

Culture education through museum labels

Labels in museums and the cognitive skills they enhance to children of primary school age.

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ABSTRACT

We live in a time where technological innovation and globalisation are provoking tidal shifts in the way we learn, work, live and communicate with others. Children growing up in these times will need to master a set of different skills to cope with a constantly changing reality. But what are these skills and what is the best way to promote them? While many have tried answering this riddle, it seems that radical changes are needed to, not only adjust the relevance of information provided, but to also dive deep into the structure of the learning process itself. On this note, the field of cultural education has much to offer.

Cultural Education can help children understand their culture and the culture of others. Education though does not occur only in formal learning places such as schools, but also in informal learning places such as museums. Hence, how can we connect cultural education and museums? In this thesis I attempt to bring together these two disciplines, by exploring to what extent do museums advance cognitive skills in young audiences of primary school by the use of exhibit labels. To do so, I have approached this matter by conducting interviews with museum professionals involved in the labelling process and by conducting content analysis of labels of their respective museums. In this way, this research aims to reach the very essence of how labels can have a pivotal role in promoting a set of cognitive skills. My findings testify that museums can indeed promote cognitive skills through object labels, but in order to succeed in advancing all skills efficiently, a diversity of tools is needed to be utilized in building up sequence. Finally, by paying closer attention to the structuring of labels according to my recommendations, I believe museums will be in a better position to promote the skills they strive to develop in their young audiences.

KEYWORDS: Cultural education, museum labels, young audience, cultural cognition, constructivism

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1. Introduction

There is a common consensus that society is changing from an industrial based one towards an information-knowledge society (Banse & Langenbach, 2000; Black 2012). Adults do not only need to present excellency in their respective fields of knowledge, but also need to advance further skills and competences, the 21st century skills (OECD, Learning Framework 2030, 2018). The skills include communication, creativity, collaboration, critical thinking, ICT Literacy, information and media literacy, high productivity, lifelong learning skills. (Partnership for 21st Century Skills, 2010, p. 2). OECD has recognised the importance of arts education in building these skills. Specifically, the Art for Art's sake report (2013) on the role of arts education, indicates its crucial role in equipping children with skills to face the challenges of tomorrow's demanding society. The report clarifies that creativity and innovation are significant qualities in this society and that arts education plays an important role in nurturing these qualities.

The arts are an arena without right and wrong answers, they free students to explore and experiment. They are also a place to introspect and find personal meaning (ibid, p19).

Even though the OECD report concludes that arts education should be an indispensable subject in education, it does not provide sufficient argumentation on how arts education can actually improve creativity and problem-solving skills. Furthermore, it advocates that arts education can advance artistic skills and the *habits of mind* (p14) but it does not further elaborate on that. In fact, it perceives that the nature of arts alone is a sufficient justification for its existence in the school curriculum.

the value of the arts for human experience is a sufficient reason to justify its presence in school curricula whether or not transfer results from arts education. (2013, p3)

However, UNESCO at its first World Conference on Arts Education (Road Map for Arts Education, 2006) recognises that arts education ought to begin by understanding one's culture.

Any approach to Arts Education must take the culture(s) to which the learner belongs as its point of departure. To establish confidence rooted in a profound appreciation of

one's own culture is the best point of departure for exploring and subsequently respecting and appreciating the cultures of others (p 7).

In this respect, Bamford (2006) states that there is a misconception on how the arts is perceived. She describes that *dominant political and educational discourses widely use the term 'the arts' and embedded within this term an assumption of unity underpinned by notions of culture, heritage, citizenship and creativity (ibid, p 20).*

Consequently we can talk about culture education instead of art seduction. Barend van Heusden (2015) also clears this misconception by explaining the notion of culture education. He clarifies that *culture education consists of the capacity for reflection... upon culture.... And this capacity for reflection is in principle trained in many different forms: it can be through journalism for instance or through history but also through the arts (School Education Gateway, 2017, 0:13 - 0:43¹).* As humans we are not just individuals, but parts also of a complex society, we need to learn how to reflect on ourselves and to understand our own and others' culture (ibid). Therefore, subjects such as citizenship, history, philosophy and most importantly arts are all parts of the broader notion of cultural education. Van Heusden explains that cultural education is important because it helps students to be functional members of a diverse society. The issue though is that cultural education has not been perceived as a whole on a constant curriculum from primary to secondary school. Thus, van Heusden in the research program 'Culture in the Mirror' (2009-2013) dives into the content of cultural education, in order to propose coherence and connect the framework on cultural cognition with the practice at schools.

Cultural education – i.e. education in the arts, philosophy, media education, cultural heritage and citizenship, - has the potential to make children aware of who they are, as individuals, as part of a social and cultural collective and as members of the human species (van Dorsten, 2015, p15).

Culture education is an important aspect in primary and secondary education in the Netherlands as the government aims to bring all youngsters in touch with culture (Unesco report, 2017). Thus, it seems that the importance of bringing pupils in touch with cultural activities in order to instill a capacity for self-reflection as a prerequisite to forming 21st century skills has been recognised in the Netherlands. However, it seems that the focus has

¹ Video at:
https://www.schooleducationgateway.eu/en/pub/viewpoints/interviews/cultural_education_-_prof_bar.htm

been placed on formal learning spaces (schools), while little attention has been given on informal learning places such as museums. Informal learning places have been also mentioned by Bamford (2006) while summarising the goals of arts education. She states that arts education can take place in both formal and informal settings (p 103). To explain, reports from some countries showed that the goals of arts education can vary according to the context in which they take place. For instance, artistic and aesthetic experiences occur more often in informal places. All in all, she states that these goals can be achieved where quality programs exist.

In that respect, the Dutch government since 2017 has launched the program: Cultural Education with quality (Cultuureducatie met Kwaliteit 'CmK) which connects schools with cultural institutions. The purpose is for all children to come close to culture and arts and develop into creative and critical adults. The fundamental goal is to develop *students' imagination, perception and communication skills* and also to equip youngsters for participation in the society. We can see that this program is highly influenced by the current global trends on culture education as mentioned previously, but unfortunately suffers from the same malaise of abstractness as the OECD's take on arts education.

Personally, I find that there is a strong correlation between the framework developed by Van Heusden and cultural institutions, and especially museums that address children. While this framework applies to formal learning places such as schools, I perceive that museums are places of informal learning, and therefore, I assume that this framework may have application in informal learning places as well. Therefore, in this interdisciplinary thesis I attempt to make a connection between cultural education and museum studies. To do so, one first has to narrow the scope of museums that would be able to foster Heusden's framework.

Hooper-Greenhill (2004) supports that *Learning is most effective if it is provoked through active enjoyment followed up by reflection and analysis. Museums are places without many of the restrictions that characterize other places of learning. Dynamic and imaginative projects can be developed that explore familiar subjects in new ways, using methods that are more difficult to achieve in the classroom.* (p 141)

However, in what kind of museums do the methods described by Hooper-Greenhill apply in the Netherlands?

A possible answer is given in the extensive report of *The NL Factor* (Sani, 2018). The publication concerns the participation of Dutch museums in the Children in Museums Award and it is written by a member of the jury of the competition. After reviewing the 22 museums that took part in the Children in Museums Award 2012-2017, the jury member points out the commonalities on education among these museums (p 30). The most relevant to the current research concern the following:

- a. Museums follow a constructivist approach in learning, where the visitor is an active learner and where the process of learning is equally important as the outcome.
- b. Museums propose learning by doing. Visitors engage in learning by taking part in practical activities where they deal with tasks.
- c. Museums are interactive in various ways. They either propose interaction with digital tools or with other facilitators, such as museum staff, guides.
- d. Finally, museum education is aligned with formal education. Exhibitions and activities in museums follow the school curriculum and its objectives and form a complementary aspect of formal school learning.

The commonalities described by Sani, propose an idea of museums that do not just provide fun and meaningful experiences for children, but offer much more than that. They can provide cultural education and meaningful skills to the next generation. However this is not a relatively new idea. Hein in "The Constructivist Museum" and "Museum Education" (1999, 2006) talks about the constructivist museum as a model in which the audience does not consist of passive visitors, but of active participants. They are responsible for pursuing knowledge and personally construct meaning. Some of the key characteristics of this approach of museums contain the lack of predetermined route in viewing the exhibition. He supports that by not providing specific entry/exit points or directions in the exhibition, a visitor is free to make his/her own path in the exhibition. As there is not a one single way to view the exhibition, according to Hein (1995, p 4) one is able to make connections and comparisons between the exhibits which is a constructive act itself. Second and most relevant this thesis, is the idea of connecting exhibits to familiar concepts and objects. He explains that a learner can understand concepts and ideas by making personal and mental associations and assimilations. To achieve this, museums employ strategies such as *posing provocative questions to visitors, rather than answers; or seeking to upset linear or chronological representation* (2006, p 347). Hein (2006) states that learning in a museum context consists of active engagement of the mind with the external world, wherein the learner gains knowledge by thinking about and acting on the external world in response to

stimuli. According to Hein, museums should provide these stimuli that actively engage visitors in using personal experiences in order to connect to the ideas of the exhibition. These stimuli may take the form of literacies, activities, panels and labels (1998, p 43).

As in a formal learning setting as a school, education is mediated by teachers, thus, in an informal setting, education is mediated by other actors. Family and school visits, activities, online educational programs, museum literacies are just a few of the many ways that museums can advance children's learning and skills. In this research I aim to shed light on the role of labels in museums, as a medium to promote and cultivate cultural skills to primary school visitors. I approach the topic by exploring literature in the fields of sociology, museology and educational psychology. Understanding if and which skills are proposed by labels, is important since labels can offer opportunities to construct personal meaning, educate, communicate and therefore contribute to the child's skills building.

In this research I perceive labels as stimuli that have the potential to instil cognitive skills by inviting students to be active participants in the museum experience. Even though in the current literature labels receive most of attention for contributing to a general meaningful and positive experience of the visitors I wish to prove that they can do much more than that. Therefore, before moving on to the next sections, we need to first narrow the definition of labels.

In a museum, there are three basic categories of labels: introductory, section / group / focus and object labels. (Serrell 2015, J. Paul Getty Museum's guide 2011). A general definition on labels comes from Wang & Yoon (2013): *"any type of scaffold that can vary in its representational nature to reveal information visitors would otherwise be unaware of or unable to acquire by themselves"*.

