-experts can understand artworks at a deeper level than might be assumed, and in their work on optimal experiences, (Czikszentmihályi and Robinson 1990) found that the stimuli that ignite the art experience were very different for art experts irrespective of their degree of artistic specialization, concluding that art experts are probably not the only individuals capable of having what they denote as an aesthetic experience. This is in line with a more recent paper by (López-Sintas, García-Álvarez, and Pérez-Rubiales 2012), where studying art professionals as well as cultivated ordinary people, they found that it is the embodied contextual cultural capital that matters in feeling an intense unforgettable art experience rather than the degrees and diplomas. To get a better understanding of expertise and art experience, we therefore find it important to measure other aspects of knowledge than general training and education.

We have used the Sistine Chapel at the Vatican Museum in Italy as our case study, being a world-famous artwork visited by people of very different demographics and socioeconomic backgrounds, and hence different expert levels. Expertise is measured on three dimensions: The actual knowledge about the artwork (the Sistine Chapel and Michelangelo), cultural capital (measured by a higher education and/or level of cultural consumption), and age as a proxy for the potential accumulation of knowledge in general. We control for a wide range of variable. As far as we know, there exists no former studies, where knowledge of the specific artwork is measured and used in explaining the art experience.

In assessing the art experience, we have used (Hager et al.'s 2012) Art Reception Survey (ARS) as a basis and outlined the four dimensions: artistic quality, cognitive stimulation, self-reference, and positive attraction. We have modelled these in relation to the expertise dimensions in order to understand if different expertise levels would yield different art experiences. To analyse the data, we estimate a rank-ordered probit model.

The article is organized like this. Section 2 gives the theoretical background and section 3 reviews the literature and based on this the formulation of hypotheses. Section 4 presents the data and section 5 the empirical strategy. Section 6 shows the results and section 7 concludes the article.

2. Theoretical models

Different theoretical models have been developed to understand art experiences. In this section we will explain and assess what we find the most advanced of these models.

In developing a model on aesthetic information processing, (Marković 2012) has examined the components of art experience and identifies three crucial and distinctive characteristics of art experiences: 1) the attention aspect, 2) the cognitive aspect, and 3) the affective aspect. The first refers to the state of intense attention engagement in the artwork – a state closely related to the concept of *flow* (Czikszentmihályi and Robinson 1990). The cognitive aspect involves semantics, symbolism and imagination, where the art objects transcend their everyday meanings and give way to profound meanings. Lastly, the affective aspect refers to the emotional experience, a strong clear feeling of unity with the art object. An art experience is therefore a complex mechanism based on various cognitive and affective aspects.

Art experiences develop through various stages of cognitive information processing, and just as in

Boswijk, Thijssen, and Peelen's (2007) model of meaningful experiences, where *Erfahrung* is the sum of an individual's past experiences, so will past art experiences enhance the fluency of the information processing. Therefore, higher fluency is associated with a positive art evaluation (Reber, Schwarz, and Winkielman 2004). Several researchers have developed theoretical models for this process.

In broad strokes, these models follow the same kind of reasoning, where the first stages are related to personal preference and familiarity, followed by a classifying stage, and the final stages are of interpretative and evaluative nature. The difference between art-experts and non-experts starts to reveal around the classifying stage (see for example (Parsons 1987); (Housen 1984); (Bullot and Reber 2013)). Leder et al. 2004 has made one of the most comprehensive models, which encompasses both pre-requisites for an art experience and a feedback-loop between the stages. At the beginning of an art experience, the model recognizes the importance of context and the affective state in the output of the experience. The first two stages are automatic as in unconscious or implicit, where the first, perceptual analysis, deals with contrast, symmetry, etc. and the second, implicit memory integration, deals with familiarity and prototypicality. The third stage, explicit classification, is deliberate and characterized by analysing the style and content. From this stage, the difference between naïve and expert viewers become more apparent, as the former tend to analyse content in terms of what is depicted, and the latter engages in a more elaborate analysis. The fourth, cognitive mastering, and fifth stage, evaluation, are closely connected, as the latter measures the success of the former creating a continuous feedback-loop between the two. In parallel with these cognitive processing stages, the model assumes an affective process as well. Each of the cognitive stages can increase or decrease the affective state. The model also includes connections to declarative knowledge, domain-specific knowledge and personal taste, which feeds into the

cognitive processing, meaning the more expertise a viewer has the more rewarding the art experience might be.

