

What Type of Learning Methods do Pupils Prefer in Museums and at School? Elementary School Pupil's Perceptions of Visual Thinking Strategies as Applied at the Barcelona Picasso Museum

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Abstract

This case study, using triangulation-focused mixed methodology, analyzes the perceptions of 477 elementary school pupils after exposure to Visual Thinking Strategies through the educational programs of the Barcelona Picasso Museum. Pupils' learning preferences and their perceived impact of Visual Thinking Strategies were studied in the aftermath of an experience based on this teaching method, which focused on skill development and total class participation through exposure to art. The study also aimed to determine if this visit contributed to pupils' desire for future use of similar methods in museums and at school. Results articulate student voices, showing that, when faced with choosing between participatory and discursive teaching methods, most preferred the former; however, over 40% favored a combination of both strategies. This research contributes to the field in showing that many pupils would favor more art-historical content during Visual Thinking Strategies sessions as well as highlighting the potential of a single-session experience in generating a perception of impact.

Keywords

museum education, art, student voice, teaching methods, Visual Thinking Strategies

Introduction

Museum education programs do not have to conform to an academic curriculum, and therefore, have the potential to act as laboratories for democratic learning method experimentation. They can provide a space for transformative approaches, allowing pupils and teachers to potentially experience new ways of understanding and reflecting on educational activity. Along these lines, both pupils and teachers can assess them and contemplate their potential implementation in schools (e.g., Fontal, 2009; Knutson & Crowley, 2005; Sitzia, 2018).

In this article, we analyze and articulate pupils' voices regarding the use of one teaching method, Visual Thinking Strategies [from now on, VTS], in educational programs at the Barcelona Picasso Museum [from here on BPM] and the potential future use of this methodology in the classroom. Based on multiple interpretations of artwork, VTS is a learning method aimed at assisting novel viewers in feeling confident and willing to talk

about artwork with little or no previous art-specific knowledge (see Figure 1). Visual Thinking Curriculum [from now on, VTC] was created at the MoMA in the late 80s by Yenawine (2013) and colleagues, as they suspected that museum educators' explanations of the artwork were neither memorable nor sufficiently engaging for many visitors. These suspicions were confirmed after the cognitive psychologist Housen (1999), joined Yenawine's team and conducted studies leading to a redefinition of VTC. Not long after, Yenawine and Housen left the MoMA and renamed the method VTS.

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DISCURSIVE OR TRANSMISSIVE TEACHING METHODS		
<p>Grinder and McCoy, cited in Stone (1997) describe them as those strategies where the pupil assumes the role of the passive receiver while the educator, the only authorized issuer, provides extensive contextual information.</p>		
ACTIVE OR PARTICIPATORY TEACHING METHODS		
<p>Those originate from a constructivist conception of learning, which seek to enhance learner interaction by encouraging a reformulation of previous knowledge through dialogue. In further detail, two alternative methods can be distinguished within the participatory approach.</p>		
Strategies of inquiry	Horizontal participatory methods	
	<p>Aligned, at least at part, with Critical Pedagogies and novel notions of museum and museum learning where the interpretative authority lays partially or completely with the visitors.</p>	
<p>Traditionally employed as the educator introduces content and poses questions to pupils (Stone, 1997), who respond through observation, evidence analysis and reflection.</p>	NON-CRITICAL APPROACHES	CRITICAL APPROACHES
	<p>VTS</p> <p>Hailey, Miller and Yenawine (2015) describe Visual Thinking Strategies as a method for stimulating critical and creative thinking, visual literacy, and communicative skills through art.</p> <p>In VTS educators do not focus on provide contextual context. Instead, they encourage participants engagement and interaction, facilitating a dialogue and helping them to create their own interpretations on the artwork.</p>	<p>Critical Artistic Mediation</p> <p>Mörsch describe Critical Artistic Mediation as “an approach tied to emancipatory pedagogy that advanced gallery education as a critical reading of the institutions” (2009, p. 18). She adds “That the knowledge of both visitors and educators is considered on equal terms sets this practice apart from mere service work: critical gallery education opts for controversy. Its antiracist and antisexist positioning substitute alleged objectivity and prescribed diplomacy.” (2009, pp.19-20)</p>
		<p>The Educational Turn</p> <p>Soria (2015, p.79) defines it as “a commitment of artistic and curatorial production to the generation of formats, methods, programmes, processes and procedures that are not simply concerned with the adoption of education as a subject from a critical point of view, but as a way of legitimizing art and curating as critical and radical educational practices in themselves.”</p>
		<p>Arts-based methods</p> <p>We refer to those educational methods when art is not conceived as the subject to learn but as the methodology to be used to generate knowledge (Pérez Barreiro & Camnitzer, 2009). The singularities of artistic processes and techniques as employed as triggers to encourage participatory processes of research and creation. Aimed at developing competency they often seek to develop students’ critical literacy and their citizen awareness.</p>

Figure 1. Methodological approaches to museum education and education through the arts.

VTS is grounded on Piaget, Vigotsky, and Arnheim's work on the importance of language, social interaction and visual perception in cognitive development (see Yenawine, 1999) and also on Housen's studies (e.g., 1999) on esthetic development. As Duke (2010) argues, "Housen and Yenawine further show that reading or listening to expert interpretations of art [does not] produce aesthetic growth; the activities which do produce it are ones that are looking at art, reflecting on it, and discussing with peers" (p. 174). Based on Housen's findings and Yenawine's experiences, VTS educators foster the observation and analysis of art pieces, aiming to deepen reflection and facilitate the creation of personal interpretations, teaching learners to justify their opinions by formal evidence (evidential reasoning). To do so they use three questions:

- What (do you think) is going on in this picture?
- What do you see in the picture that makes you say that?
- What else can we find?

After each intervention, the educator points out the elements referred to and paraphrases each contribution in order to help the rest of the group, enrich participant vocabulary and promote empathy and tolerance toward different ideas, encouraging respectful dialog. A VTS session can be conducted at a museum or school and be addressed to many types of participants, although it is particularly effective with those who have little to no experience observing and talking about art. This is why most VTS programs are designed for pupils.

This article presents part of an independent and broader case study [according to the conceptions of Merriam, 1998; Stake, 1995, which was implemented through 2016 to 2021 by scholars external to the BPM. Through a concurrent mixed-method approach, using methodological, investigator, and data triangulation, the larger study aimed at establishing a diagnosis of the use of VTS at the BPM from the perspective of four agents: pupils, elementary school teachers, outsourced museum educators and museum education officers. Ultimately, the broader objective is to suggest potential improvements to the institution in the currently employed methodology by triangulating the perceptions of these four agents, an endeavor beyond the scope of the current article. This article includes an in-depth analysis of pupils' voices, who clearly constitute a crucial group to study, as the main stakeholders in the learning process. Previously published articles have analyzed those of museum educators (González-Sanz et al., 2017) and teachers' perspectives (González-Sanz et al., 2021). In this particular article, we focus specifically on *pupils'* perceptions in analyzing their learning methodology preferences in museums and at school.

Although there are a limited number of studies regarding formal education that compare pupils' reported preferences regarding participatory and discursive methods (e.g., Helwig et al., 2008, see p. 5 for further clarification), to date, less research has been identified specific to the field of museum education (exceptions are Hooper-Greenhill, 2000, 2007; Stone, 1997). Hence, the importance of this study is clear. Scholars of VTS have published many studies assessing the effects of school-museum programs on pupils (e.g., De Santis, 2009; Housen, 2001), but these do not focus on pupils' teaching methods preference. Fortunately, however, broader studies do provide guidance on pupils' opinions on related methodological aspects (Griffin, 2007; Groundwater-Smith & Kelly, 2003, 2017).

Museum Education and Education Through the Arts: Methodological Approaches

Although teaching activities with objectives of developing critical thinking among students are still scarce (Biesta & Lawy, 2006; Hörschelmann & El Refaie, 2014), there seems to be a wider theoretical consensus on the role education should play as a transformative practice, aimed at promoting competencies and democratic, critical citizens. This conception has evolved from the proposals of some well-known 20th century scholars like Vygotsky (1978), Dewey (1934), Ferrer (2002), as well as the many authors (e.g., Freire, 1986; Giroux, 2011; Hooks, 1994) who contribute to the Critical Pedagogies. By Critical Pedagogies we refer to a set of theories based on Freire's original work, taking it in different directions while maintaining a common goal of critical literacy development; namely, learners' ability to identify and dismantle power relations and hidden interests that underlay some narratives and institutions.