As the visitor enters the exhibition area, he/she first encounters the first category: the introduction labels. These are large labels that welcome the visitor and offer an extensive summary of what the exhibition presents. Then, the visitor encounters the second type of labels: the section labels. These labels present an introduction with specific information on each sub-topic of the exhibition. The final category contains the object labels which according to Serrell can be further categorised into interpretive labels and captions. Captions are short labels that offer an identifying text for each exhibit. They are *"written words used alone or with illustrations in museum exhibitions to provide information for visitors, presented as text on exhibit graphic panels or computer screens. Known to visitors as captions,*

descriptions, titles, blurbs, explanations, placards, plaques, legends, cards, labels and 'those little words on the wall.' (Serrell, 1996, p 239). They provide short contextual information, the artist's name, the title of the object, owner, date of creation, media and the accession number. They present central points about the exhibit and foster close looking and understanding of its factual features. The scholar clarifies that captions are used in all museums (history, art etc) in order to provide basic information on the exhibits. Finally, the third category concerns interpretive labels. Interpretive labels differ from captions, in the sense that they offer an extensive text on the exhibit and by the use of various techniques aimed at advancing the visitor's general museum experience.

In this research I will focus on the third category - the interpretive labels - which will hereby be referenced as labels or exhibit labels. I chose these for the following reasons:

Interpretive labels are at the forefront of a visitor's interaction with an exhibit. They are the stimuli described in Hein's constructivist museum and have thus an essential role in the educational process of a museum.

Furthermore, compared to other labels, interpretive labels are those that receive most of attention due to their placement. Research evidence by the Exploratorium Museum (2003) indicates that young audiences paid significantly more time reading and following the directions on labels which were placed next to the physical exhibit and less time to labels that were not. For these reasons, interpretive labels are the most appropriate to demonstrate to what extent Heusden's framework can also be applied in museums.

1.1 Academic and Societal Relevance

In the following paragraphs, I will demonstrate how my research topic is relevant from a societal and academic point of view. This study stands between two major faculties, sociology and education, which are often intertwined.

The cognitive strategies framework as formed by van Heusden have been researched by scholars from an educational perspective and in formal learning places. Konings (2014) researched the contribution of cultural institutions to an integrated curriculum for culture education in schools. Bolhaar (2016) in a master thesis investigated the culture education curriculum in a Dutch culture profile school.

Regarding informal learning places, while there is wide literature on the role of labels in museums and their educational character, there is little evidence on how they stimulate self-reflection to children. If we take into consideration the contribution of the van Heusden

framework in understanding culture in order to advance necessary skills and competencies, and the state program that connects cultural education to institutions, there is a gap in the literature on if and how it can be implemented in a museum that seeks to meet 21st century needs (Black, 2012).

From a sociological perspective, while the Cultural Education with Quality program is of significant importance in connecting formal with informal learning settings, I support that implementing the van Heusden framework in the collaborative program can have a positive impact on students' skills. Finally, one cannot overlook the significant contribution to children's cultural and social capital. Engaging in collaborative museum activities supports the development of cultural and social capital (p 32 King & Lord, 2015).

Finally, although diving into the educational field has been challenging for me, I strongly believe that museums are ideal places not just for learning and entertaining purposes, but for reflecting on ourselves and our collective culture.

1.2 Research questions

It has been clear that museums have earned their place among educational places that can foster and build skills crucial for adulthood. However, what remains rather unclear are which skills the museum educators want to advance in young visitors and for what reasons they choose to do so. This study aims to explore what skills they aim to promote and which means do they employ to approach children. Therefore, the main research question that guides my thesis is:

To what extent do museums advance cognitive skills in young audiences of primary school by the use of exhibit labels?

In addition to the main research question, three sub-questions have been formulated in order to narrow down the research.

Sub-questions

1. What is the role of labels in the exhibition and actions do they invite the viewer to do?

As mentioned above, exhibit labels can play a vital role in the museum experience of children. Therefore, the first sub-question aims at leading the thesis according to the nature and purposes of labels. The following sub-question is also related to the purposes of labels.

2. To what extent do labels in museums encourage young audiences to construct personal meaning?

As it has been specified before, the constructivist approach sets the setting for this research. The cases that will be presented have been seen under the light of the constructivist approach. Hence, this sub-question aims in directing the thesis under the scope of the constructivist approach of learning in museums.

3. How do museums stimulate self-reflection through labelling?

The third sub-question concerns exploring the stimuli in labels that can be related to the cognitive mechanisms suggested by Van Heusden. It will help me direct my thesis towards examining the levels of personal connection to the exhibits through the labels.

1.3 Methodological approach

The most suitable approach to answer the research questions is to use mixed qualitative research methods in four case studies. Throughout the process of designing and writing this thesis I have used the guide by Bryman (2012). Each case study examines from a deductive perspective the labelling in four museums in the Netherlands and contains two parts. The first part concerns the museum professionals who are involved in the labelling process. By conducting open-ended interviews I explored the expectations and points of views of museum experts, regarding the role and purpose of labels in the exhibit. The participants in the interviews were involved in the labelling process either by writing from scratch or curating already written labels. The second part, regards the museum labels as mediums in enhancing cultural skills to primary school children. By conducting content analysis of the labels, I aim to identify and report the cultural skills that labels seek to advance to their young readers.

1.4 Outline

In the following paragraphs I will describe my approach to answering the research question of this thesis. The next chapter presents the theoretical background and its outline follows the order of the sub-questions.

In order to answer the first sub-question, I will explore the literature on labels. I will present scholars ideas on the role of labels in museums, what are their objectives and what qualities

they incorporate. To do so I will review current literature and empirical evidence. Moving forward to the second sub-question I will place the labels within prominent theories of learning thus, defining their importance in the overall meaning making process. By exploring theories from the fields of sociology, psychology and education I aim to comprehend how labels can facilitate the meaning making process. The theory of constructivism will set the ground for the meaning making process in museums, while the social dimension of labels will be explored. Finally, the third sub-question will be addressed through the scope of van Heusden's framework. By approaching the cultural cognition theory, I wish to provide enough theoretical evidence to prove that labels can also play an important role in visitor's advancement of basic cultural skills. I will present the theory of Piaget and the Van Heusden framework, in order to apprehend cognitive processes that labels may facilitate.

In the third part of the thesis I will present my methodological approach. In this part I will present how the specific methods can help me answer the research questions. My methodological approach will be conducted in two parts. The first part will be structured around semi-structured interviews of professionals involved in the label making process, and the second part around content analysis of the exhibit labels.

Moving on to the fourth part, I will demonstrate the results of the analysis of both parts. I will first present the results of the interviews. These will be structured according to the research sub-questions they answer. After showing how they set the foundation for the second methodological part, I will present the results of the content analysis of labels. This chapter will be organised in four sections, and each one will present the case of each museum. The key findings will also be displayed collectively and schematically at the end of the fourth chapter.

Finally in the last chapter, I will discuss the results of the two methods, present my observations and connect them to the theoretical framework. I will then present my recommendations for labels, address limitations of the research and conclude with suggestions for further research.

2. Theoretical Background

The theoretical background is divided in four chapters. In the first chapter I explore the literature on museum labels. I first present the notion of interpretation by analysing the principles of interpretation which are the most related to this thesis. Then, I go into the literature on the roles and objectives of labels. These chapters are primarily related to the first sub-question. By diving into the literature, I aim to investigate the nature of labels and define their role.

2.1 Museum labels

As already mentioned in the introduction I focus only on the interpretive labels which according to Serrell (2015) *tell stories; they are narratives, not lists of facts. Any label that serves to explain, guide, question, inform, or provoke—in a way that invites participation by the reader—is interpretive* (p 19).

The most important quality of interpretive labels is that they are posed to be open to the individual's interpretation, independent of age. To elaborate, in a visitor centred museum where the advancement of crucial skills, engagement and control over learning comprise its foundation, labels are designed as a medium to promote personal interpretation. In respect of understanding the notion of interpretation I consult the book *Interpreting our Heritage*. Tilden (1957) in the book clarifies that labels are the medium of communicating a message to the audience (p. 13) and have a dual role: an informative and an interpretive. To explain, labels address a message to a wide audience of different age, educational level, interests and culture, and they aim to present the same idea of the exhibition while they can be personally interpreted by the audience. He defines interpretation on a personal level as *the revelation of a larger truth that lies behind any statement of fact* and on a collective level he states that *interpretation should capitalise mere curiosity for the enrichment of the human mind and spirit* (p.8). He stresses the importance of the interpretive quality of labels which strive to achieve the dual goal of message communication and personal connection. Thus, he forms six principles of interpretation, from which I am going to present the three most relevant to my research:

- I. *Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.*
- II. *Information, as such, is not Interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information.*
- III. *The chief aim of interpretation is not instruction, but provocation.*
- IV. *Interpretation addressed to children (say, up to the age of twelve) should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program.*

The first principle is related to the learning processes that can occur in a museum space with the medium of labels. Tilden by the first principal, refers to the connection to personal interests, memories, experiences and knowledge. He explains that a visitor takes the role of the interpreter and tries to translate the written words *as best as he can into whatever he can refer to his one intimate knowledge and experience* (p. 14). By doing so, the reader is able to look back into his memories in order to personally interpret the label. The idea of connecting to prior experiences of the visitor has also been an important aspect in the work of Falk & Dierking which will be referred to in the next chapter. Regarding young audiences, Piscitelli et. al. (2003) identify the same principle regarding the levels of interest and motivation. They support that when children connect to things that they can associate their personal lives with, they demonstrate higher levels of interest. Achieving this correlation can be made by linking the museum visits to home and/or school contexts and concepts familiar to their everyday life. For instance, the researchers propose visiting exhibitions with topics related to subjects and concepts studied at school. Thus, children can place the museum experience within a wider context and therefore consider the museum visit as an everyday experience and not as an occasional activity (p.16).

The second principle is related to presenting discusses the difference between interpretation and information.

Information, as such, is not Interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information (p18).

Tilden clarifies the difference between presenting and revealing information. He finds that the writer of the texts such as labels, does not just write information, but uses the art rhetoric

in presenting information. That occurs by the use of *an analogy, a parable, a picture, a metaphor* (p24). A text which uses such language forms, can in a way include the reader in the story and make him/her to discover the meaning or presented idea. Tilden supports that such playful forms of language are significant in revealing but not presenting sterile information. He poetically concludes that:

The lifeblood of satisfying interpretation flows from the proper and ingenious use of exactly those devices of language that take the hearer or reader beyond the observed fact to, or at least toward, a certification of spirit (p30).

The third principle refers to the role of labels in creating motivation for learning. He explains that the intention of interpretation is to *stimulate the reader or hearer toward a desire to widen his horizon of interests and knowledge, and to gain an understanding of the greater truths that lie behind any statements of fact.* (p. 33).