As a common denominator for these models is that art expertise affects the information processing, why we can argue that art expertise might also affect the art experience. However, in order to understand how the expertise might impact the art experience, we need an instrument for measuring the art experience itself.

3. Measurement Instruments and Hypotheses

In this section we propose a measurement instrument for art experiences, followed by a discussion and several definitions of arts expertise (knowledge about the artwork, cultural capital and age). Finally, we suggest testable hypothesis for how people with different levels of art expertise will experience art.

Art experience

In the literature, there are developed several instruments for measuring art experience, and these can broadly be divided into two categories: relevant to multiple art forms and specific for single art domains (music, dance, film, painting etc.). The instruments for multiple art domains are more general in the emotions and experiences measured (Schindler et al. 2017); (Stamatopoulou, 2004) and does not account for the richness and subtlety that are typically specific to the context of a single art domain. We therefore concentrate on instruments specifically for paintings and visual art.

(Rowold 2008) has made a Survey for the Assessment of Art Perception (SAAP), which operates on three scales: (1) cognition, (2) emotion, (3) self-congruency. However, the SAAP focuses only

on positive emotions derived from an art experience and does not include artistic quality nor evident aspects such as beautiful.

(Hagtvedt, Patrick and Hagtvedt 2008) have developed a model for measuring the affective and cognitive components involved in the perception of visual art. The model is made of four emotional factors made of different combination of positive and negative emotions with high and low arousal; four cognitive factors: curiosity, aesthetic, creativity, skill; and an evaluation index. Compared to the SAAP, it encompasses a wider range of emotions, however, it lacks a self-referential part.

Specific for fine arts museum, (Tschacher et al. 2012) have made a questionnaire on subjective art experiences, where they define five factors of emotions evoked by an artwork: (1) art quality, (2) surprise/humour, (3) negative emotion, (4) dominance, (5) curative quality. A wide range of emotions are processed; however, the cognitive stimulus is not clear being present in more categories and the self-referential part is lacking.

(Hager et al.'s 2012) Art Reception Survey (ARS) is specific for visual art and compared to the other models above covers the range of art emotions and cognitive processes proposed by the literature of art perception (such as (Leder et al. 2004); (Parsons 1987). The survey has six dimensions: *Cognitive stimulation,* which accounts for the curiosity and search of meaning evoked by art as well as art's self-rewarding experience; *Negative Emotionality*, referring to the negative feelings that an artwork can provoke; *Expertise,* emphasising the importance of knowledge about the painting, the artist and the historic context in art experience; *Self-reference,* reflecting viewers' self-related approach to art; *Artistic quality,* describes the artistry, creativity and technical skills of an artwork; and lastly, *Positive attraction*, which is the evident dimension in terms of being

beautiful, pleasing and valuable. As this is the most comprehensive model, will we use the ARS as basis for testing how expertise affects art experience. However, the model suffers from the important drawback, that by including expertise among the other dimensions it mixes dependent and independent variables. Our expectation is that the level of art expertise will affect the art experience (artistic quality, cognitive stimulation, self-reference, positive attraction, negative emotionality).

Art expertise

The are several ways to define an art expert or a person with art expertise. In most studies an art expert is defined as a person with professional training in the arts (Parsons 1987); (Bullot and Reber 2013). However, art expertise can be measured at different levels and with different accuracy. A person can be an expert on a specific artwork/genre or artist, without being an expert in a formal sense. And having a formal training in the arts is not equal to having knowledge of a specific artwork/genre or artist. We therefore propose different levels of art expertise, and related proxies for measures of expertise. We propose that the different levels of art expertise will affect the art experience. We use three different proxies for art expertise:

1) The level of knowledge about the specific artwork
2) The level of cultural capital (measured by a higher education and/or level of cultural consumption in general)
3) Age as a proxy for accumulated life and art experience

We expect the different kinds of art expertise to affect the art experience. Below, several hypotheses will be developed in terms of the correlations between these different kinds of art expertise and the art experience.

Art expertise and art experiences

Many studies have examined how art experts and non-art experts process art differently. (Cupchik and Laszlo 1992) formulated a pleasure-based and a cognitive-based way for art reception, where non-experts rely mostly on their emotions and experts more cognitional in their art reception. The explanation for this distinction is that in everyday life, people normally orient themselves by focusing on recognizable objects, and where non-art expert use the same method in processing art, art-experts are able to employ a style- and aspect-based form of processing. (Hekkert, Snelders, and Wieringen 2003) apply similar arguments. According to them, art-experts have an art-specific cognitive model allowing them to interpret artworks according to art-specific criteria, such as style and historical significance. Non-art experts, on the other hand, rely on their everyday experiences, such as personal feelings and surroundings.