These scholars' ideas were reformulated by some museum educators alongside renewed conceptions of the museum as an institution for societal participation (e.g., Simon, 2010) and museum learning as a personal meaning-making process (e.g., Falk & Dierking, 2000; Hooper-Greenhill, 2000). Consequently, four art museum education methodological approaches were incorporated from the late 80s on (see Figure 1): VTS, Critical Artistic Mediation (Institute for Art Education of the Zurich University of the Arts, 2015; Morsch, 2014; Rodrigo, 2012; Rodrigo & Collados, 2015), the Educational Turn (Rogoff, 2008; Soria (2016a, 2016b); Sánchez de Serdio et al., 2015), and Arts-Based Methods (Amengual, 2012; Pérez-Barreiro & Camnitzer, 2009). The latter three share a critical component, as they usually aim to foster the students' political awareness, critical literacy and agency. Although VTS does not focus on these aspects, it does share with these three approaches a

model of dialogic and horizontal education based on pupil participation and its rejection to discursive or transmissive learning strategies (cf. Hooper-Greenhill, 2000).

Discursive methodologies are commonly criticized in Arts Education in so much as detractors argue they are ill-suited for audiences with little experience of interacting with art (e.g., Housen, 1999). However, recently, many contemporary art museums have embraced participatory methods, and previous research reveals that discursive strategies still garner support among both elementary school pupils (González-Sanz, 2018) and teachers (Paunero, 2018).

Controversies also exist between those researchers, practitioners and recipients who defend the advantages of VTS (e.g., Burchenal & Grohe, 2007; Lechuga-Jiménez, 2018; Paunero, 2018), and its detractors, associated commonly with critical approaches (Arriaga, 2008; Hernández, 2002 (as cited in Arriaga, 2008); López & Kivatinetz, 2006). The latter disparage VTS and its variations on the grounds that they are not as critical, transformative, or democratic as they could be. Moreover, they do not encourage pupils to deconstruct and assign new meaning to institutional discourses, nor are they conceived from pupils' interests (Arriaga, 2008; Mörsch, 2009; Ten Thije, 2017). VTS detractors also defend new ways of understanding participation that go beyond answering educators' questions. Among these new strategies, are those inspired by Barrow (2015) and Freire (1986). These are methods that: (1) encourage horizontal structures and show partakers that there is no single truth (Rodrigo & Collados, 2015); (2) foster respectful dialog between pupils in order to generate individual and collective learning (Burnham & Kai-Kee, 2011; Hubard, 2015), by training pupils as citizens (Barrow, 2010; Siddiqui et al., 2019), and (3) offering pupils a central role, thus giving them agency to direct the activity according to their interests (Griffin, 2004). We believe that VTS shares in plenty of these democratic and transformative factors; nevertheless, we agree with López and Kivatinetz (2006) and Arriaga (2008) criticism that VTS does not allow pupils to reach the same level of critical capacity as the aforementioned critical approaches. Hence, we consider the present studies' findings relevant not only for improving VTS implementation within the BPM itself but also that its findings are more broadly pertinent to other museum education programs implemented throughout the globe.

VTS in Spain: An Overview

The VTS method was introduced in Spain in the late 90s through projects such as *Mira!* (Barcelona 1998–2002, *Fundació "La Caixa"*) (Pou, 2002), and the educational

programs of the Málaga Picasso Museum and the *Centro Atlántico de Arte Moderno* (CAAM) (Paunero, 2018). Since then, other cultural institutions have adapted or been inspired by the method (e.g., D.A.P., Artium). A renewed interest in VTS has emerged in the last decade in several Catalan heritage centers (e.g., BPM; the MNAC). However, the method is not as widely-known in Spain and Catalonia as it is in the US, where decades of practice and debate (e.g., Burnham & Kai-Kee, 2011; Hubard, 2011) have led to many formal and non-educators to commonly use VTS in freer adaptations, along with other resources which like contextual content and other open-ended questions.

Yet, the generalized absence of art-historic content transmission by VTS educators, characteristic of a more orthodox application, still represents a challenge for Spanish practitioners and recipients unfamiliar with its skill-development approach. This was the case in 2012/13 when VTS was first implemented in the BPM, as it replaced an inquiry methodology where educators still provided a significant amount of contextual information about the works of art to pupils. As the BPM educators explained (González-Sanz et al., 2017), one of the difficulties some faced initially was understanding the potential benefits of VTS due to its disparities compared to traditional school methods and its relatively dramatic decrease in content.

VTS implementation was initially a shock for the BPM educators as well, even if it resulted in what they eventually considered a positive outcome: changing their praxis and conceptions on museum education into what is more democratic, transformative and participatory (González-Sanz and Feliu, 2016). These professionals started to conceive their roles in a Vygotskian way: as mediators, like those educators who subscribe to Critical Pedagogies, to Critical Artistic Mediation or to the Educational Turn. They reported that VTS implementation also impacted their practices in other museums (they are often subcontracted and work in more than one museum).

VTS in Relation to Other Participatory Teaching Projects for Learning Through Art

The use of art as a transversal resource for a transformative and emancipatory education started long before VTS. Historically, many pedagogues have used art with the same goal (Cizek, cited in Dewey, 1934; Greene, 1995; Viola, 1936), remaining as a topic highly pertinent at present (López-Peláez et al., 2018; Pérez-Barreiro & Camnitzer, 2009). Thus, many related projects aim to promote pupils' visual literacy—although definitions of visual literacy have evolved over time (Mayer, 2005), we rely on that of Hailey et al. (2015)—as well as critical and

creative thinking skills (Tishman & Palmer, 2006), and also their ability to express and respect different opinions, through art's interpretative flexibility. From these, we highlight two that, in our opinion, share common key aspects with VTS (Housen, 1999; Yenawine, 1999): *Thinking Routines* from the *Harvard Project Zero's Artful Thinking program* (Ritchhart, 2007; Tishman & Palmer, 2006), and *Philosophy for Children (P4C)* (Lipman et al., 2002; Siddiqui et al., 2019). The latter's adaptation for use in Catalonia, known as *Filosofia 3/18 (F3/18)* (De Puig, 2012), places special importance on art as an educational resource. These projects center on inviting pupil inquiry through open questions and designed for use both in the classroom and museums. They encourage educators to facilitate pupil participation and dialogue, relegating the transmission of conceptual content in favor of encouraging pupils' cognitive dispositions and skills of observation, analysis, inference, and argumentation. As Barrow (2015) states, "The purpose of facilitation is not to reach the 'correct' answer but to enable the community to continue in inquiry" (p. 78).

The absence of a single correct expert-sanctioned answer or truth is considered one of these method's most controversial aspects. Nevertheless, as Ritchhart (2007) argues, encouraging pupils to put forward their own interpretation of artwork and accepting all contributions as valid, as long as they are reasonably justified through visual analysis, helps children develop autonomy and self-confidence. Consistent with approaches such as Critical Mediation (Mörsch, 2009; Rodrigo, 2012) or the Educational Turn (Rogoff, 2008), projects like Thinking Routines, P4C and F3/18 also bring education closer to a democratic model which aims to produce an active and emancipated citizenry better able to respect multiple points of view, challenge institutional discourses and accept uncertainty and complexity.

Although VTS shares many aspects with the aforementioned projects, its lack of flexibility (Siddiqui et al., 2019; Tishman & Palmer, 2006) sets it apart. Both the *Project Zero* and *P4C* programs offer educators a wide variety of question sets which allow them to adapt artwork-analysis exercises. As is the case in many critical projects, these often introduce content after an initial round of free interpretation in order to deepen analysis and focus on topics that have garnered pupil interest (Arriaga, 2008; Ritchhart, 2007). However, as stated before, in more orthodox applications of VTS, such as those we, as researchers, observed at the BPM in 2017, certain structural rigidity is frequently present. While some VTS instructors include further follow-up and more profound questioning (Ingham, 2011), current members of the New York VTS organization describe pure VTS sessions as focused on three questions: "What's going on here?," "What makes you say that?" and "What else can we

find?," aimed at developing pupils' visual literacy. Hence, educators are not meant to introduce content regarding the four artworks conjointly-analyzed over 1 hr. This aspect generates critiques among scholars who consider that content can enhance dialog and the meaning-making process and also from those who defend that museum education should deconstruct the power dynamics underlying institutional discourses (Burnham & Kai-Kee, 2011; López & Kivatinetz, 2006). Although we concur with some of these critiques, we also agree with Calaf Masachs et al. (2016), in that diversity of educational strategies is essential to better adapt programs to the different needs and interests of pupils and teachers (see also Anderson et al., 2006; Griffin, 2007; RK&A, 2018a).