A museum visitor is aided by labels to gather information on the exhibits but he/she also needs to be motivated to engage. Motivation plays a significant role in the outcomes of learning in both formal and informal learning settings (Falk & Dierking, 2000, 19). The researchers elaborate on motivation that can either be extrinsic or intrinsic. The first type indicates that engaging into a learning activity could lead to an *extrinsic reward and the second type suggests that an action is done for its own sake* (p 19). Intrinsic motivation can lead the visitor towards the exhibits that are the most relevant to his/her experiences and areas of interest. Therefore, acquiring further information on the topic can advance their existing knowledge and ultimately bring a sense of self-fulfilment (Paris, 1997, p 23). Paris suggests that visitors could *"learn" more about themselves and their experiences through reflection inspired by exhibits and moods stimulated in [museum] settings* (ibid). Furthermore, the third principle reveals a positively provocative quality of labels. A report on Storytelling in labels from The Museum Association (Willis, 2019) also uses Tilden's principles in interpretive storytelling. Regarding the second principle, the writer explains: *we are not meant to emerge from the exhibition unchanged. The objective is to get us thinking.*

Last, the fourth principle stresses the importance of using age appropriate language in labels (p.48). Tilden explains that interpretation by youngsters is linked to terminology and language. He gives the example of terms such as "sociology" and "theology" that sound hard and complicated to young kids. These terms may discourage and demotivate engagement, which is a significant step towards personal interpretation according to the second principle. Similarly, the guide by The J. Paul Getty Museum (2011, p 5) advises the

use of crisp and clear language, avoiding large and infrequently used words. Hence, the terms need to be explained in a child appropriate language, with examples, interesting connotations and connections that refer to familiar concepts to children. In this way, they are able to get interested in the topic and make a personal interpretation of it.

Another important aspect in the role of labels is that they serve exhibition designers in transmitting ideas. According to Serrell (2015) it is of paramount importance that the “Big idea” behind the exhibition should be communicated in all labels. In her extensive guide on labels she also outlines a set of techniques that can facilitate labels to achieve this goal. These techniques are: raising questions, provoking interpretation, making personal connections with the exhibits, inviting visitors into a reflecting process and promoting interaction.

Promoting interaction

Exhibition designers consider interaction between children and adults crucial in the museum experience. Research indicates that conversation over exhibits sparkles interest to children, facilitates peer-learning and nurtures curiosity (Piscitelli, 2003; Paris 1997). Rand (2010) conducted an experimental research on the role of labels in the interactions between families in a history museum. She tried to identify the elements in an exhibition that prolonged the attention span of families and thus spent more time in front of the exhibits. The results of her study pointed to the significant role labels played in the families’ attention as their writing style and purpose affected the time the families spent in the exhibition. Precisely, she found out that an average of 7 minutes was spent in the exhibition with labels of 4500 words. In the same museum, an average of 22 minutes was spent by families in exhibitions with labels of 1500 words that enhanced conversation and interaction between the members of the family. Rand, specified that the labels that invited the readers to interact and discuss, were written in a “voice” that talks to the children through a parent. Moreover, they were posing questions, describing stories and were written in a personalised style as they were meant to be read aloud.

Asking questions

Simon (2010) recognises two types of question labels, those that pose personal questions and those that ask speculative questions (p141). The purpose of asking personal questions is for the visitor to *move towards a social experience* in the museum. This can be accomplished by posing personal questions that encourage the viewer to deeply and personally connect to the exhibit. On the other hand, speculative questions encourage

visitors to move away from the personal sphere and move to an unfamiliar territory. By posing hypothetical questions such as:

what would your life be like if you lived in a log cabin with no electricity? (p146),

the label can invite the reader to think beyond the exhibit and make hypotheses or imagine something about it. She explains that those kinds of labels can inspire audiences to think about their own knowledge and recall memories associated with their personal creations. Nevertheless, the use of questions has to be done prudently as they may also cause negative effects on the visitors. The main concern is that they intimidate and overwhelm visitors if they do not have enough knowledge on the topic.

The research by the Exploratorium Museum (Gutwill, 2006) indicated that even though the audience mainly enjoyed interpretive labels, the majority disliked the questions-only format. That was because they were not provided with enough guidance and felt discomfort. In contrast the labels that included a question and a suggestion were the most appreciated as they provided guidance to do the suggested activity and food for thought. This notion coincides with Hein's paradigm of a constructivist museum, which offers *multi-outcome exhibitions that encourage visitor-driven exploration rather than discovery-based exhibits that try to teach a particular concept or idea.* (*ibid*, p 4). Moreover, the remark made from the Exploratorium museum, coincides with Tilden's third principle of interpretation as described above. He mentions that in order for children to engage in reading labels, the language ought to be age appropriate with familiar terms and easy language. Finally, conducting audience research in a museum can help to understand the educational level and the expectations of the visitors. Having knowledge on the characteristics of the audience, facilitates the orientation of labels in regards to language and content.

Narrating Stories

Another objective of the interpretive labels according to Serrell, is the intention to tell stories and address challenging issues to the readers in order to contribute to an overall meaningful and positive museum experience. They are the medium of communication between the exhibits and the viewers as one of their purposes is to communicate a predetermined message to the audience.

The Museum Association has published a guide especially on storytelling (2019) that explains how labels can be turned from informational into interpretive. The guide clarifies that since the audience mainly visits museums for entertainment reasons, they do not wish *to be lectured* (p 15). Therefore, providing information in a form of a story can engage the

visitor's imagination. The same goes for history museums that present historical objects. The guide clarifies that such objects hide a story that needs to be revealed through the labels. Finally, the guide emphasises the importance of inviting children to perceive the exhibits by their senses. In a museum that follows Hein's paradigm, exploration by the use of all senses is essential in approaching the exhibition's content. Thus, a story can be narrated by inviting children to use their senses in order to better understand the exhibit.

To conclude, in this chapter I presented the literature on the nature of exhibit labels. I examined their role in the museum experience structured around Tilden's principles and the techniques that label makers employ to engage visitors in interpretation and construction of personal meaning according to Serrel's guide. The key findings of the literature regarding the role of labels are: personal connection, revelation of information, provocation instead of instruction and age-appropriate language use along Tilden's principles. Serrel provided a fifth aspect in the role of labels - communicating the exhibition's "Big Idea" as well as a set of techniques with which labels can accomplish their goals.

In the following chapters I will take the analysis of labels a step deeper to uncover the underlying principles to the qualities of labels by referring to the relevant theories. Specifically, I will examine the contextual model of learning by Falk & Dierking, the constructivist approach by Hein and the sociocultural theory by Vygotsky.

2.2 The notion of prior knowledge and personal meaning making

“Perhaps the most striking aspect of children’s self-report about their museum experiences was the diverse, highly individualistic, and idiosyncratic nature of each child’s recollections, interests, and learning” (Anderson, et al., 2002).

As briefly mentioned in the previous chapter, conversation and personal interest stimulated by labels can guide a visitor in constructing personal meaning. As both these aspects are significant in the process, in this chapter I will demonstrate how they are placed in the Contextual Model of Learning theory.

Falk & Dierking (2000) developed in the beginning of the 90's the Contextual Model of Learning in an attempt to unify the fundamental ideas of learning in a museum. The Contextual Model of Learning (figure 1) describes that museum learning occurs within three intertwined contexts: *personal, sociocultural and physical.*

To begin with, the personal context refers to the way a visitor personally connects to an exhibition. Falk & Dierking, much along the line of Hein’s constructivist approach, admit that not all museum experiences can be identical to all visitors, as each one seeks to personally connect the learning objective to what he/she already knows. To do so, visitors consciously or unconsciously look for a connection to their existing knowledge. That occurs usually to adults because the scholars explain that they seek confirmation to what they know or because they seek to expand this knowledge. Furthermore, they stress that “new” knowledge can be constructed upon the basis of prior knowledge and experiences (ibid, p 16). They claim that in order to facilitate learning in a museum that exhibitions should,

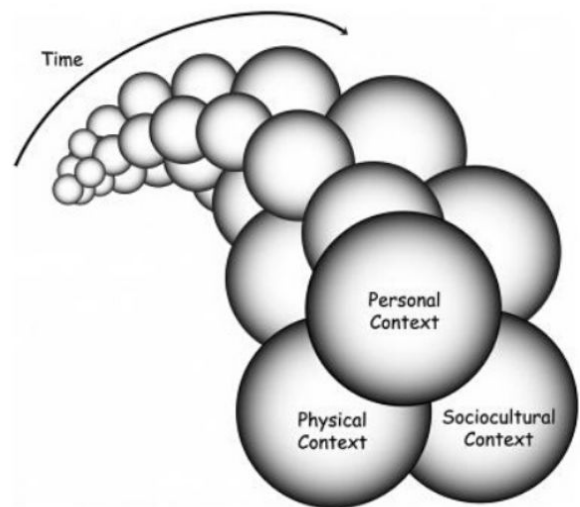


Figure 1: The Contextual Model of Learning
Source: Falk & Dierking, Learning from Museums, 2000, p12

among others, address the viewer on a personal level by *tapping into people's personal history* (2000, p 181).

In a nutshell, Falk & Dierking seem to consider that museum experiences need to provide visitors the opportunity to "see themselves" within an exhibition or any learning occasion. The theory of connecting prior knowledge in a museum visit has also been acknowledged by Piscitelli et. al. (2003). The researchers claim that the degree of interest and motivation is influenced by the previous knowledge and experiences of a child (p.15).

Similarly, Paris (1997) also recognises the vital role that prior knowledge plays in a museum experience. He states that connecting one's knowledge to an exhibit can trigger emotions and interest to follow activities and instructions. In order to explain that idea he gives an example on closed and open-ended activities from a classroom. Closed-ended activities limit the exploration of a topic and cause minimum persistence when the solution is unknown. In contrast, open-ended tasks such as hands-on and problem-based activities tend to trigger exploration according to the personal interests of the students. In the end, if the answer is unknown they reinforce curiosity to pursue it. Following a task according to personal interests and knowledge can be also evident in the book of Falk & Dierking. They support that such tasks increase feelings of self esteem and fulfilment to children (p.22). The example can also be extended compared to museum experiences as well in the article by Paris (1997):

A hallmark of museum exhibits is their open-endedness: visitors are free to approach, engage, and persist at their own pace. When students in school or visitors in museums have choices, they demonstrate persistence in the face of difficulty, more commitment to the task, and greater self-regulation (p 23).