This is shown by various empirical research. (Winston and Cupchik 1992) have compared reactions to high versus popular art and found that non-art experts make judgements based on personal feelings, whereas art-experts make judgements more in relation to style. (Nodine, Locher, and Krupinski 1993) show that interpretation of an artwork is related to realism for non-art experts and to expressiveness or structure and composition for art experts, which is supported by (Cupchik and Gebotys 1988) who show that non-art experts only appreciate an artwork when it is recognizable and relatable, while art-experts also find value in the medium itself. This is confirmed by a more recent study by (Augustin and Leder 2006), who found that despite parallels between art-experts and non-art experts supporting the general characteristics of art experiences, art-experts process artworks more in relation to style compared to non-art experts, who process more in relation to personal feelings. Thus, we can deduce that the art experience for art-experts will have more stimulus related to art medium itself, compared to non-art experts.

This also explain why non-art experts have a more difficult time appreciating contemporary art compared to art-experts, as non-experts focus on what is depicted and not the style (Cupchik and Laszlo 1992), and thus their need-for-closure is unfulfilled (Chirumbolo et al. 2014) and an important part of the art experience is lost. This loss might be remedied, at least in part, by provision of titles and information on the artwork. (Leder, Carbon, and Ripsas 2006) have shown that elaborate titles increase the viewers' understanding of the painting when the viewer has enough time with the artwork, and (Millis 2001) found that art ratings for photographs were higher when elaborate titles were added. So, more information helps non-experts to find meaning and reduces the uncertainty.

The main conclusion to be drawn from the literature is that art-experts have an experience related to the artworks itself, where non-art-experts rely on their everyday experiences, such as personal feelings. More information helps non-experts to find meaning and reduces the uncertainty, why non-experts could be expected to be motivated to find more information to fulfil the need-for-closure. In terms of the dimensions of the art experience in the ARS model, it means that we will expect art experts to lean more towards artistic quality and positive attraction (relating to the artwork itself), while non-arts experts may lean more towards cognitive stimulation, self-reference, and negative emotionality.

However, an art expert is not easily defined, and is a continuum rather than a dummy, and different levels and kinds of art expertise, may lead towards different art experiences. In the following hypotheses based on different kinds of art expertise will be put forward.

Knowledge on the specific artwork

A high level of knowledge on the specific artwork can be understood as the highest level of expertise in the given context. Therefore, we will expect:

H1: Visitors with a high level of knowledge about the artwork will have an art experience with focus on the *Artistic Quality* (the artwork is unique, innovative)

Furthermore, we will expect people with a low level of knowledge to want to learn more. Therefore:

H2: Visitors with a low level of knowledge about the artwork will have an art experience with focus on *Cognitive Stimulation* (make me curious, want to learn more)

Cultural Capital

A higher education and a high level of cultural consumption are often used as indicators of a high level of cultural capital (Bourdieu 1979). A high level of cultural capital is not equal to a high level of knowledge on the specific artwork, and therefore we will expect people with a high level of cultural capital to relate to the artwork itself, without being able to fully assess the aesthetic quality. This leads us to the following hypotheses:

H3: Visitors with a high level of cultural capital (a high education and/or a high level of cultural consumption) will have an art experience with focus on *Positive Attraction* (the evident dimension of the artwork being beautiful and inspirational)

Age

Age contributes to the possibility of accumulation of knowledge, behaviours, and skills. Age is therefore a determinant in cultural consumption and cultural capital as priorities change and experience increases. Ceteris paribus, we will expect older people to have much more general experience than young people leading to a deeper self-reflection. We will therefore also expect older people to focus on self-reflection in their art experiences, leading us to the following hypothesis:

H4: Older visitors will have an art experience with focus on the *Self-reference* (the artwork makes me think about my life and my personal memories)

Young people will in general not have the life experience and the cultural capital, which takes time to build. Therefore, we will expect younger people to have a different kind of art experience, which is more connected to being curious and wanting to learn more. This leads us to the following hypotheses:

H5: Younger visitors will have an art experience with focus on *Cognitive Stimulation* (make me curious, want to learn more)

In the next section out method and data collection will be described, and the hypotheses will be tested in section 6.