Studies of Educational Activities in Museums Based on These Methods

Among the few published studies analyzing pupils' perceptions of participatory methods, or their impact, the most relevant correspond to three long-term VTS programs based on multiple classroom and museum sessions. These include Tishman et al. (1999) on the VTC program (an initial version of VTS) at the MoMA; Pou's (2002) study of *Mira! (Fundació "La Caixa")*; and Adams et al. (2007) on the *Thinking through Art* program at the Isabella Stewart Gardner Museum. A crucial contribution of Adams et al. (2007) used a rubric to measure critical thinking development in museums (see also Luke et al., 2007), allowing them to conclude that "[participants] showed statistically significant improvement in five out of seven thinking skills: associating; comparing; flexible thinking; and most strongly, in observing and interpreting" (Burchenal & Grohe, 2007, p. 120). Another important study from Korn and Associates (RK&A, 2012) analyzes the application of *Artful Thinking* at the National Gallery in Washington D.C. through the *Art Around the Corner (AAC)* program. All of these studies found moderate but significant increases in pupils' verbal expression and some critical thinking skills and dispositions as well as in their acceptance of the subjectivity of interpretations of art and in their disposition toward listening and respectful dialog. Often, increases in pupils' self-esteem and self-confidence were documented (e.g., Pou, 2002), as pupils realized they could intervene without fear of error. A growing interest in discovering art and visiting museums was also observed. However, these results involve multiple visits to museums, whereas the BPM educational programs are single-visit. This should be kept in mind, given that RK&A (2012) demonstrated how the effects of two AAC programs based on two and five visits, decrease because visits are less frequent in number. This reduction

in visits was particularly relevant regarding cultivating critical thinking dispositions or skills.

The difficulty of assessing these methods' impact after a single visit to a museum makes this and other studies by our research team (González-Sanz et al., 2017; González-Sanz, 2018) more unique. Crucial studies on VTS (Bowen et al., 2014; Kisida et al., 2016), suggest similar results to those found with the longer programs cited above in reporting moderate increases in participants' critical thinking, tolerance toward other opinions and interest in visiting art museums after just a single VTS experience. Although not directly focused on the impact of VTS, another centrally relevant study was commissioned by the National Association of Art Education (NAEA) to RK&A (2018a, 2018b). This report analyzed 101 one-visit programs within six art museums throughout the US, employing a mixed methods approach, ideal for analyzing such complex constructs. Although the NAEA study explored different types of inquiry-based programs, their findings coincided with Adams et al. (2007) and Bowen et al. (2014), showing an increase in pupils' acceptance of multiple interpretations and their improvement in complex questioning of artworks. Yet, no signs of improvement in the necessary skills facilitating evidential reasoning were found. The modest results of these studies lead us to agree with RK&A (2018a) that in the assessment of single-visit programs the focus should be on the development of capacities, rather than on the mastery of competencies or skills. Moreover, RK&A (2018b) and Bowen et al. (2014), highlight that in these types of studies it is difficult to establish a causal relationship between the programs and their effects.

The Present Study

This study's purpose is to obtain a diagnosis of the VTS implementation within BPM's school programs from the pupil's perspective following a visit. Therefore, we analyzed two dimensions: (1) pupils' preferences between methods based on the educators explaining a large amount of contextual content versus those (like VTS) focused on pupils' participation where children can provide their own interpretations about works of art and (2) pupils' impressions on the learning impact of the VTS session.

RQ1 (from now on, we refer to research questions as RQ) *Methodological preference.*

RQ1a. How do pupils assess the use of Visual Thinking Strategies in museums with respect to discursive methodologies in which the educator contributes a large amount of content?

RQ2 Perceived impact of the experience.

RQ2a. What perceived impact has Visual Thinking Strategies had on pupils at the Barcelona Picasso Museum?

RQ2b. Has the experience of participating in Visual Thinking Strategies conversations increased pupil interest in Visual Thinking Strategies involvement or similar interpretative learning in future museum visits or in classroom?

Both questions stem from the hypothesis that positive perceptions of the VTS experience would positively correlate with a general preference for participatory methodologies in museums and negatively correlate with a predilection for discursive ones.

The study design also centered on the importance of analyzing museum education programs from the view of its main recipients, who are rarely consulted (Andre et al., 2017). Consulting young children presents challenges regarding instrument design and data treatment; however, we agree with Burke (2008), Gonzalez et al. (2017), and Mai and Gibson (2011), that including children's voices in research is essential to recognize their rights as democratic citizens and can be key in the success of such programs.

Unlike other evaluations, our research goes beyond quantifying the effects of the VTS experience and seeks to depict a diagnosis through the articulation and systematic analyses of pupil voices. However, many scholars advocate for going further than simply posing questions to the child. Drawing from the United Nations' Convention on the Rights of the Child and the Lundy (2007), Mai and Gibson (2011) advocate offering pupils space and opportunities to participate, but also audience and influence. Thus, projects like *The Museum I'd Like* (Groundwater-Smith & Kelly, 2017), Burke's (2008) *The View of the Child* (Stake, 2008) or Children's Councils (Museu de Ciències Naturals de Barcelona, n.d.) were created in several Spanish museums based on Tonucci's (2015) ideas of providing children with agency. These initiatives encourage researchers to not only rely on children as consultants but also as co-investigators, able to decide on research questions and museum program redesign.

Methodology

Empirical Design, Research Context, and Participants

A concurrent mixed-methods design (Creswell & Plano Clark, 2010) was used as the basis for combining open responses and closed responses in a single questionnaire for joint analysis. The triangulation of different data types, increasingly common in the social sciences, was especially useful for addressing such a complex issue (Morgan, 2007). In accordance with Denzin (1978) and

Table 1. Research Questions, Dimensions and Variables.

Research questions	DIMENSIONS	Variables corresponding to the analysis	Items
RQ1 How do students assess the use of Visual Thinking Strategies in museums with respect to discursive methodologies in which the educator contributes a large amount of content?	DIMENSION 1. Methodological preference in the museum	- <i>Methodological preference in the museum</i> - <i>Barcelona Picasso Museum experience rating</i> - <i>Perceive a lack of art-historical content in the museum</i>	7. Please read the following two sentences and choose the one that best represents your opinion. a) In a museum I like that the educator explains things about the life and story of an artist b) In a museum I like that we participate a lot and we can explain what we think about the artwork c) I am not sure 3. What did you think of the activity of viewing paintings at the Picasso Museum? 5a. Did you feel you would have liked to see and talk about more paintings at the museum?
RQ2a. What impact has the Visual Thinking Strategies experience had on students at the Barcelona Picasso Museum?	DIMENSION 2. Impact of Visual Thinking Strategies on students: Subdimension 2.1 Perception of impact	- <i>Learn to look at pictures differently</i> - <i>Be more capable of speaking about any painting</i> - <i>Desire to repeat method in the museum</i> - <i>Desire to use method more at school</i>	After visiting the Picasso Museum, 12.b Do you think that you have learned to look at paintings differently? 12.e. Do you think that you are capable of discussing any painting? 12.d Do you think that when you go to an art museum you would like the educator to ask you questions to make you think about what you are looking at? 13.a Would you like teachers to use this type of questions more at school, inviting you to speak and debate?
RQ2b. Has the experience of participating in Visual Thinking Strategies conversations increased pupil interest in Visual Thinking Strategies involvement or similar interpretative learning in future museum visits or in classroom?	Subdimension 2.2 Desire to use similar methodologies again in the museum and at school.	- <i>Desire to repeat the method in the museum</i> - <i>Methodological preference in the museum</i> - <i>Desire to use the method more at school</i> - <i>Factors for wanting to use or not use the method more at school</i>	12.d Do you think that when you go to an art museum you would like the educator to ask you questions in order to make you think about what you are looking at? 7. Please read the following two sentences and choose the one that best represents your opinion. a) In a museum I like that the educator explains things about the life and story of an artist b) In a museum I like that we participate a lot and we can explain what we think about the artwork c) I am not sure 13.a Would you like teachers to use this type of questions more at school, inviting you to speak and debate? 13.b Why?