This resembles the ideas of Hein (1995) on the constructivist museum which was briefly mentioned in the introduction. In such an informal learning setting, learners are called to interact mentally and physically within a learning experience in which the objective is to approach meaning making. According to Hein, the notion of meaning making or constructing meaning *refers to what visitors inevitably do in museums (1999)*. It is a process humans constantly undergo in order to make sense of the world. This process is associated with the notion of prior knowledge previously analysed while, as he clarifies, we use our memories and experiences in order to make sense of what we see in a museum.

Similarly, Hooper-Greenhill (1999) explains when we are at a museum in order to construct meaning of what we see, *we try to find something that we can either recognise or remember,*

or grasp through analogy. If we can make this preliminary connection, the meaning making process continues (p 46). Therefore, connecting the exhibition's topic with matters related to children's actuality, can increase the levels of understanding as associations can be easily made. In addition, Piscitelli et.al. (2003) highlight specifically the importance of the connection between the museum visits to the school curriculum. By drawing connections to familiar concepts from school, children are able to easily engage to the exhibitions' theme.

The scholars recognise one more aspect in children's learning process: the choice and control. They support that children freed from anxiety or negative feelings are more likely to engage in learning activities *when they have choices and control over their learning* (Falk & Dierking, 2000, p19). Similarly, Paris (1997) states that children who demonstrated high levels of motivation and interest over the exhibitions had choice and control over the learning activities.

The second context in the Contextual learning model they identify is that of physical. This context refers to the physical elements of a museum that affect the museum experience of the audience. Specifically, they suggest that *all learning is influenced by the awareness of space* (Falk & Dierking, 2000, p 62). Moreover they support that individuals can emotionally relate memories to places, thus, making sense of the museum as an environment is important in understanding the experience.

Finally, the third context of the model is that of sociocultural. This context concerns the theories that I will be described in the next section. The scholars see children as active members of the society and therefore, their interactions affect their learning process and therefore I will further elaborate in the next chapter.

The aspect of time

Furthermore, Falk & Dierking calculate another significant aspect in the complicated process of learning in a museum environment; the impact of time. The aspect of time in their model underpinned the three previously mentioned contexts. To explain, stimuli can recall an information that has been received in the past and it is stored in the memory. In a specific moment the combination of the information with the current situation, aids the person to make associations of the memory and actuality and thus make meaning. They give an example of a woman that understood the mechanism of a lift bridge while observing it going up (p. 16, 26). Even though her profession and field of studies was irrelevant to engineering,

she was able to explain the mechanism with terminology. A year before the incident with the bridge she had visited an exhibition on bridges and although she was under the impression that she did not learn anything the day of the visit, she was able to remember facts that she read and saw in the museum. The woman had received the information from the museum visit but it stayed dormant, until she received a cue in a “real world” situation that evoked the knowledge. This is a fine example of connecting memory and actuality in order to make meaning which is nevertheless hard to be examined in this thesis.

To recap, in this section I have explored the Contextual Model of Learning and especially the personal context which refers to the personal associations visitors can make in relation to the exhibition’s content. An important aspect of this context is the process of meaning making which is reported by many scholars (Hein, 2000; Hopper-Greenhill, 1999; Paris 1997; Piscitelli et. al., 2003). Making correlations with prior knowledge, memories and feelings while perceiving exhibits, can encourage constructing meaning making. In addition, I referred to the connection to school curriculum as a point of reference for children. Finally, I referred to the aspect of time in constructing meaning, I briefly mentioned the physical and social contexts. In the following section I am going to further elaborate on the social context in relation to labels, by analysing the sociocultural theory of Vygotsky.

2.3 The social aspect of labels

The world has meaning for us because of the shared experiences, beliefs, customs, and values of the groups that inhabit it with us. The collection of shared beliefs and customs is what we have come to call culture.

(Learning from museums p.39)

In this section I am going to present the sociocultural theory of learning by Lev Vygotsky which can serve as a suggestion on how labels could be used as social objects in a museum setting. In order to understand the nature of labels and the possible cultural skills that can be advanced in young audiences, it is important to include the sociocultural aspect of learning. It is worth exploring it in favour of understanding the role of social interactions between family members and children inspired by exhibit labels in museums.

Humans are not only individuals but also members of a social group, thus children are part of this social context as well (van Dorsten, 2015, p 71). Lev Vygotsky developed a groundbreaking theory on child development and learning process. Vygotsky developed a non individualistic view of learning and behaviour which places the child in a larger social context. The Vygotskian theory (Thought and language, 1962) draws the attention to the role of social interaction in child development with a focus on language. He conceptualised language as a human invention to be utilised to achieve the purposes of social life. To explain, his sociocultural theory claims that one uses several 'psychological' tools such as symbols, works of art and language as a means of adapting in a society. Language is the primary cultural tool that has been developed in respect of presenting mental activities and socially interacting (van Dorsten, 2015, p 98). Vygotsky described two levels of development: the level of actual development (what the child already knows) and the level of potential development (what the child does not know yet). The distance between these two levels is named: zone of proximal development (zpd) (figure 2). In order for the learner to cross this distance and approach the unknown knowledge, the assistance by a mediator is required (ibid). The mediator is a person who represents the child's culture and who also possesses the unknown to the child's knowledge. He/she assists the child to proceed towards the potential knowledge and then it is internalised by the child. Moving from the "known knowledge" area to the "unknown knowledge" area involves the use of language and psychological tools. The process occurs through conversation with a person which is usually

older than the learner, for instance a teacher, a parent or an older child. This mediation allows a child to construct meaning and make sense of the world (Van Dorsten, 2015, p 98).

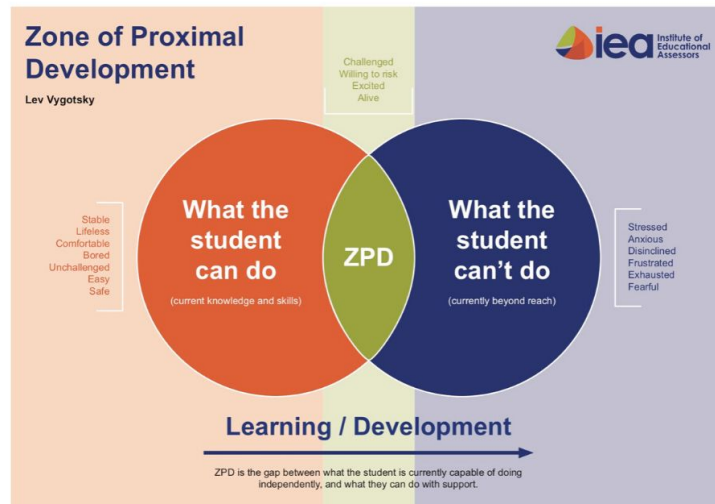


Figure 2: Zone of Proximal Development

Another important aspect of the sociocultural theory which also related to this thesis is the role of motivation. Vygotsky claims that motivation is required in order for a child to want to learn through instruction and go through the zpd. (Van Dorsten, 2015, p 99). Van Dorsten clarifies that motives evolve according to the developmental stage of the child and that interaction with others leads to developing new motives.

For the time being, the following question arises:

How can the sociocultural theory be embodied in a museum context? And what is the role of labels and museum educators in that?

Many scholars (Piscitelli 2003; Black 2012; Serrell, Falk and Dierking 2016; Munley 2012) have already taken into account the sociocultural dimension of learning in museums as experiences in museums are not only individual but also collective as usually the visitors and especially children visit museums in groups. They also stress the importance of social interaction in a museum context. Frank Oppenheimer's primary idea for children's museums was for them to have control over their experience and for museum staff to facilitate the activities taking place in the exhibition by taking the role of "explainers" (Clever 1988, p 12). Black (2012) advocates that learning in a museum derives partially from the museum content and mostly from the family interactions regarding the content.

In the same respect, as mentioned in the social context of the model in the work of Falk and Dierking, there is a lot of attention to the social aspect of learning. In the contextual model of learning that they developed, they describe that social contact of the visitor plays an important role in the museum experience. They especially clarify that museum experiences for families and school groups are shaped by social interactions through conversation inspired by looking at the exhibits (2016, p 148). Falk & Dierking support that children with their chaperons (parents, teachers)

interact, converse and provide information to one another in recognisable patterned ways that are repeated throughout the visit. In fact, the entire visit can be characterised as one single, large-group conversation, even though families engage in numerous small conversations that are constantly beginning and ending. (p. 93, 2000).

These social interactions between children and adults based on dialogue can aid the former to foster engagement and to make meaning of the exhibits. Youniss (1975) supports that children from a young age are capable of joining a conversation around an exhibition as they are *active thinkers who bring cognitive skills to social interactions and make meaning from them.*

Social interactions and conversations around the exhibits are thus a great way of peer learning. However, they need mediators. Within the framework of this thesis, I argue that object labels can assume both the role of stimuli and mediators to sparkle conversation thus embracing the sociocultural dimension of learning.

This view has been supported by many scholars. Serrell (2015) in her extensive guide on museum labelling, argues that labels should encourage dialogue and cooperation between adults and children. Specifically, she describes that they must have the following characteristics: they are easy to read, they are nice to be read out loud, use interactive devices or phenomena (p79). On the same note, Piscitelli (p.16, 2003) advocates that children's museums should design experiences that encourage ideas sharing. In this way, peer-learning can aid them to reconstruct and define their ideas and theories. Additionally, she claims that open-ended questions in discussion around artefacts mediated by parents can increase their levels of motivation and encourage further observation.

Furthermore, an empirical example comes from the research by Ash et. al. (2012). Their research on museum educators emphasises scaffolding with the use of tools and symbols in educational practices in museums. Their study concluded that focusing on visitors' prior

knowledge enables museum educators to direct the conversation within groups of visitors by linking observations and making connections to the exhibits.

Finally, by assuming that a dialogue between adults and children has the characteristics of the zone of proximal development, I perceive the labels as tools for dialogue. Therefore, I believe that labels may take the form of social objects that promote dialogue between adults and children, in the purpose of constructing personal meaning and fostering engagement.

In this chapter I have presented the social aspect of labels. By first introducing the theory of Vygotsky I explained how sociocultural learning occurs. Then, I referred to how this can occur in an informal learning place by demonstrating the literature of other scholars on the matter. In the next section I am going to present the theoretical framework of Van Heusden.