4. Method and data collection

The Vatican Museum is what (Frey 1998) has determined a superstar museum attracting millions of visitors each year. This status is obtained thanks to the Sistine Chapel, which is a world-famous

artwork and a must for anybody visiting Rome. The Sistine Chapel lends itself well to our research by: 1. attracting people of very different kinds of socioeconomic backgrounds, and thus with very different expertise levels; 2. being an artwork, which is familiar to the vast majority of visitors, why it will not be biased on the familiarity factor, as (Leder 2001) has shown that there is an interdependence of familiarity and liking; 3. the way the museum is organized, you have approx. 15 minutes inside the chapel, leaving the viewers much longer time with the artwork in comparison to artworks in other museums (Smith and Smith 2001); 4. being an artwork on several surfaces (ceiling and walls) with large viewing distance, the museum context is even more essential compared to a lab context (Carbon 2017).

The data collection was done at the Vatican Museum and outside a show on the Sistine Chapel "Giudizio Universale" (Artainment 2018). The show was shown in a building very close to the Vartican Museum. We included the show in the research, which due to its edutainment format could provide visitors with more knowledge about the artwork, reducing the uncertainty for non-experts, and thus have an influence on their art experience.

The data collection is based on structured oral interviews. We did a series of test interviews prior to the data collection in order to ensure the efficiency of the questions and avoid any pitfalls. The interviews were conducted both at the Vatican Museums and in the show foyer in the period June to November 2018. Since no complete sampling frame was available, we have used self-selection sampling to find potential respondents. Outside the Vatican Museums, we had 312 respondents, but only 124 usable, and from the show foyer, we had 344 respondents with 211 usable. The low rate of usable responses, especially from the Vatican Museums, was a result of trying to get as varied a

sample as possible, where people in tour groups and the +50 segment were reluctant to participate and on a tight schedule, so they often left midway through the interviews.

The testing of the hypotheses was conducted the following way. During our test interviews, we found that using rating questions were not useful, as more or less all respondents gave the highest ratings for positive statements and the lowest for negative. This probably is connected to the fact that the Sistine Chapel is such a famous and praised artwork. We therefore opted for ranking questions. Out of the survey's six dimensions, we used the following four: *Cognitive stimulation, Self-reference, Artistic quality* and *Positive attraction*. We excluded *Negative Emotionality*, as we through tests didn't find any respondents with negative emotions towards the Sistine Chapel; and *Expertise*, as we wanted to measure the actual knowledge of the visitors and not their perceived knowledge. Based on our test questionnaires, we used three items from each dimension, shown in Table 1.

Table 1. The four dimensions of the ARS model

Cognitive Stimulation	*Artistic Quality*
The artwork makes me **curious**	The artwork is **unique**
The artwork is **thought-provoking**	The artwork is of **a high level of creativity**
I want to **learn more about the artwork**	The artwork is **innovative**
Positive Attraction	*Self-reference*
The artwork is **beautiful**	The artwork makes me think about **my life**
The artwork is **thrills me**	The artwork makes me think about **my faith**
I feel **inspired by the artwork**	The artwork makes me think about **personal memories**

From the cognitive dimension, we focused on items related to the words *Curious*, *Thought-provoking* and *Learn more about the artwork*, as we wanted to focus on the items related to wonder and curiosity, which has been deemed important in art experiences (Fingerhut and Prinz 2018), and from the artistic, we used *Unique*, *High level of creativity* and *Innovative*. For positive attraction, we used the items related to pleasure, high arousal and engagement, why we picked *Beauty* being

the most frequent word used in relation to an art experience (Jacobsen et al. 2004), *Thrill* as it covers the high arousal factors often used in art research (Berlyne 1974), and *Inspiration* showing the personal engagement with the artwork (Hager et al. 2012). Lastly, for self-reference, the test questionnaires showed that we had to simplify the items in order to make the respondents understand the survey, and we used the items *think about my life* and *think about personal memories*, and added a new item *think about my faith*, because the artwork is in a religious context. We asked respondents to rank these different dimension related items against each other three times in order to understand which of the four dimensions they valued the highest.