Note. *Learn to look* and *be more able of speaking* variables correspond to two aims of the Visual Thinking Strategies method: 1) to develop visual literacy and 2) to enhance communicative competence in users, by encouraging observation, analysis, interpretation and argumentation capabilities (Hailey et al., 2015).

Mora (2006), both methodological, data and investigator triangulation have been carried out in order to improve the validity and reliability of analyses.

The case study integrated aspects associated with ethnographic and phenomenological research since the focus was on the museum visit experience from the perspective of its protagonists (Stake, 2008). The study context was chosen due to the exceptional circumstances at the BPM. When the research project began during the 2015–16 academic year, projects like *Mira!* or the Miquel Bleach School Tandem initiative had

already brought VTS to some schools in collaboration with *Fundació La Caixa* and the *Museu Nacional d'Art de Catalunya* (MNAC). Yet, the BPM was the only museum in Barcelona to systematically apply the method, offering only VTS-based programs to all visiting schools. At that time, the principal researcher was an externalized, subcontracted educator at the BPM as well as other museums, which enabled her to have an insider's view of the impact generated by the change in methodology. Her position also facilitated access to the field and its agents.

The museum was by then one of Barcelona's most visited, with an influx of tourists and school visits which often hindered educators' duties. The convergence of a learning and leisure context, the acoustic conditions and the narrowness of some of the galleries complicated matters. Since a large number of schoolchildren visit the museum every year, the study population was limited to fifth and sixth graders. We opted for these two school levels for two reasons. Firstly, because it facilitated a relevant contrast of results with previous studies focused on the same age group (e.g., Adams et al., 2007; Pou, 2002; RK&A, 2018b). Secondly, a sample of mainly 9- to 11-year-olds (with some exceptions of 12- and 13-year-olds) count on sufficient cognitive development to understand the written questionnaire (see the items in Table 1).

Due to the time and effort necessary for pupil study participation, a non-probabilistic sample was chosen from willing school groups. In collaboration with the BPM, the research team contacted groups planning on a school visit to the BPM in 2017 by phone. After explaining the purpose and operation of the study and guaranteeing participant anonymity, and in line with the procedures in use at the University of Barcelona at the time of data collection, informed permission was requested and obtained from the participants' representatives to use their opinions and data confidentially and exclusively for educational research. Furthermore, it was made clear to students that their participation was voluntary. Consequently, a sample of 477 pupils (56% female) was obtained from 12 public, semiprivate and private schools from different locations in Catalonia.

Data Collection

Data was gathered throughout 2017 via (1) a pupil questionnaire (PQ), comprised of eight open-ended and five close-ended questions, and (2) through non-participant observation (NPO) of the museum visit. Although Luke et al. (2007) were an inspiration for defining the dimensions analyzed through the anonymous and individual PQ, the exploratory approach of the investigation resulted in a more qualitative and extensive instrument, translated from Catalan to English and attached as Supplemental Appendix 1. Items were designed around two major themes designed to gather pupil responses to measure: (1) the fulfillment of the BPM objectives in implementing VTS and (2) pupils' general perception and assessment of the educational method. Sociodemographic data was gathered (gender, age, and grade level) for sample description purposes only.

In the selection of the dimensions addressed in the questionnaire, the order of the items and their wording were amended so as to be understandable for upper elementary school pupils (Torrado, 2004). For this same

reason, the instrument was subjected to a complex validity process. Firstly, the research checked that the items and study dimensions and indicators matched. Secondly, three external experts analyzed the univocity, relevance and importance of the questions (Torrado, 2004). One expert considered it necessary for the items to better reflect the spirit of VTS. This challenge affected the way many questions were written and increased the proportion of open questions from five to eight, over a total of 13 items to better encourage the expression of reasons and nuances in pupils' assertions.

After expert review, eight items and subitems were outlined for addressing the two dimensions and eight variables of this specific research (see Table 1). Two closed-ended and one open-ended questions were drafted to answer the three variables of the first dimension: methodological preference in the museum, whereas two closed-ended and one open-ended items were conceived to answer the six variables of the second one: perception of impact of VTS experience. Participants had three options to answer to the closed-ended questions (see Supplemental Appendix 1).

The instrument was then piloted and revised three times to ensure that the age group understood the intended meaning of the questions. Questionnaires were delivered to teachers on their visit to the BPM in pre-stamped envelopes. Pupils filled them in within a maximum of 2 weeks and they were then sent back to researchers.

Additionally, systematic, non-participant observation (NPO) was carried out on fifth and sixth-grade programs throughout 2017 by two different researchers. The instrument used for observation was comprised of a control list and open field notes and subjected to the aforementioned validity strategies (expert review and pilot). Although the in-depth analysis of the NPO data is beyond the scope of this article, triangulating the questionnaire and the NPO results allowed us to contrast the manifested and observed knowledge, especially useful in better understanding the open responses (see Table 1).

Data Treatment

The data analyzed in this article was obtained using the two open response and four closed response PQ items that aligned with the variables of this specific study (see Table 1). Whenever relevant, the PQ data was contrasted with the NPO data.

The quantitatively-coded data was first analyzed using SPSS 25.0 software. Since the resulting variables were mainly categorical and, in a few cases ordinal, the analyses carried out were mainly frequency and percentage-related. These analyses were prioritized over other types, as they were determined to better adapt to the

preset research objectives and analyses, as well as the data collected. These analyses, together with the contingency tables, are detailed in the results section relating to each variable and dimension. Next, we proceeded to the content analysis (Krippendorff, 2004) of the three open-response items, as this allowed us to critically study explicit and implicit aspects from pupil's answers and to treat them in a more systematically than with other methods. Also, this allowed us to reduce the data and coding the registration units through a double process of deduction and induction until reaching saturation of the categories. NVivo 11 was used, which led to the modification of the categories established a priori by the theoretical framework and to the appearance of new ones (Miles et al., 2014) such as the dislike of VTS questions or the satisfaction with the current teaching methods. The resulting categories were contrasted with those of a second independent researcher until a code system was established. The kappa coefficients achieved, in a range of $\kappa = 0.94$ to $\kappa = 0.99$, confirm high interrater reliability. Subsequently, a cluster analysis was carried out to frame pupils' open-ended responses in accordance to study measures and corresponding pupil groupings. Correlation analyses were employed in relation to the study hypotheses proposed. Finally, a triangulation of analysis techniques and instruments was performed in light of the proposed research questions.

Measures

Methodological Preference in the Museum. Given that previous to the BPM visit pupils were not informed that they will be using VTS, many items had to be written in a very general way to facilitate pupil comprehension. In this case, a question was created with three options: "In a museum I like it when the educator explains things about the life and times of the artist"; "In a museum I like it when we participate a lot and we can explain what we think is happening in the artworks"; and "I am not sure." The answers were dummy coded as: *Discursive methodologies*, *Participatory methodologies* and *Do not know/Did not answer*. This initial coding was considered for the contingency tables, but to check the correlations against other variables and for the clusters, they were recoded as two different modalities: $1 =$ participatory or discursive and $0 =$ no. The pupils who had marked the two options ($n = 5$) along with those coded as "I am not sure" were considered missing values.

BPM Experience Rating. One open response item asked pupils what they thought of the activity of looking at pictures in the Picasso Museum. The answers were coded as either a very negative, mixed, or a very positive evaluation. Those coded as *Do not know/Did not answer* were taken as being missing values when carrying out the

corresponding correlation and clusters, but not for the contingency table.

Perceive a Lack of Art-Historical Content in the Museum. A multiple-choice item asked whether pupils had felt a need for information about the painter or the picture's history. Answers were coded as *Yes*, *No* and *Do not know/Did not answer* for the contingency tables. However, they were recoded as $1 =$ Yes and $0 =$ No for the correlations. The answers coded as *Do not know/Did not answer* were considered as missing values.

Learn to Look at Pictures Differently. An item with three options asking whether pupils thought they had learned to look at pictures differently after the VTS visit at the BPM. Answers were coded as *Yes*, *No* and *Do not know/Did not answer*.

Be More Capable of Speaking About Any Painting. An item with three options asking whether pupils thought they were more capable of speaking about any painting after their visit to the BPM. Answers were coded as *Yes*, *No* and *Do not know/Did not answer*.

Desire to Repeat the Method in the Museum. As pupils were not aware that a method called VTS had been used, this closed-question item was written in a general way, asking whether, if they were to visit another museum, they would like an educator to ask them questions to make them think about what they see. Answers were coded as *Yes*, *No* and *Do not know/Did not answer*. However, for the correlations and clusters calculations, they were recoded as two different variables, $1 =$ Yes and $0 =$ No. Answers coded as *Do not know/Did not answer* were considered missing.