2.4 Cultural skills and awareness

After looking into the literature on museum labels and the main theories related to their actions in museums, I will now move on to present Van Heusden's cultural cognition framework. To do so, I will introduce the theory of Piaget on how knowledge grows, which is one of the basic theories that have influenced the framework. Then, I will analyse the cognitive skills that are addressed in cultural education and how they are interconnected. I will finally argue that the cultural cognition framework can be considered in the process of writing interpretive labels in museums by demonstrating how they can be used as an analytical tool for the content analysis of interpretive labels.

To begin with, Van Heusden initiated a research project called "Culture in the Mirror" (2009-2013) in order to provide clarity and coherence on the culture education policy of the Netherlands. In the project, his framework on cultural cognition was the connecting link to everyday practice in schools. Human cognition is characterised by the fact that humans experience a difference between memory and actuality (Culture in the mirror, 2012²). To elaborate, humans live with their memory and with the knowledge of the difference between memory and reality. They constantly use their memory in order to behave in the present and to interact with actuality. Therefore, culture is twofold: first the experience of the difference between actuality and memory, and second dealing with it. He explains that the difference is connected to newness, because any new information received at the present is to be processed based on the memory, which is consequently transformed by the new information. In order to better understand the concept of interaction between memory and actuality, I will present the theory of how knowledge grows by Piaget - one of the fathers of developmental psychology.

Jean Piaget developed one of the ground models on the constructivist theory. His concept offers an interpretation on the cognitive process of acquiring knowledge that is presented in a stages-like structure. In other words, he developed a theory on how knowledge grows during childhood. In the first place, Piaget's theory (1952) claimed that all people are born with schemes. Schemes are mental frameworks which are fundamental units for interpreting information. They allow a person to make meaning of the self and the environment in order to respond to it. Infants also have schemes and Piaget named them reflexes. These are

² Youtube video: <https://www.youtube.com/watch?v=lctS532nypw&t=1698s>

basic and simple at that age, but they constantly become more complex and structured as children grow up (Huitt & Hummel, 2003). He also claimed that humans have a biological drive to maintain balance between schemes and the environment which is called equilibrium. While humans receive more stimuli and information, they try to maintain cognitive equilibrium - in other words harmony between the environment and the schemes. To do so, Piaget described two processes of learning that occur simultaneously, throughout life and progressively become more complex and abstract: accommodation and assimilation. During accommodation a person changes the cognitive structures in order to accept and adapt into something new from the environment. On the other hand, during assimilation a person transfers the environment so it can be placed within the cognitive structures. (Huitt & Hummel, 2003). The situation when a new information appears is perceived as *disharmony* by Piaget and it refers to the effort that a human puts in order to adapt to the actuality. Van Heusden claims that humans use their memories in order to deal with this situation of disharmony. How does this occur though? The scientist has conceptualised the ability of humans to use their memory in order to understand reality in four basic strategies: perception, imagination, conceptualisation, analysis.

Human cultural cognition	Accommodation	Assimilation
Concrete (episodic)	Perception (schema)	Imagination (technology, art)
Abstract (semantic)	Analysis (theory)	Conceptualization (language)

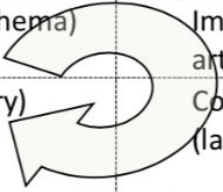


Figure 3: The four dimension of hman cognition

The first strategy is perception which entails the first encounter with an object and the understanding of its existence according to its qualities. For example, a tree. One first understands the existence of a tree based on its basic elements (shape, colour, texture). Second, the strategy of imagination enables one to think of other realities, new possibilities and developments. In the example of the tree, one might think of another use - a table for instance. The viewer at that stage may give a second meaning or purpose of the object while using his/her imagination. Third, the dimension of conceptualisation is where one moves to create a concept by using language and communication with another person. Elements at this stage are still the first two (perception and imagination) that enable the construction of a

concept which validates the change in reality. For example, the table can be conceptualised as a dining table. Finally, these stages lead to the final one of the analysis. The viewer at this point is able to build an idea/theory, construct meaning, analyse a situation in terms of its constituting structure. This dimension is much more detached from reality as it facilitates one to make meaning of an object after going through all the three steps from the most visually obvious to the most abstract and personal meaning making stage.

In order to read figure 2 and understand how the skills are intertwined, one needs to keep in mind that as the schemes presented in Piaget's model are built from the most concrete to the most abstract, the same methodology is followed by Heusden. The strategies are structured from the most concrete to the most abstract level and the same goes with the memories one uses. Conceptualisation and analysis use abstract memories, such as models and structures, but perception and analysis employ concrete and specific memories. On the other hand, perception and analysis are accommodative processes as one needs to accommodate the actuality, while imagination and conceptualisation are assimilative processes. To elaborate on the difference, one needs to let reality determine his/her cognition (accommodation), but one needs to influence reality through imagining and conceptualising (assimilation). The two directions are following the Piagetian' theory of consequent adaptation of knowledge to reality and they go back and forth. On the contrary, the process from perception to analysis does not go backwards and does not always go through all the steps. One always starts from perceiving but does not necessarily move to more abstract actions. Event though the two theorists share similar perceptions on the use of memory, they have one fundamental difference. On the one hand, Piaget affirms that new knowledge is built up on the previous one and comes to replace it in order for the new one to develop. On the other hand, Heusden believes that one skill is built upon the previous one. Hence, they are interconnected and one does not replace the previous skill. (van Dorsten, p 78-79)

In a nutshell, this cognitive process is culture according to Heusden as it facilitates one to connect personal memories to a variety of media on different levels of abstraction. Nevertheless, the question that arises is how can this framework be used to analyse museum labels?

interpreting a work is 'doing things with signs' rather than observing them (Van Heusden, 2015, p 1).

The researcher claims that art is not man-made objects, but a cognitive process that individuals undergo with objects. That is because, objects themselves propose an aesthetic experience (based on their aesthetic qualities) but the ways they are used by individuals constitute a cultural experience (2015). Therefore an exhibit fulfils its purpose when it is perceived as a medium facilitating meaning making regarding an aspect of life or world, rather than as an object of study. He sees cultural cognition as semiotic as it entails the use of signs in order to make meaning of things around us and connections of the memory with the present. Similarly, Cassirer (1944, in Dorsten p37) perceives signs as facilitators of bridging this gap in a 'symbolic system'. In the same aspect Herder states that the mind uses 'sensory types'. He claims that human sensations are coded into signs in order to produce meaning (Dorsten p 37). Heusden identifies signs in four groups: body, artefacts, language and graphic signs (Dorsten, p 42). They are produced by expressing the cognitive skills I mentioned above and depend on personal abilities or preferences. Even though these signs are meant to be produced by children, in this thesis I aim at providing enough evidence that other mediums such as labels can be seen as signs utilised by children. To elaborate, I advocate that using signs such as labels can facilitate building the four cultural skills. Thus, I see that interaction with labels can achieve that goal because labels introduce new information to the viewer and invite him/her to adopt the existing memory to the actual experience he/she has while reading the label.

In order to explore if and which cultural skills museum labels can advance in young audiences, Van Heusden and Piaget explain that once one receives new information or stands in front of something unfamiliar, enters a situation of disequilibrium. In this research, I assume the action "reading a label" in a museum, as a situation of disequilibrium because the reader needs to process new information and adjust to this actuality. In order to do so, he/she always uses existing memory and knowledge to adapt to the reality and engage in the new situation.

In this section I first presented the theory of Piaget and then presented the framework of Van Heusden on cultural cognition. The framework is going to be used as a base in analysing the labels. Finally, In the following part I will show the methodological guidelines on the thesis as well as how I am going to adapt the framework in my analysis.

3. Methodology

In this part of the thesis I will explain how I use qualitative methods to answer the main research question: to what extent can museums advance cognitive skills in young audiences of primary school by the use of exhibit labels? As I aim in testing and proving if the strategies proposed by van Heusden can be used in exhibit labels, I follow a deductive approach. I have examined four museums and I have used a combination of qualitative methods: in-depth interviews and content analysis of texts. By analysing the primary data I collected I hope in these four cases to accurately portray the labelling process in respect of enhancing useful skills to children, and to examine which skills can be advanced through labels.

In the following chapters I will first present the data collection process and then how I analysed my data.

3.1 Research Design

The museums that took part in the research are four:

- the art museum of Groninger (Groningen),
- the history museum of Rotterdam (Rotterdam),
- the cultural heritage museum of ZuiderZee (Enkhuizen)
- and the visual arts museum for children of Villa Zebra (Rotterdam).

The empirical part of the thesis is divided in two stages that facilitate approaching the research questions.

The first stage of the data collection in the case studies involves conducting interviews with museum professionals who were involved in curating or designing labels that referred to children aged of primary school. The questions from the interview guide have been asked to all the interviewees, but some of them were adapted into the specific features and topic of each museum. The interview guide is available in Appendix B.

The second part entails content analysis of the labels that the museum's professionals who took part in the interviews provided me with.

During all the stages of the research design, data collection and analysis I have been using the Methodological guidelines (2016-2017) for the MA of Arts, Culture and Society and the Social Research Methods by Bryman (2012). In the next two sections I present further details on my methodology regarding expert interviews and qualitative content analysis of labels.

3.2 Interviews

The scope of the thesis is to explore the cognitive skills that can be advanced in young visitors via the stimuli of labels. To understand to what extent the labels in the examined museums can promote these skills, I first need to comprehend the labelling process and its scope in each museum. The sub-questions assist in approaching that matter and have been organised as follow:

- 1) What is the role of labels in the exhibition and actions do they invite the viewer to do?
- 2) To what extent do labels in museums encourage young audiences to construct personal meaning?
- 3) How do museums stimulate self-reflection through labelling?

To answer the sub-questions, conducting in-depth interviews is considered to be a suitable method that allows me to form a clear image of the labelling process of each museum. Thus, I have conducted four semi-structured interviews lasting between 45 to 60 minutes each, with one of the museum professionals who is actively involved in the labelling process in the examined museums. All of the interviews were conducted via Skype and Zoom and were audio recorded. Prior to the interviews, all participants received a consent form which informed them on the scope of the research, guaranteed the respect of their anonymity and reported that the interviews were going to be audio recorded. After the audio files were verbatim transcribed by the use of InqScribe software. An overview of the respondents, the signed consent forms, the audio files and the transcripts can be found in the appendix folder.

The choice of semi-structured interviews was selected as the most appropriate type of interview as it is reflecting the open-ended and explorative character of the thesis. Moreover, it encourages conversation (Bryman, p 13) and promotes the interviewees to freely give their personal opinion on the labelling process.