The second important part of the questionnaire concerns the knowledge level of the respondents in relation to the artwork. The questions focus on the Sistine Chapel, ranging from easy questions ("*Who painted most of the Sistine Chapel*") to expert questions ("*Who commissioned the Last Judgement fresco*") in order to understand the knowledge level of the respondents. A few questions on Michelangelo were added as well as general, but related art questions to emphasise the level of expertise. The answers were rated based on a point system, so the better you could answer the questions (e.g. number of artists from the same period of Michelangelo mentioned), the higher number of points you would score.

Several other dimensions relevant to the experience at the Sistine Chapel, as we wanted to capture what kind of visit the respondent had at the Sistine Chapel, and thus allowed us to control for these factors and their impact on the experience of the artwork. This entails *how many times they have visited the Chapel* (Furnham and Walker 2001), *audio guide*/*translation system*; and *the mood*, (Leder et al. 2004). The mood (happy and relaxed) was measured based on a PAD emotional state model (Mehrabian and Russell 1974).

Lastly, respondents' demographic information (age, gender, education level, country) was recorded as well as their cultural consumption in terms of theatre, cinema, museum/cultural heritage site, concert, and books. Based on the individual participation to each cultural form, we assign a score from 0 (never) to 4 (more than 9 times a year), and we obtain a global score of cultural consumption by summing the score obtained across each cultural form.

5. Empirical strategy and variables

To investigate how the art experience is affected by the level of knowledge we use the results of the survey to estimate a rank-ordered probit model.

The rank-ordered probit seems to be the most suitable method to use in this context, as respondents are asked to rank the four different dimensions related to their experience of the Sistine Chapel.

Following the random utility framework, each individual *i* faces with *J* different alternatives (in this context, the dimension of the art experience), with *j*=1,…*J*. Each alternative provides a utility U_{ij}:

$$U_{ij} = \beta' x_{ij} + \varepsilon_{ij} = V_{ij} + \varepsilon_{ij} \qquad (1)$$

Where *x* denotes individual-specific characteristics, β' the vector of the respectively coefficients to be estimated and ε_{ij} is the random component assumed to be jointly distributed normal with mean 0 and a variance-covariance matrix Ω.

Considering the case of 4 alternatives, and denoting with r^1 the preferred alternative, r^2 the second preferred alternative and so on, the probability for an individual to observe a given ranking is given by:

$$\Pr(U_{r^1} > U_{r^2} > U_{r^3} > U_{ir^4}) \qquad (2)$$

That can be equivalently written as:

$$\begin{aligned}\Pr\,(&U_{r^2} - U_{r^1} < 0;\\ &U_{r^3} - U_{r^2} < 0;\\ &U_{r^4} - U_{r^3} < 0)\end{aligned} \qquad (3)$$

To find the parameters of the model, the maximum-likelihood estimation is simulated through the GHK algorithm, which is found by (Hajivassiliou, McFadden, and Ruud 1996) being the most reliable simulator for this model.

In our application each individual rank the different dimension three times, as indicated in Section 4. However, at best of our knowledge, there is not a development of the rank-ordered probit that allows to consider it in a panel-data fashion. For this reason, in order to summarize the rank order of each individual, we assign a score to each dimension based on the ranking in this way: the preferred dimension has a score of 4; the second preferred dimension has a score of 3 and so on. Then we sum the scores obtained by each dimension across the three ranking tasks. Based on the sum, we summarize the final ranking for each respondent. This method implies the possibility of ties: in this case, the estimation of the rank-ordered probit model can be adapted following (Nair et al. 2018).

The estimated coefficients of the model provide insights on which individual characteristics (the explanatory variables of the model and the controls) affect significantly the preference of one dimension over the others. These variables are described in Table 2, while Table 3 provides some descriptive statistics.

Table 2. Description of the variables used

Variables	**Description**
Variables of interest	
Knowledge	Score obtained from the knowledge questionnaire
University	1 = the respondent has at least an university degree; 0 otherwise
Cultural consumption	Cultural consumption score, from 0 to 4, based on consumption of theatre, cinema, museum, cultural heritage site, concert and books.
Age	1=Under 20; 2=20-30; 3=30-40; 4=40-50; 5=50-60; 6=60-70; 7=Over 70
Control variables	
Italian	1= respondent is Italian; 0 otherwise
Male	1= respondent is male; 0 otherwise
Show	1= respondent responds the survey after visiting the show; 0 otherwise (after visiting the Vatican museum)
Device	1= the respondent has used a device in their visit (translation system for the show; audioguide for the museum); 0 otherwise
Visits	Number of times the individual has visited the Sistine Chapel
Happy	Happy mood before the visits, from 1 (Not at all) to 5 (Very much)
Relax	Relax mood before the visits, from 1 (Not at all) to 5 (Very much)
Alone	1 = the respondent has visited the Sistine Chapel alone; 0 otherwise