Desire to Use the Method More at School. No mention of the VTS method could be used in this open-question item, so pupils were asked whether they would like teachers to use these questions more often and encourage them to openly participate in classroom discussion. Answers were coded as *Yes*, *Sometimes/Depends*, *No*, and *Do not know/Did not answer*, with the second incorporating answers stating that they would like to use the method at school but not always, or depending on the subject, the questions, etc. Responses stating that they already use these types of questions and invitations to talk and debate in the classroom were coded as missing values when no definite additional response was present, and as *Yes*, it depends/*Sometimes*, or *No*, in the few cases in which this was the response. For the correlations and clusters, these were recoded as *Do not know/Did not answer* and considered missing values.

Factors for Wanting to Use or Not Use the Method More at School. In order to provide more pupil feedback and specificity regarding the previous variable, the open question “*Why?*” was also included.

Results

The results are presented as an integration of the quantitative and qualitative data, grouped according to the research questions and variables (see Table 1).

RQ1. How do pupils assess the use of a participatory methodology such as Visual Thinking Strategies in museums with respect to those where the educator contributes a large amount of content?

The descriptive analysis of the *Methodological preference* variable showed a predominance of preference for participatory methodologies ($n = 254$, 53.7%), which was preferred roughly twice as often as discursive methodologies ($n = 112$, 23.7%).

Next, the contingency table crossing *Methodological preference* in the museum with *BPM experience rating* showed significant difference between groups ($\chi^2 = 25.307$, $p < .001$) confirming the hypothesis. Fifty-eight percent ($n = 214$) of those that rated the BPM very positively were in favor of participatory methodologies, as opposed to 23.6% ($n = 87$) who preferred discursive ones and 18.4% ($n = 68$) who claimed to not know or did not answer. Similarly, mixed and negative ratings were more frequent among those who prefer discursive methods (20.2%) or were undecided (34.6%) than among supporters of participation (13%).

Furthermore, answers on whether pupils felt *perceived a lack of art-historical content* were analyzed. Results revealed that this desire was felt by some of the pupils too, although they disagreed; 41.1% ($n = 196$) did not feel any need for contextual content, while 41.7% ($n = 199$) did, and the remaining 17.2% ($n = 82$) either claimed to not know or did not answer. However, the contingency table ($\chi^2 = 14.228$, $p = .007$) contemplating both variables provided some unexpected data (see Table 2); first a significant part (34.6%, $n = 88$) of supporters of participatory methods felt the need for additional information; second, almost half of those who prefer discursive methods (42.9%, $n = 48$) were satisfied. No significant correlation between *Perceive a lack of art-historical content* and *BPM experience rating* was found ($r = .002$, $p = .970$). Moreover, although general preferences for discursive or participatory proposals existed, a significant group of pupils valued the combination of both strategies in museums.

Also, pupils' open responses confirmed the quantitative results, showing strong disagreement when judging

the same methodological aspects, such as the amount of content transmitted and who should communicate it, for example:

Very good because we talked and gave opinions. (Pupil 155).

I found the activity very enjoyable, because it left me wanting to know more. (Pupil 62).

Very boring because they did not explain anything to us. (Pupil 121).

RQ2a. What perception of Visual Thinking Strategies impact has visiting pupils at the Barcelona Picasso Museum?

In order to analyze pupils' perceived impact of VTS, participants were asked if they thought they had learned to look at paintings differently and were more capable of speaking about paintings (see Table 1).

The results of the first variable stood out, with 71.3% ($n = 340$) of pupils stating they learned to look differently at artworks. Open responses complemented the quantitatively coded data:

To see the pictures better and know how to interpret them better. (Pupil 275).

Well, I have learned how to read a painting... (Pupil 285).

However, the percentage who considered themselves more capable of speaking about the pictures after the visit is much lower (44.4%, $n = 212$), with a high number undecided (36.5%, $n = 17$). Four Although almost half felt more capable of talking about artwork.

How to talk about pictures and express what you see. (Pupil 168).

We learned a lot of new words and expressions. (Pupil 309).

RQ2b. Has the experience of participating in Visual Thinking Strategies conversations increased pupil interest in Visual Thinking Strategies involvement or similar interpretative learning in future museum visits or in classroom?

In analyzing pupils' *Desire to repeat the method in a museum* after experiencing VTS in a museum context, a large majority (67.7%, $n = 323$), stated that they would like educators at other museums to ask them these kinds of questions inviting them to think, while only 11.1%, ($n = 53$) did not. Yet, there was a high incidence (21.2%, $n = 101$) of those who do not know or did not answer.

Table 2. Contingency Table Between Methodological Preference in the Museum and Perceived Lack of Art-Historical Content.

			Perceive lack of art-historical content			
			Yes	No	Do not know/Did not answer	Total
Methodological preference in the museum	Discursive	Count	47	48	17	112
		Percentage (%)	42.0	42.9	15.2	100.0
	Participative	Count	88	120	46	254
		Percentage (%)	34.6	47.2	18.1	100.0
	Do not know/Did not answer	Count	58	30	18	106
		Percentage (%)	54.7	28.3	17.0	100.0
Total	Count	193	198	81	472	
	Percentage (%)	40.9	41.9	17.2	100.0	

Unsurprisingly, the variables *Preference for participatory methodologies* and *Desire to repeat the method in a museum* ($r = .130, p = .023$) were positively correlated and there existed a negative correlation between the discursive method and the same variable ($r = -.130, p = .023$).

As for *Desire to use the method more at school*, 8.6% of the sample ($n = 41$) stated that they already were exposed to similar methods at school. Also, results showed that 60.9% ($n = 268$) would have liked this method to be more present in their classroom, while 18.9% ($n = 83$) did not, 2.7% ($n = 12$) said it would depend on the subject or frequency of implementation, and (17.5%, $n = 77$) did not know or did not answer. A positive correlation was observed between preference for participatory methodologies and desire to repeat the method at school ($r = .125, p = .037$) and a negative correlation between the discursive method and the same variable ($r = -.125, p = .037$). The fact that 61.5% who did not use VTS or similar methods in school ($n = 436$) but, nevertheless, did want them implemented in their school after visiting the BPM, suggests that the experience was a pleasant discovery for many of these pupils.

Subsequently, a cluster analysis was used to identify subgroups of pupils based on responses regarding *Methodological preference in museums*, *BPM experience rating*, *Desire to repeat the method in a museum* and *Desire to repeat method at school* (see Figure 2). Only participants with no missing responses on these measures were included in the cluster analyses ($n = 250$). A two-step procedure was then employed (Gore, 2000; Hair et al., 2014). First, Ward's hierarchical clustering procedure was applied to determine the number of clusters. Then, a non-hierarchical method was used in which the clusters determined by the hierarchical analysis (seven clusters) were applied for looking at more closely through a K-means iterative analysis. The final cluster centers are reported below.

The largest cluster by far was 1 ($n = 141$), which we call *super fans of participatory methodologies*: pupils who preferred this type of method in museums and valued the experience in the BPM as completely positive and wishing

to use these methods again both in museum settings and at school. Cluster 2 is a variant, of great interest despite its modest size ($n = 30$), which was labeled *It has been great at the museum but do not bring it to school*. The only difference between Cluster 1 and 2 is that Cluster 2 pupils disapproved of the method being more commonly used at school. The qualitative responses showed a diversity of reasons for this (see below).

Clusters 3 and 4 are strongly related, the only difference being that the members of the larger cluster ($n = 40$, cluster 4) valued the BPM very positively, while the subgroup of 10 (cluster 3) report both positive and negative aspects of the museum visit. The members of both clusters would have liked to see participatory methods used in both museum and school contexts, even if they preferred discursive methodologies. Despite the fact a possible misunderstanding of the question regarding *methodological preference* cannot be ruled out, the number of members and their recommendations for improvement (see below) suggested that this *desire to repeat* is related to wanting a balance between pupil intervention and the content provided by educators:

Yes, they could talk more about the pictures and tell us the titles of the pictures, so we could know a little more. (Pupil 10).

I would like more time on explanations. (Pupil 414).

Cluster 7 is similar to 3 and 4, although it differs because its members ($n = 18$) only wanted to use the method more in museums but not in class. They are in line with those of cluster 2, even if they prefer discursive strategies.