For conducting the interviews I prepared an interview guide which divided the questions into three main categories. The first category focused on the museum and the current exhibition. Questions were asked on the museum's target audience and the exhibition's theme. Getting insight on how museum professionals approach learning in the museum helped me define the intentions and the viewpoints in children's museum experiences. The second category concerned the labelling process. Since every museum follows a slightly different approach in labelling, I asked questions that clarified the steps and the role of the museum professionals

who are involved in it. The third category included the largest amount of questions and lasted the longest out of the whole duration of the interview. It concerned the labels' outcomes, the expectations of the labels' creators regarding their use by the audience and the methods they use to achieve them. Furthermore, by asking these questions I expected to understand which competence they hope to instil in children. Examples of the questions are the following: how do you expect the audience to use the labels? Do you think it is possible for labels to bring back memories? How are labels connected to the school curriculum?

As the character of the research is explorative, the interviews are semi-structured and the questions open-ended. Hence, the sequence of the questions was not always followed as it shows in the guide. That occurred because I was following the flow of the interviewees and wished to retrieve as much information as possible. The full interview guide can be found in the appendix section.

In this study I used a purposive sampling technique to recruit the participants of the interviews. On the contrary, random or probabilistic sampling were not considered as they are utilised to *ensure the generalisability of findings* (Palinkas et. al., 2015 p 534) and I wish to show some museums - cases that may be connected to my theoretical framework. As the research on the labelling process provides an *indication of what units need to be sampled* (Bryman, p 416), it determines a narrow population. Therefore a representative sample was used as it *reflects the population accurately so that it is a microcosm of the population* (Bryman, p 187) .

Finally, the collected data from the interviews was coded manually and analysed by the use of thematic analysis. Several topics emerged from the transcripts after reading them several times. Bryman mentions that a "trap" in thematic analysis may be that identifying themes might seem unclear, thus I focused on how often the themes were repeated in the interviews (p 624, 13). Therefore, I examined the data in order to extract some core themes which occurred several times between and within the transcripts. In order to avoid any biased point of view on the transcripts, I tried not to look for direct evidence that signifies the cognitive skills as analysed in the framework, but to develop a critical view on the transcripts. As Gill mentions, analysing transcripts *involves interrogating your own assumptions and the ways in which you habitually make sense of things* (2020, p 179). Hence I followed the advice for an open-minded and sceptical reading of transcripts in order to explore the research questions of this thesis. The steps in coding followed the recommendations by Gill (2000), thus I first

got myself very familiar with the transcripts by reading them several times. I focused on the themes indicated in the research guide and slowly themes and patterns emerged which were organised in categories.

3.3 Qualitative Content Analysis of texts

The interviews were followed up by content analysis of exhibit labels. In order to be able to identify the cognitive skills labels can advance in children, after getting familiar with the labelling process and the objectives of labels through the interviews, I conducted qualitative content analysis of the labels. I collected the exhibit labels from the current exhibitions of the museum sample. All museums provided me with the data except for the Villa Zebra Museum, because I already had photographed all texts in a previous visit to the museum. The number (63) of the labels from each museum varied according to the size of the exhibition. To elaborate, I examined 18 label texts from Groninger Museum and 15 from Villa Zebra Museum. The case in the other two museums was slightly different as they provided a notebook especially addressing young visitors. This notebook is designed in a way to accompany the child during the visit and to be used while reading the labels. Therefore, I have included the notebooks in my analysis. I analysed 15 texts from ZuiderZee museum: 9 text labels and 6 texts from the notebook complementary to the labels. Finally, I analysed 15 texts from the booklet of Rotterdam Museum. The reason why I choose to analyse only those labels, is twofold. First, because the texts from the exhibition are informative which indicates that they present only historical information. On the other hand, the labels in the booklet are rather interpretive. Second, the language in the exhibition labels addresses adults, but the booklet addresses only young children.

In the following table I present a summary of the collected data:

Museum	Pages of transcript	Number of exhibit labels	Number of labels in extra booklet	Total amount of labels	Type of museum
Groninger Museum	12	18	0	18	Art Museum
Rotterdam Museum	12		15	15	History - City Museum
ZuiderZee Museum	14	9	6	15	Cultural Heritage Museum
Villa Zebra Museum	12	15	0	15	Art Museum for children

Content analysis of the texts is considered to be an ideal method as it allows me to identify in them the skills as framed by Van Heusden. One of the main advantages of using this method is that it can bring to the fourth insight from a complex use of language which can also be implied and not strait-forward.

By following the guides on qualitative content analysis by Bryman (2012), Gill (2011) and Bergtröm & Boréus, 2005 (in Frykman, 2009) I developed a research design for the conceptual analysis which would help me discover the existence of concepts in the labels. After collecting the data, I got myself familiar with them in order to start recognising patterns and themes.

Conducting the qualitative analysis was based first on the model provided by the Van Heusden framework (2016, p 3) (figure 3).

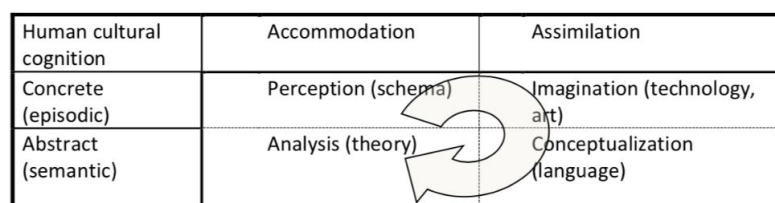


Figure 3: The four dimension of hman cognition

In short, Van Heusden (Culture in the mirror, 2012, 15.00 - 17.00³) states that as humans we live with our memory and we constantly use it in order to deal with actuality. The way to interpret what happens around us and make sense of each situation, is to continuously use our memories. Humans also use memory in order to understand something new, something unfamiliar. He claims that we recognise what is foreign to our memories and we try to deal with it by adapting or transforming our memories according to the new actuality. We use types of memories : concrete (memories related to sensory, observable characteristics) or abstract (detached from reality e.g social structures - roles).

We can use our memories in four different ways: perception - imagination - conceptualisation - analysis.

Then in order to recognise the skills presented in the figure, I used the publication Culturele Basisvaardigheden (Vermeersch et. al., 2016, p 16-18). This report uses Heusden's suggestion in order to present and analyse the conceptual classification of basic and partial cultural skills that can be used in cultural education. Hence, in order to objectively explore and analyse the labels, I have used it as a guideline in connecting words and sentences from the labels to the proposed skills. The following table presents the translation to English from the original figure.

³ YouTube video: <https://www.youtube.com/watch?v=lctS532nypw&t=1698s>

Basic Skills		Concrete activities	
Basic Cultural Skills	Cultural sharing skills	Specific actions (examples, clustered)	(Parts of) educational activities (examples)
Perception	Sensory perception	<ul style="list-style-type: none"> • Seeing • Hearing • Tasting • Smelling • Feeling (sense of touch, thermoception, nociception) 	<ul style="list-style-type: none"> • Viewing industrial heritage • Listening to music • Smelling perfume • Tasting a dish • Feeling a certain textile • ...
	Sight and experience	<ul style="list-style-type: none"> • Looking • Listening • Tasting • Smelling • Feeling • Noticing, determining • Locating (e.g. sound in space) 	<ul style="list-style-type: none"> • Observing a visual artist in action • Listening to the continuous bass in a song • Experiencing the texture of a particular material • ...
	Memory and recognition	<ul style="list-style-type: none"> • Remembering • Identifying, the comparison of observation with memory, recognising or recalling memories • Not recognising • ... 	<ul style="list-style-type: none"> • Experiencing a new taste • Recognising a certain fragrance and linking it to one's own memory • Noticing the difference between real and reproduction • Noticing a performer's own interpretation of a piece of music. • Hearing a fable and, consequently, remembering an incident
Imagination	Imagining and inventing	<ul style="list-style-type: none"> • (Re) presenting, proposing • Fantasising, dreaming, making up, creating delusions • Planning, estimating, thinking ahead, predicting, hypothesising, designing, dimensional thinking, innovating • Transformation and manipulation of perception and knowledge • Connecting, associating, modelling and rescaling, assembling • ... 	<ul style="list-style-type: none"> • Brainstorming together • Converting a feeling or language to another medium or register (e.g. from verbal to physical, from mathematical to artistic) • Coming up with a certain staging • Depicting a political situation • Making up a plot or a character • Making hypotheses about the further development of a news item • Looking for associations between gained impressions • Foreseeing how colours match with each other • Coming up with a new melody or visual work • Depicting historical events • ...
	Physical expression	<ul style="list-style-type: none"> • Expressing oneself (an individual belief or opinion), expressing a feeling, showing emotions • Presenting thoughts, empathising, playing, performing, pretending, ... 	<ul style="list-style-type: none"> • Showing feelings of anger or sadness in a dance • Allowing oneself to be moved by an image • Empathising with a role in a play • Expressing one's own belief about current events • Reciting an existing text or performing a piece of music • ...
	Creation with materials and technique	<ul style="list-style-type: none"> • Using materials • Applying technology • Developing, making, constructing, ... 	<ul style="list-style-type: none"> • Applying a specific painting technique • Making an installation • Writing a new poem • Writing a musical score • Drawing up a plan for an imaginary building • ...
Conceptualisation	Conceptual naming	<ul style="list-style-type: none"> • Classifying, categorising • Naming, formulating, telling, talking about, defining, describing • Naming analogies and patterns, synthesising, • ... 	<ul style="list-style-type: none"> • Summarising a text schematically • Identifying the typical characteristics of media • Giving artworks different denominations • Formulating your own vision about the news (e.g. blogging, twittering) • ...
	Indicating and appreciating	<ul style="list-style-type: none"> • Interpreting • Commenting, debating • Justifying, judging... 	<ul style="list-style-type: none"> • Commenting on a painting • Seeing and framing the message in a biblical story • Holding a different vision against your own vision • Debating the value and importance of a historical event • ...
Analysis	Investigating and researching	<ul style="list-style-type: none"> • Analysing • Making connections, finding patterns • Explaining, providing insight, interpreting 	<ul style="list-style-type: none"> • Art historical research • Making connections between styles, periods, figures • Testing knowledge about materials • Gaining insight into historical events • ...
	Testing and explaining	<ul style="list-style-type: none"> • Testing, checking • Concluding • ... 	<ul style="list-style-type: none"> • Determining the historical period of an artwork, based on concrete characteristics • ...

Figure 4: Actions revealing the advancement of cognitive skills. Translation from Dutch.

Culturele Basisvaardigheden Vermeersch et. al., 2016, p 16-18

In the following paragraphs I will demonstrate how I will analyse the label texts based on the figure above.