Table 3. Descriptive statistics

Variable	Mean	SD	Min	Max
Knowledge	24.76	10.05	0	40
University	0.690	0.690	0	1
Cultural Consumption	10.61	4.240	0	20
Age	3.733	1.495	1	7
Italian	0.573	0.573	0	1
Male	0.345	0.475	0	1
Show	0.630	0.483	0	1
Device	0.307	0.462	0	1
Visits	1.888	1.210	0	5
Happy	4.252	1.041	1	5
Relax	3.722	1.183	1	5

6. Results

The rank-ordered probit model is estimated with Stata16, and the results are shown in Table 4. The artistic quality dimension is chosen as the base alternative, and so the coefficients are interpreted with respect to this dimension.

Table 4. Estimation of the rank-ordered probit model

Variable	Coeff.	*z-stat*
Artistic quality (base alternative)		
Cognitive stimulation		
Knowledge	- 0.033**	- 2.46
University	0.076	0.34
Cultural consumption	0.017	0.65
Age	- 0.020	- 0.28
Italian	0.631**	2.46
Male	- 0.228	- 1.08
Show	0.085	0.34
Device	- 0.079	- 0.33
Visits	0.104	1.16

Happy	- 0.076	- 1.14
Relax	0.099	1.28
Constant	- 0.242	- 0.50
Positive attraction		
Knowledge	- 0.008	- 0.64
University	0.374*	1.71
Cultural consumption	- 0.032	- 1.22
Age	- 0.126*	- 1.76
Italian	- 0.079	- 0.31
Male	0.167	0.78
Show	- 0.044	- 0.18
Device	- 0.013	- 0.05
Visits	0.127	1.43
Happy	0.041	0.63
Relax	0.042	0.58
Constant	0.288	0.59
Self-reference		
Knowledge	- 0.004	- 0.22
University	- 0.157	- 0.46
Cultural consumption	- 0.023	- 0.62
Age	0.218*	1.94
Italian	- 0.457	- 1.17
Male	0.607*	1.88
Show	0.688*	1.78
Device	0.202	0.57
Visits	0.097	0.71
Happy	- 0.231**	- 2.27
Relax	0.272**	2.29
Constant	- 2.283***	- 3.03
No. of cases	305	
Wald chi^2	48.82	0.0374

** p<0.10, ** p<0.05, *** p<0.01*

The Wald test has been performed to assess the goodness of fit of our model, indicating that the estimated model is better than the null model, in which all parameters are set to 0. Stated differently, the values of the coefficients are different across the dimension.

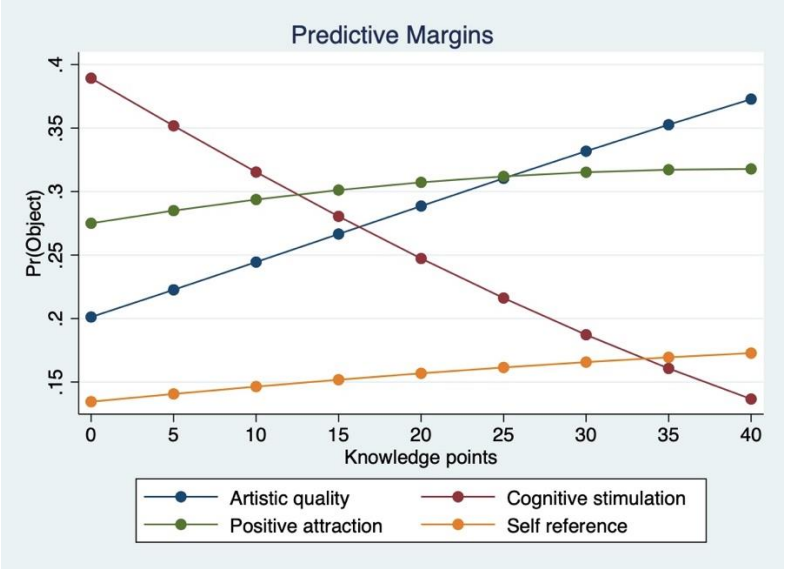
The magnitude of the coefficients estimated has no direct interpretation. However, their sign and significance provide us insights on the effect of the explanatory variable on the dimension preferred.