On the other hand, cluster 5 groups together eight pupils who, after declaring themselves pro-participatory, valued the experience in the BPM very negatively and would not want to use similar methods in museums or at school again. The open responses suggest that this rejection is due to the VTS questions

VARIABLES	CLUSTERS						
	1 <i>n</i> = 141	2 <i>n</i> = 30	3 <i>n</i> = 10	4 <i>n</i> = 40	5 <i>n</i> = 8	6 <i>n</i> = 3	7 <i>n</i> = 18
<i>Participative methodologies</i> ^a	1	1	0	0	1	0	0
<i>Discursive methodologies</i> ^b	0	0	1	1	0	1	1
<i>BPM experience rating</i> ^c	3	3	2	3	1	1	3
<i>Wanting to repeat method at school</i> ^d	3	1	3	3	1	1	1
<i>Wanting to repeat method in museums</i> ^e	2	2	2	2	1	1	2

Figure 2. Clusters centers.

Note. ^{a,b}1 = indicate yes, 0 = indicates no; ^c1 = indicates very negative evaluation, 2 = indicates mixed evaluation, 3 = indicates very positive evaluation; ^d1 = indicates no, 2 = indicates sometimes/depend, 3 = indicates yes; ^e1 = indicates no, 2 = indicates yes.

themselves and the repetitiveness of the dynamics, or the static and contemplative nature of the session in the galleries:

Well, almost all of them ask the same thing and the teachers tell you the same thing. (Pupil 102).

Being sat down and looking. (Pupil 177).

Finally, there is a small cluster (6, *n* = 3), which could be described as *anti-participatory methodologies*, since its members articulate their negative opinion of these across all relevant questions.

Regarding most clusters it was generally clear that pupils wanted to repeat the method in museums but not at school. Thus, the research team decided to dive deeper into the *Factors for wanting to use or not use the method more at school* by creating the coding system shown in the conceptual maps in Figures 3 and 4. The importance of the main factors is outlined in hierarchy diagrams (Figures 5 and 6), in which the use of dark colors corresponds to aspects of VTS.

Many of the factors leading pupils to want to use VTS in the classroom are linked to capacity-development; in particular, those related to visual literacy and critical thinking. Furthermore, many considered that their communication capacities would be enhanced and, therefore, they would be less reluctant to speak in public.

Pupils coincided most in expressing the opinion coded as *Better than the methods used in school*, either because they perceived that they would learn more or in an improved way, it would be less boring and/or they would participate more. Indeed, the second most coded reason for supporting the method was *Being able to participate*, that is, being able to give their opinion and listen to those of their classmates.

Regarding negative motivating factors, again VTS characteristics predominated, reflecting the controversy some of its features generate. When coding, we found particular disagreement on *Discussing* and *Questions*. No participants rejected the appeal of *Giving opinions*, but some criticized *Certain contributions from classmates*, while issues with *Speaking in public* are also mentioned.

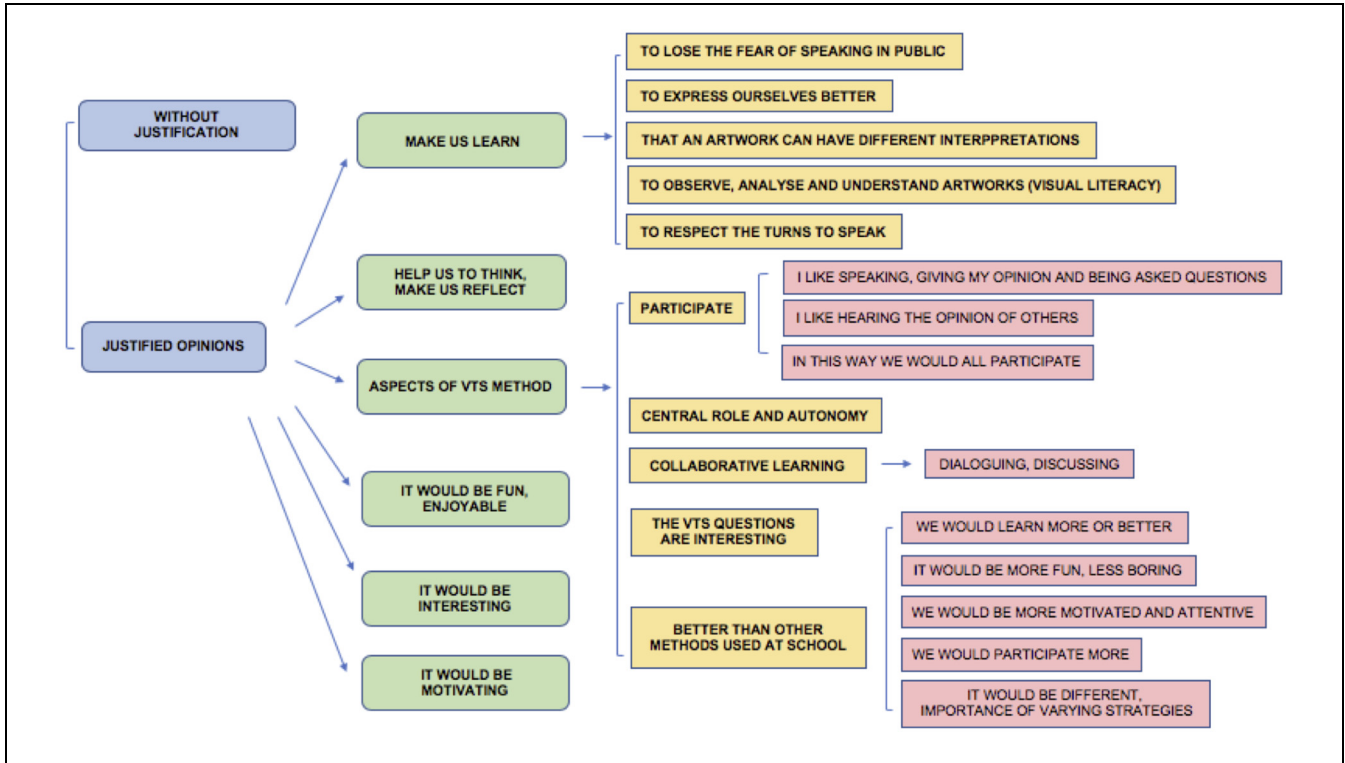


Figure 3. Factors for wanting to use the method more at school.

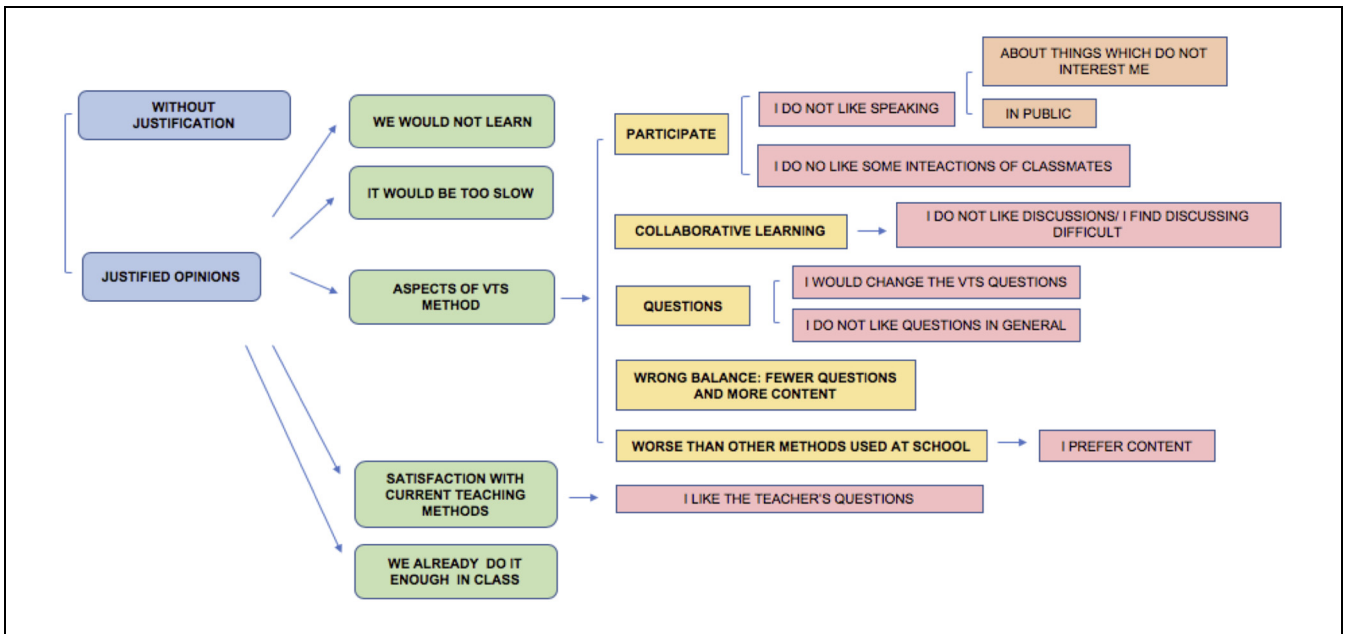


Figure 4. Factors for not wishing to use the method more at school.