❖ Perception

The first skill employed is this of perception. We first use sensory perception in order to recognise the new information. It is an accommodating process when we let reality determine our cognition. The memories we use in order to perceive are concrete memories that enable us to observe concrete characteristics.

In the labels, perception can be recognised in sentences that invite the visitor to sensory perceive (look, touch, hear, taste) an element of the exhibit. It can also be found in labels that propose to identify, observe an element.

The skill of perception is expected to come first in order in a text. I expect to recognise it in sentences such as: look at... , what is this object? Touch the ... What does it feel like? I also expect to find labels that suggest perception by describing the object in an interpretive way. For instance, a description that guides the eye of the visitor through the different elements of the artefact.

❖ Imagination

The second skill employed is imagination. After perceiving we use our imagination in order to manipulate and transform the actuality and perception. It is an assimilating process when we influence reality by the use of imagination. The memories we use are abstract and detached from reality. As a result of imagination we can for instance create something or physically express.

In the labels, imagination can be recognised in sentences that invite the visitor to think of an abstract concept and try to portray it or create something based on what has been imagined or perceived. For example: Draw what this reminds you of, Imitate this action, how would this character behave in a hypothetical situation?

❖ Conceptualisation

The third skill is that of conceptualisation. After creatively expressing or fantasizing, we can form a concept based on what has been imagined/created at the previous step. Conceptualising is also an assimilating procedure where we use abstract memories to influence reality. Van Heusden claims that we do not often reach the stage of conceptualising and that it is employed less often than imagination. (Culture in the mirror, 2012, 27:00-28:00).

In the labels, conceptualisation can be recognised in sentences that invite the visitor to use the previous steps in order to express and justify a point of view, to discuss and debate or classify and categorise. In the labels I expect to recognise it is sentences such as: what is your opinion on this matter? Why is this event important today? Find the central idea of this story. Write which is your favorite... and why.

❖ Analysis

Finally the last skill is that of analysis. After being able to form an idea and discussing it, we can proceed to analysis. This stage concerns decomposing, investigating, finding connections and reaching conclusions. It requires high analytical skills in an accommodative process where reality influence our cognition. Although according to Van Heusden (ibid) this strategy seldom appears I hope to find labels that suggest this skill. It will be recognised in the end of the label text and it will be concluding the skills above. It will suggest using what has been previously created (imagination skill) and what has been previously said (conceptualisation skills) in order to reach a conclusion or make a connection or find patterns.

In this section I have demonstrated how I am going to recognise the proposed skills in the object labels. By using the figure from the Vermeersch et. al. as a guideline in the analysis, I will create similar tables for the labels of each museum in the case studies and will also visualise them into doughnut charts and pie charts to accommodate the reader.

4. Results

This part of the thesis presents the empirical results of the research and it is organised in two chapters. In the first one I will report the key findings from the results of the expert interviews and in the second chapter the key findings from the qualitative content analysis.

As I mentioned above conducting interviews helped me answer the following sub-questions:

- a. What is the role of labels in the exhibition and actions do they invite the viewer to do?
- b. To what extent do labels in museums encourage young audiences to construct personal meaning?
- c. How do museums stimulate self-reflection through labelling?

The chapter will be ordered according to these three sub questions and I will use quotations from the interviews in order to vividly demonstrate my arguments.

Then, in the second part I will present the results from the qualitative content analysis of the exhibit labels which will serve to answer my research question: To what extent do museums advance cognitive skills in young audiences of primary school by the use of exhibit labels?

This chapter will be organised in five sections, one for each museum that has been examined and a final analysis on all labels regardless their origin. Since the nature of the museums is different, I chose to present my findings by organising them into four cases, however despite their differences some conclusions can also be made by looking at labels as a whole as well.

4.1 Interviews

In this part, I will present the key findings from the interviews conducted with the professionals from each of the museum sample pool - Groninger, Rotterdam, Zuider Zee and Villa Zebra. The interviews were conducted with professionals actively engaged in the labelling process in exhibitions that included a young audience. The aim of this chapter, therefore, is to shed light on the thesis sub-questions and is organised accordingly.

1. What is the role of labels in the exhibition and what actions do they invite the viewer to do?

The first sub-question will be addressed in this section by comprehending the underlying expectations of the professionals involved in the labelling making process.

To begin with, the professional from VillaZebra uses labels to stimulate perception and imagination to young audiences by posing questions. Thus, next to each exhibit there is a label that poses questions with various goals. These questions assume the following form: they ask the viewers to use their senses in order to perceive the exhibit, then they invite them to imagine a situation based on their perception and, finally, the questions can be answered through creative expression. According to the interviewee, conversation is detrimental in this process:

For us conversation is the most important thing....if the conversation is interesting, then the imagination is stimulated.

At this point, it is interesting to see that the interviewee seems to blend two theories when it comes to the role of labels - Vygotsky's sociocultural dimension to learning and Van Heusden's theoretical framework. As described in the 2.3 section, Vygotsky identifies the strong impact of discussion in a learning process as it assists the child to understand new concepts. According to the educator labels can be used by the museum staff as a stepping stone to start a conversation with the visitors.

At the same time, Van Heusden's cognitive process can be seen through the hierarchical structure of the questions the labels pose: perception through senses and then imagination and construction of a new concept. Hence, the interviewee in Villa Zebra seems to consider both ideas equally important when describing the role of labels.

Moving on, the professional interviewed from Groninger museum perceives the role of labels to stimulate feelings. She says that young visitors need to first feel emotions in order to be able to interpret an art piece. *Children look with their heart* is a phrase often repeated in the interview. Based on this idea, she justifies the unique approach the Groninger museum takes regarding the labeling process: labels written by the children themselves.

With this approach, she advocates that the children were able to shift the focus from facts to feelings and experiences that the exhibits inspired. This was also true for the children who

read the interpretations written by their peers. They also felt invited to react, to feel, and discuss what they read. She continues to say that this approach to labels provides the opportunity for children to reflect on themselves as they make connections between what they read and see and their memory, experiences and emotions.

There are a couple of points that are interesting regarding the Groninger museum. First, the unique approach to the label making process by allowing children to be involved in the process. Second, the reference to the emotions in the process of interpreting the exhibit. Regarding the latter, the interviewee from Groninger museum was the only participant who placed such importance on emotions. This is consistent with the Falk & Dierking aspect in children's learning process: the choice and control. Children freed from anxiety or negative feelings are more likely to engage in learning activities *when they have choices and control over their learning* (Falk & Dierking, 2000, p19). Third and similarly to the participant in Villa Zebra, conversation is also an important element in the role of labels - along the lines of Vygotsky's views.

Moreover, the writer/editor of the labels in Rotterdam Museum highlights the significance in triggering *curiosity and recognition* of themes in the labels. He states that the element of *surprise* and the stimulation of curiosity play a crucial role in the texts. Another important factor in the role of labels is the use of simple and comprehensive language as he acknowledges that the museum hosts a diverse audience in terms of age, educational level, motivation for visiting or cultural background. The interviewee stated that he tries to see labels from a visitor's perspective. Therefore, the guidelines he sets for himself are through questions such as: *what is interesting about this object? Why do I need to say something about it?* By doing this he aims for labels to narrate interesting facts and stories around a historical object in a way that can trigger the visitors' curiosity and interest. Regarding the element of "recognition" he clarifies that the object and the text has *to speak to you* so that you can personally connect with it.

If you talk about something that there's no meaning to people it won't last and if you just tell them what they already know, it's not really useful either.... I want to sort of trigger curiosity. I think of what might interest them or what is sort of something you might not expect. I think what makes an exhibition also successful is a combination of recognition, it has to speak to you.

Regarding young audiences, the institution provides a small complementary booklet to accompany the visit of youngsters. The interviewee explains that the booklet contains stories

written in a child appropriate language and contains complementary “labels” narrating stories on the exhibits. According to him, their purpose is to stimulate the imagination in children through the texts in the booklet. This is done through the narration of stories and the posing of questions, to ultimately connect the provided information on historical places in Rotterdam, with kids’ memories and experiences of the actual places in the present. Hence, the labels in the booklet aim to enable young visitors to personally connect to the places by using their own memories of them.

The key points on the role of labels in the Rotterdam museum, as described by the interviewee, closely reflect the principles of interpretation of Tilden (section 2.1) - child-friendly language, revealing information through a context (instead of reporting) and connection to topics that *speak to the visitor*. The last notion has been also emphasised in the personal context of the contextual model of learning by Falk & Dierking as explained in the 2.2 section. Another important emphasis is given on the use of appropriate language in the label making process in order to accommodate a diverse audience. This actually aligns with the idea behind the permanent exhibition in depicting Rotterdam as an inclusive city. Thus at this point Serrel’s “Big Idea” dimension in the role of labels and Tilden’s fourth principle of appropriate language are apparent.

Finally, the interviewee from the ZuiderZee stated that the museum welcomes a diverse audience with various ages groups, education backgrounds and affiliation with museum contexts. This is also reflected in the inclusive character of labels which address this diverse audience. In addition, a complement to the exhibition workbook addresses only youngsters and it contains activities and questions. The workbook can be used at the same time while looking at exhibits and it invites young audiences to engage in activities and to answer questions about the exhibits. The educator explains that the questions are the most frequently used tool to stimulate reflection on the visitors’ lives. She states that:

there will always be a question that will connect it to their lives and that the exhibition will be more relevant to them if they can compare themselves.

Specifically on the workbook, the interviewee highlights its important role in the children’s experience in the museum. The aim is to stimulate young visitors’ creativity and reflection during and after the visit. The workbook invites children to reflect on their heritage and their actuality by doing activities and answering questions. In such a way they can reflect on the way they live, their choices and compare these to the ways people used to live in the past.

The booklet has a stimulating character as it can be also used at home, after the museum visit. Hence, the stimulating role of the labels and the workbook continues to play a role even after the museum visit.

A novelty in the Zuider Zee museum in relation to the others in the sample concerns the complementary workbook. The interviewee adds the dimension of time to a young audience's experience in the museum by providing the workbook that can be used beyond the temporal and spatial "borders" of the museum. According to Falk & Dierking knowledge acquired in a museum setting can be recalled under the right circumstances and after a period of time. In this way the Zuider Zee workbook can serve as stimuli connected to the visitors' memories acquired during the visit and the information can be retrieved at any point in time.

To sum up, the findings from the interviews result in a mosaic regarding the purpose of labels in which each participant gives his/her own personal stigma. These personal touches, however, are very correlated with the elements that define the role of labels which have already been identified in the theoretical background.