The level of knowledge on the artwork

Looking at the variable of our primary interest, we can deduce also that high level of knowledge of the artwork is associated with the *artistic quality* dimension, because the sign of the *knowledge* variable is negative for all the dimensions, except for the base alternative (*artistic quality*). This fully support hypothesis H1. We can see that as the art knowledge decreases, people show a greater attitude towards the *cognitive stimulation* dimension. This can be deduced by the fact that the coefficient of the variable *knowledge* in relation to the *cognitive stimulation* dimension has the lowest value compared to the other dimensions. This decreasing trend is statistically significant at 5% level. This support our hypothesis H2.

As a further confirmation, the variables estimated can be used in the post-estimation phase to calculate the expected probability for each dimension to be the first choice as a function of the value of *knowledge*. Figure 1 shows that, when the knowledge is low, it is more likely to prefer the *cognitive stimulation* dimension (for instance, when the knowledge score is 0, the probability to select this dimension is almost 40%), but as the knowledge score increases, the probability to select the *cognitive stimulation* dimension decreases: for the highest value of knowledge (40 points) this probability is around 13%. For high level of knowledge, the *artistic quality* is the preferred dimension (around 37% when the knowledge score is 40, only 20% when the knowledge score is 0).

Figure 1. Predicted probability to prefer a dimension as a function of knowledge



Cultural capital

Cultural capital is measured by having a higher education and/or having a high level of cultural consumption. The general level of cultural consumption is not significant in the model. This is surprising, but probably indicates that attending other cultural activities (e.g. going to the cinema or reading books) does not impact the way one experience the actual artwork (The Sistine Chapel). However, the model shows that visitors with a university degree have a higher probability to choose positive attraction as their preferred dimension. This support hypothesis H3, as confirmed in the post-estimation phase: Table 5 shows the average predicted probability for each dimension to be preferred for both categories of the dummy variables (having at least a university degree and not having it). The table includes also a Chi-squared test in order to verify whether the difference of the probability between the two categories are statistically significant. The null hypothesis is that there is no difference.

Table 5. Probability for each dimension to be preferred by level of education

Dimension	Level	Probability	χ^2 test p-value
Artistic quality Artistic quality	University = 0 University = 1	0.3413 0.2940	0.3378
Cognitive stimulation Cognitive stimulation	University = 0 University = 1	0.2235 0.2136	0.8075
Positive attraction Positive attraction	University = 0 University = 1	0.2449 0.3440	0.0298
Self reference Self reference	University = 0 University = 1	0.1903 0.1484	0.2412

The Chi-squared test confirms that only for the positive attraction dimension the null hypothesis is rejected at 5% level, that is: there is a significant difference between individuals with and without a university degree in selecting the positive dimension as the preferred dimension. In particular, respondents with high education are more likely to have an art experience with focus on positive attraction.

Young versus older visitors

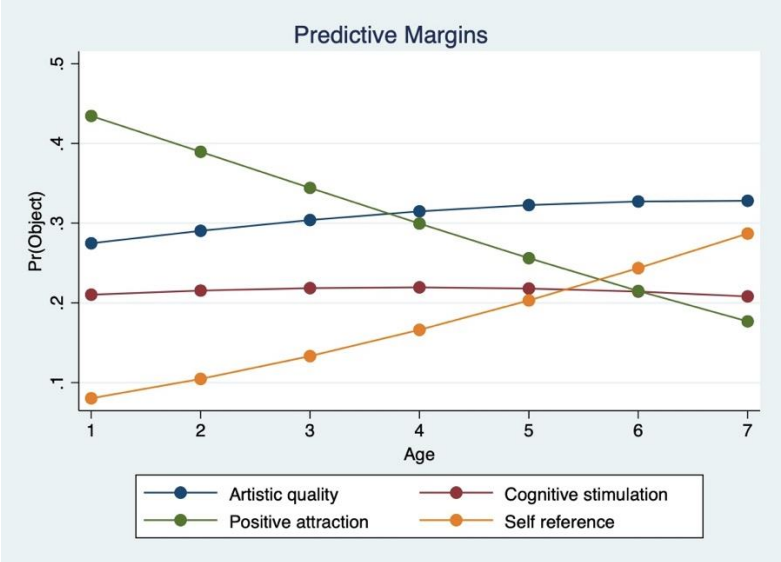
Our estimations show that as the age increases, the preference for the *self-reference* dimension increases which is support of hypothesis H4. This is evident as the age coefficient is positive and statistically significant only in this dimension. In figure 2 we see that for older people the main art dimension is the *artistic quality* followed by *self-reference.* However, it has to be highlighted the notable difference between the youngest category and the oldest one in the predicted probability to prefer the *self-reference* (8% for respondents under 20 years old; 28% for respondents over 70 years old). Thus, H4 is partially supported.