Importantly, *Satisfaction with current methods* and the belief that VTS is *Worse than other school methods*, contrasted with the answers of others. The main reasons

members of clusters 2 and 7 cited for more reluctance to use VTS in the classroom than in the museum were coded *They already use it enough in class*, and that if they did

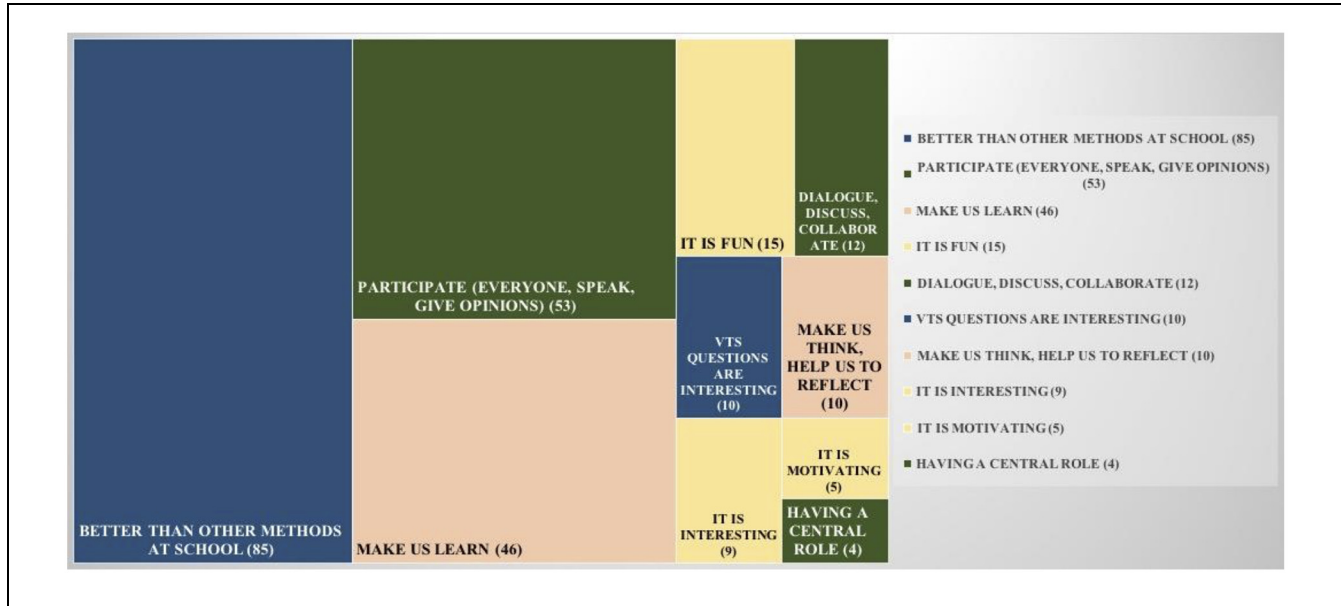


Figure 5. Hierarchy diagram of factors for wishing to use the method more in school.

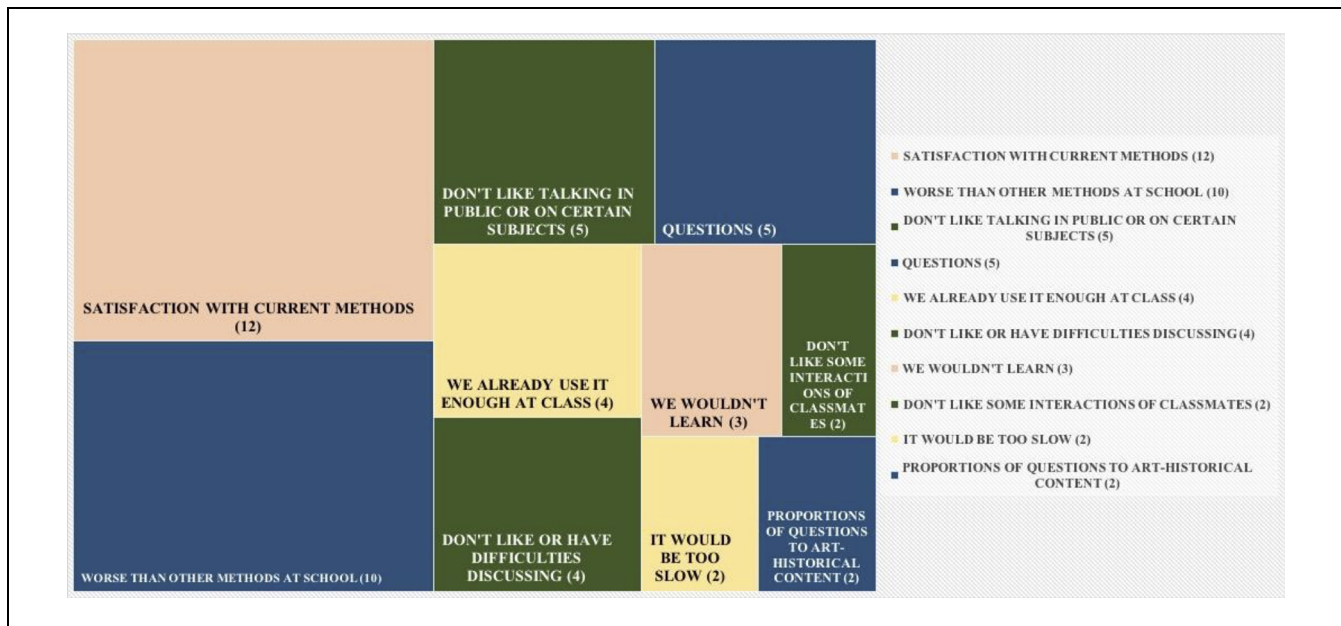


Figure 6. Hierarchy diagram of factors for not wishing to use the method more at school.

use this type of methodology *They would not learn enough* or *Would make too slow progress*. Aspects of the evaluation of VTS related to the reluctance to speak in public also carry considerable weight as negative factors.

Discussion

Although museums offer teachers and pupils the opportunity to experiment with more democratic teaching-

learning methodologies, few investigations collect and analyze pupils' opinions about them. The current study aimed to investigate pupils' teaching method preference and their perceived impact after exposure to VTS, including if the experience has contributed to pupil's desire for the future use of similar methods in museum and at school.

Regarding the first RQ, our findings reveal that, when faced with choosing between participatory and discursive

teaching methods in museums, most preferred the former, with participation proponents duplicating those inclined to discursive ones. This result is in line with Groundwater-Smith and Kelly's (2017) and Griffin's (2007) identification of youth's longing for active learning. Nevertheless, it is surprising that almost a quarter of the participants prioritized receiving explanations over intervening and interpreting the artworks themselves, especially considering that elementary school pupils are still highly motivated to participate. The study of Helwig et al. (2008) helps to interpret these data as they point out that pupils' appreciation of dialogical methodologies grows as their cognitive maturity increases. As for the significant number who had no clear preference ($n = 106$, 22.5%), this could be due to a lack of reflection on the learning process itself, which can be common at younger ages, as these same authors (2008) point out. This could relate to the absence of a third option to answer "I like both," given that participants may have expected educators' storytelling, which Andre et al. (2017) define as a very common and appreciated resource for children's education in museums.

Moreover, the findings corroborate the hypothesis by positively correlating the preference for participatory methods with favorable ratings of VTS experience at the BPM and vice versa. On the other hand, although the non-introduction of content on the part of the educator is a common criticism of VTS, especially from the perspective of teachers (Burchenal & Grohe, 2007; Tishman et al., 1999), few studies question pupils on the matter. Our research represents a substantive contribution in this sense, as both the open and the closed responses showed strong discrepancies between pupils about whether they miss art-historical content in the VTS practice at the BPM or not. This could be related to the change of opinion that Helwig et al. (2008) attribute to a) the desire for, or a familiarization to, educators' storytelling (see also Andre et al., 2017; Groundwater-Smith & Kelly, 2017), and/or b) the development of reflective faculties.