The rank-ordered probit model shows that young visitors are more focused towards the *positive*

attraction dimension, which means that hypothesis H5 is rejected. In this dimension we find the lowest value of the age variable, which is statistically significant at 10% level. Looking at Figure 2, we see that *positive attraction* is the dimension most likely to be chosen for the three youngest age categories (that together cover the individuals under 40 years old), especially for the youngest one (under 20 years old), for which this probability is around 43%. This percentage drop substantially to around 18% for the oldest age category (over 70 years old).

As shown in figure 1, the dimension of cognitive stimulation clearly decreases with the level of knowledge, and in that way cognitive stimulation is not related to age, but only to the level of knowledge.

Figure 2. Predicted probability to prefer a dimension as a function of age



7. Discussion and conclusion

In this article we have examined how knowledge about a specific artwork affects the art experience. This research is based on data from a real museum context to obtain the genuine art experience. We have used the Sistine Chapel at the Vatican Museum in Italy as our case study, being a world-famous artwork visited by people of very different demographics and socioeconomic backgrounds, and hence expert levels. Expertise is measured on three dimensions: The actual knowledge about the artwork (the Sistine Chapel and Michelangelo), and cultural capital (a higher education and/or the level of cultural consumption), and age as a proxy for the accumulation of knowledge in general. As far as we know, there exists no former studies, where knowledge of the specific artwork is measured and used in explaining the art experience.

The results support most of our hypotheses: Visitors with a high level of knowledge of the artwork will choose artistic quality as the main dimension in art experience, while visitors with a low level of knowledge will choose cognitive stimulation. On the other hand, younger visitors will choose positive attraction (instead of cognitive stimulation as predicted) and older visitors choose self-reference. Visitors with a high level of cultural capital in the form of a higher education will choose positive attraction as expected. Another interesting element of the results is the cultural consumption variable. As depicted in one of our hypotheses, cultural consumption could be argued to be another proxy for cultural capital. For example, exposure to music without any formal expertise will create an ability to perceive sophisticated aspects of the music in the listener (Bigand and Poulin-Charronnat 2006). However, the results deriving from the cultural consumption frequency variable did not provide any correlation with any of the four dimensions. The lack of correlation might be explained by the fact that we did not encounter for the type of cultural consumption, i.e. lowbrow or highbrow culture.

The results clearly show a difference in the art experience depending on the expertise level, and it confirms that it is important to evaluate the knowledge aspect in a more concrete way than done so far. General and formal training will in many cases not be correlated with the knowledge of the specific artwork. It means that people who are in general classified as non-experts may be experts and knowledgeable on the concrete artwork, depending on their specific preferences and interests. On the other hand, people with a low level of knowledge lean towards cognitive stimulation and want to learn more. These could be valuable insights for museum professionals, as there are obvious gains in terms of market segmentation. Advanced profiling would allow museums to tailor an effective engagement with their different audiences (and potential audiences) tapping into the specific interests of the audiences, and thus enhance the propensity to return. Museums could work out different marketing material for different segments such as segments with at high versus low knowledge, and younger versus older visitor segments, emphasizing either the uniqueness of the artworks, the obvious beautifulness of the artworks, stimulate the curiosity of a less knowledgeable visitors or the personal memories of older visitors. Furthermore, the knowledge of the various art experiences of different segments could make the starting point for museums events and communication to visitors. The present study contributes to understanding why and how people are attracted to art. However, this study has its limitations, as it is focused on a specific kind of artwork and a specific kind of museum, and it should therefore be seen, as a preliminary examination of the relationships between expertise and art experience in a real-life context. As such, the results raise additional questions that could be addressed in future research like the experience of abstract art or less known artworks, but our research points to the fact that a more nuanced and concrete interpretation of knowledge and expertise can be a fruitful way of learning more about art experiences.

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