Nevertheless, the contingency table between *perceive a lack of art-historical content* and the *methodological preference in the museum* revealed that over one-third of pupils favor a combination of both participatory and discursive strategies, with no correlation between having missed contextual explanations and the BPM experience ratings. This reaffirms what Helwig et al. (2008) and Groundwater-Smith and Kelly (2017) have previously detected in formal and museum education contexts: pupils prefer to combine autonomous learning models with educators' interventions. These take on more significance after analyzing studies of other participatory approaches such as *Thinking routines* or *P4C* and *F3/18* which alternate rounds of free interpretation by children with the introduction of content, allowing the group to

move analysis and debate forward in that way. Also, the results of the NAEA report (RK&A, 2018b) strengthen our conviction that effects like those of VTS programs can be obtained when combining these strategies with initial dialogical and inquiry-based learning techniques.

The findings also demonstrate the potential of VTS to generate perception of impact after a single session. Firstly, by revealing that almost three quarters of pupils perceived that they have *learned to look at paintings differently*, stating that they would be better able to analyze and interpret them in the future. This increase in visual literacy perception after just one visit is in line with Bowen et al. (2014) and Kisida et al. (2016). Instead, barely half of them felt an *improvement in their capacity to talk about artwork* after a single session of VTS, although the qualitative analysis pointed out that many of them suspected that continuing the work in the classroom would help them to develop their oral skills.

Participants' higher perceptions of improvement in the first variable may also be related to the ease of assimilation of the VTS routine, which seems to be understood and absorbed by preteens throughout the session. Conversely, the process by which communicative competence is worked on—the educator's constant paraphrasing of individual responses—produces less detectable results. Both analyses are in line with the studies that highlight improvement in the abilities of observation, interpretation, and oral expression, with more moderate effects regarding one or two museum trips (Bowen et al., 2014; RK&A, 2012) compared to long-term programs (Burchenal & Grohe, 2007; Pou, 2002). One should also keep in mind that some participants consider speaking in public a problem, which according to Barrow (2015) is a common factor in childhood and preadolescence.

Moreover, the findings show that VTS has been a positive methodological discovery for almost two-thirds of the participants. In line with Groundwater-Smith and Kelly (2017), who demonstrated pupils' desire to participate in inquiry tasks and to contribute as such with their voices, a large majority of pupils wish to use this teaching method again, or a similar one, both in museums and at school. This majority includes those pupils in support of discursive strategies.

This desire is more frequently reported regarding museums, that is, a one-off environment, than the day-to-day classroom. One unanticipated finding is that some pupils were concerned about not learning enough or making slow progress, which prompts us to think that some only consider learning as acquiring conceptual content at a certain rate or through classical methods. This would coincide with Griffin's (2007) point that students feeling that "learning happen[s] in school and in particular involve[s] reading and writing" (p. 33). The study can be a reference for the field as it has detected this and

other factors for pupils' rejection of VTS. Beyond the rejection of general educational strategies such as discussions and the use of questions, two significant categories must be considered for possible adaptations of the method: (1) the perceived imbalance between questions and content and (2) the unpopularity of VTS questions among some pupils due to their nature or to their constant reiteration.

Indeed, the study indicates a strong polarization of pupils regarding VTS, which has been confirmed by the correlations between the *methodological preference* in museums and the *desire to use the method again in a museum* and *at school* and though the analysis of the open responses. Thus, among the *factors for wanting to use VTS again*, more than half mention features and aims of the method such as getting everyone to participate, debate, collaborate and accept different interpretations. This echoes the increased tolerance to the multiple readings of artwork identified by RK&A (2018a) as one of the four main effects in their assessment of single-visit educational programs and the importance of intervening indicated by Barrow (2015). Nevertheless, the predominant *factors for wanting not to use VTS again* are also VTS characteristics, like Discussing and Questions.

In sum, as one of the few assessments of single-visit VTS programs, this study confirms the main findings of the previous ones (e.g., Bowen et al., 2014; Kisida et al., 2016; RK&A, 2018a). Nonetheless, it also brings new insights to the field by corroborating that many pupils miss contextual explanations during the VTS sessions and the importance of a better balance between receiving content and giving interpretations. These results suggest a relevance of VTS in those museum contexts where curricular contents and discursive methodologies still hold considerable weight. VTS was created in an attempt to rethink education, and although it is not as radical as critical pedagogies' strategies, it can act as a first step for museum educators, teachers and pupils toward experiencing more democratic and skills-learning approaches where official interpretations are replaced by a collective meaning-making process. In light of our findings, we insist museum educators and teachers should not dismiss the method. Instead, we recommend garnering inspiration from P4C or F3/18 and from US educators, who have assimilated VTS with contextual content. Museum and cultural institution education programs based on Artistic Mediation as a critical educational practice or on Educational Turn (Rodrigo, 2012; Sánchez de Serdio et al., 2015; Soria, 2016a) could also inspired the reformulation of VTS from a more critical and contemporary way.

Limitations

As for the study's limitations, our more qualitative approach compared to the aforementioned quantitative

work of Bowen, Greene and Kisida, (e.g., Bowen et al., 2014; Kisida et al., 2016), RK&A (2012, 2018a, 2018b) has revealed advantages and disadvantages. Regarding the latter, we should highlight obvious problems which arise when working with such young participants through a questionnaire based on the central principles of VTS (specifically the difficulty in proposing open-ended questions, use of the conditional, subjectivity...). Despite triple piloting, several factors may be contributing to the close to 20% of *Do not Know/Did not answer* responses to many items as well as certain inconsistencies. These factors may include a possible lack of critical reflection on educational practice by children so young (Helwig et al., 2008), possible limitations in comprehension and written expression in pupils of this age who in certain cases still do not master the language (i.e., newcomers), or on account of us not being able to directly name the VTS method in PQ items. Another element that could have led to confusion is the use of the phrase "more often" in the sentence, "Would you like that teachers use these questions more often, encouraging you to speak and discuss at school?" We intended to ask if they would like to introduce the method or similar ones in formal contexts, as they are unusual. Instead, many students answered regarding the frequency of use of the questions in the classrooms.

Conversely, concerning the advantages of our approach, we consider the findings relevant due to the wealth of information participants provided and the nuances the open questions revealed. As detailed throughout this section, our results clearly coincide with the line of research of Burke (2008) and Groundwater-Smith and Kelly (2003, 2017). Moreover, we believe that our experience dealing with such limitations can be helpful in improving future pupil voice focused research; revealing the pertinence of using not just observation and written instruments but also verbal input, and art-based innovative methods aiming to convert pupils into co-researchers and program co-designers.

Conclusions

This case study explored pupils' opinion on teaching strategies in museums and schools and their perceived impact after exposure to the VTS method at the Barcelona Picasso Museum. Results show a tendency of pupil preference toward participatory methodologies and a willingness to future exposure to methods similar to VTS, both in museums and at school, albeit exceptions exist. This research has significantly contributed to the field by revealing that one-third of the pupils surveyed, including participatory methodologies supporters, miss historical-artistic content in VTS sessions. Another contribution is to reaffirm previous studies indicating that the

proportion between content and pupil interventions as a noticeable factor in evaluating the visit and wishing to take the method to schools. These could be key elements, that if integrated, might not only improve pupils' satisfaction with VTS at the BPM but also within other museums' participatory programs. Considering these findings, we encourage museum educators and teachers to assimilate VTS and other thinking routines in a flexible combination with contextual content which can broaden debates, encourage artwork's reframing and enhance pupils' meaning-making processes.

This study is also relevant in the general debate on museum educational program design, as it draws on pupils' voices. Also, it demonstrates how museums can foster pupil reflection in their learning processes, thus contributing to improving formal and non-formal education (e.g., Hooper-Greenhill, 2007), bringing museum education even closer to a democratic and transformative model.

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Ethics Statement

This research was in accordance with the ethical standards of the University of Barcelona at the time of data collection. Participant (pupil) responses were gathered anonymously after obtaining informed permission. The names of participating schools are known to the researchers but kept confidential and will remain as such. No identifiable school information exists in the database. Participation in the study was voluntary.

Human Welfare Statement

A human welfare statement is not applicable to this research.

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Supplemental Material

Supplemental material for this article is available online.

Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

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