2. To what extent do labels in museums encourage young audiences to construct personal meaning?

The second sub-question aims in understanding the professional's perspective on the process of personal meaning making through labels in each of the museums.

Before we begin with the analysis of the interview results, this chapter has been structured in three sub-parts that consist of elements that facilitate personal meaning making. These are: a non predetermined route in the exhibition, right or wrong answers and connection to the school curriculum.

Regarding the first element, responses from the interviews revealed that three out of the four museums in the sample do not indicate a predetermined route to be followed by children. The justifications for this approach were quite similar. For instance, the professional from the ZuiderZee Museum referred to giving the opportunity to children to experience the exhibition by themselves by having the freedom to choose how to move in the exhibition by *going around*, choosing if they want to read labels or engage in to-do activities and then go back to another exhibit. On a similar note, the educator in Groninger Museum stated that children

choose the order in which they see the exhibition and that this order is influenced by their personal interests. She also found the choices of this personal order surprising sometimes. Additionally, the interviewee from Villa Zebra specified that the museum only provides some guidance on how to behave in the exhibitions. The “direction” is contingent upon asking questions to the artists and their peers:

there are a lot of questions that you can talk about but do not be satisfied too fast

She believes that children need to get into a thinking process by themselves without being provided with interpretations on the exhibits. She clarifies:

so us it is not important to have an explanation or we don't want people to go that way. We really want them to open their imagination and see possibilities and go from here to there.

What is indicated by the three aforementioned responses is that the ideas that the exhibitions want to communicate do not depend on the order in which one is able to view the exhibition. Rather, personal interest leads the way through the exhibition which in turn assists in constructing personal meaning, (Hein 1999, 2006).

The only interviewee who did not refer to the order in the exhibits was from the Rotterdam museum. Like in most history museums, the exhibits are placed in a linear order, and therefore such an approach might be difficult to implement in such a museum.

To continue, another important finding on the construction of personal meaning and more related to labels - is the notion of giving correct or false answers and interpretations. Both professionals from the art museums (Groninger and Villa Zebra) emphasized the significance for young visitors to understand that their interpretations and responses will not be considered right or wrong when asked to comment on the exhibit through labels. The educator from Groninger emphasized the building of an environment of trust. She repeatedly used phrases such as *feel welcome*, *feel safe* and *feel free* when commenting on how children make personal meaning. Most importantly they need to feel that they are not going to be judged on their points of view and considerations. In this way, they can freely express their personal opinion and interpretation of the exhibit. Without doubt she said:

when they feel free and safe to say what they feel, they will give you their own interpretation.

Moreover, she referred to the personal stories and experiences that children usually narrate in order to relate to the exhibit. During the discussions she holds with children, she observed that youngsters related what they saw in the exhibits to memories, experiences and emotions. Therefore, they achieve meaning through personal connotations with the exhibits. Finally, she explains that the connections they make are not assessed as right or wrong because: *but what is a right answer? Whatever they say will be a success!*

In the same respect, the educator in Villa Zebra states that

it is not important for us to have a good or right answer (but what is important is) to choose their own answer.

The participant described the importance of the use of questions in labels to provoke discussion in the meaning making process. She states that questions need to lead children to approach an understanding on their own. Some examples are:

Why are you saying this? What's the reason? or can you give another example? So there will be a conversation, a real conversation.

Then each answer is discussed and the conversation continues in order for each child to approach personal meaning.

The role of labels hence, is expanded from stimulators of conversation as discussed in the first sub-question, to aiding youngsters to construct personal meaning. The description of using the labels in such a way, resembles a fine example of the Vygotskian zpd method (section 2.3). The guides take the role of the mediator who has the knowledge and through discussion assists the child to approach the unknown. In this case though, the “unknown” is the personal meaning of the child itself. Therefore, young audiences in such a way are able to construct personal meaning by contemplating their opinions, through peer-learning (section 2.1) and guided conversation based on the exhibits and their labels. Throughout this process judgement or criticism need to be absent.

Moving on to the interviewees from ZuiderZee and the Rotterdam museum, the notion of right & wrong answers was not expanded on. This may have occurred due to the nature of the museums which focus on history and cultural heritage and wish to convey a certain message. In addition, the interviewee from Rotterdam Museum conceives personal meaning making in a different way. He focuses more on the knowledge that the exhibit can provide to the audience rather than making meaning out of it. He said:

... the object is something unique. So, you want to be able to look at the object and learn something about it.

He mentioned that in order to achieve that he aims

to tell something interesting or unexpected, not just say this is a thing.

The interviewees from the other two museums but focused on labels that assist the audience to make meaning of the exhibition's themes. In Rotterdam the labels trigger curiosity.

The final dimension in personal meaning making was the connecting the exhibit's contents with the school curriculum through labels. As it has been suggested in the literature on labels, references to the school curriculum can enhance young audiences' connections with familiar concepts (chapter 2.2) which in turn facilitate personal meaning making. All professionals who have been interviewed except for the one in Groninger, mentioned a relation to the school curriculum.

The interviewee in the Rotterdam museum stated that exhibitions are connected to school subjects and the institution organises or adapts programs in order to be related to subjects taught at school. In that way it is easy for students to make connections between their knowledge on what they have learned at school and what has been presented during the visit. Similarly, the interviewee from ZuiderZee indicated that although the school curriculum is not taken into consideration in the exhibition design, programs especially for school visits are created in a manner to fit into the school learning goals. She also elaborated that the guides usually provide a connection to the school curriculum in order to associate the exhibition topic to the students' knowledge. None of the two interviewees mentioned how or if labels facilitate this process.

On the other hand, the interviewee from Villa Zebra draws connections between the exhibition and schools but in a different way from the former museums. The exhibition is designed in a way that meets the official guidelines and objectives for the primary school set by the government. The interviewee explained that the Villa Zebra educators try to associate the learning objectives and necessary skills for primary school students to the content of the exhibition they deliver. During this process, labels provide an auxiliary role for the guides through the question making tool which is used as conversation starter.

After analysing the interviews in regards to personal meaning making, what has been identified is that three out of four museums do not have a predetermined route in the exhibition. They aim to give young visitors the opportunity to experience the exhibition according to their personal interests rather than by following a predetermined route. This was not the case in the Rotterdam museum which follows a chronological order in presenting the exhibits. Regarding the second aspect of right & wrong answers the

interviewees from the two art museums stated that any answer or interpretation is correct and focused on the importance of discussion and how labels can provoke it. The interviewee from Groninger also stressed the importance of building an environment of trust to accommodate personal connection to the exhibits. The interviewees from the Rotterdam and ZuiderZee museums did not elaborate extensively on this but rather perceived personal meaning making in a different context - more related to connecting prior knowledge. Finally, all museums apart from Groninger connect the exhibitions with the school curriculum through programmes or by the aid of tour guides. However, on the matter of how labels can aid this connection, only the interviewee from Villa Zebra mentioned their auxiliary role for guides and viewers to provoke discussion and debate.

3. How do museums stimulate self-reflection through labelling?

The final sub-question concerns exploring the stimuli in labels that can be related to the cognitive mechanisms suggested by Van Heusden. The questions that were asked to the participants focused on examining the levels of personal connection to the exhibitions' themes through object labels.

The interviewee from Groninger museum explained how self-reflection occurs through the exhibition "What will the neighbours say?" by communicating the general idea: Do not judge. In short the idea implies that one ought not to judge the behaviour, appearance, ways and habits of other people, but needs to have an open mind to perceive the world. In that sense, the labels of the exhibitions stimulate children to reflect on how they conceive other's and their own culture. The educator mentioned:

...it refers to an idea we have about behaviour of people, the way they dress, they live and what the exhibition says is: please do not judge about people and what they do, how they live and I think why the connection with the labelling process was successful.

Hence, children who wrote the labels as well as children who read the labels of their peers, were suggested to reflect on the general concept. Hence, they were able to interpret them from an open-minded and creative perspective and finally deliver the message to the audience through the labels.

In addition, the interviewee from the Villa Zebra museum similarly elaborated in the central idea of the exhibition "Moestuin" in Villa Zebra which concerns the concept of growth of plants and vegetables as well as climate change. She states that the ideas are correlated with current issues and concepts that affect children's lives and that through questions in the labels, young audiences have the opportunity to reflect on these topics by engaging with labels. The educator stated that the questions in the labels serve as stimulators of a thinking process. The questions posed not only aim to reflect on the specific exhibit but also about the general theme of growth. For instance, how the vegetables and fruits grow and how humans influence that growth. Also, labels invite them to reflect on the ways they consume vegetables and fruits and provoke them to question their habits. Finally, as she has mentioned in the interview, the labels trigger young visitors' imagination regarding the concept of growth in general and invite them to reflect on ways to tackle global climate issues.

Rotterdam Museum also communicates the message of the exhibition in a similar manner. The interviewee pointed out that all visitors of the museum no matter how diverse they are, they are citizens of Rotterdam. They all live in the same city but experience it from a different angle. The museum wants to communicate that the residents are linked to the city, they have a part in its present and future. He mentions that one of the missions of the museum is to communicate the message that: *everyone can change the city.... which is a changing city.* Therefore, the labels and the booklet also pass on this idea to children. Therefore, by communicating this message in a history exhibition, they appreciate the history of the city and they are able to understand how it changes around them.

Last, the interviewee from Zuider Zee elaborated on how the exhibition "Fine feathers make fine birds", through the topic on clothing, tries to connect the past with the present and raise questions on the ways children consume. It makes comparisons between the clothing habits of people in the past and today's habits in order to teach the concepts of sustainability and durability. All labels offer a starting point for reflection on the subject by first explaining the norms from the past, then asking relevant questions on today's habits and finally by inviting children to engage in an activity. The participant indicated the use of questions in labels is the most important tool in inviting the audience to reflect on the topic. She mentioned that:

... there will always be a question that will connect it to their lives. So it will be more relevant to them if they can compare themselves to the subject of the exhibition.

Furthermore, regarding the activities proposed some of them can be done on the spot and some other by the use of a workbook (for example sew a button) or by going to the workshop where they can do activities like participate in an embroidery activity. Teaching the concept of sustainability in youngsters is important according to the interviewee, but more important is that the exhibition through the activities in the labels and the workbook, suggest children to reflect on their own habits and appreciate what they can easily take for granted, such as clothes.

it's very about storytelling from a child's perspective but I think like telling a story and also comparing it to living nowadays. So, how's your life now? And how does it compare to one hundred a year and 100 years ago?

In addition, ZuiderZee museum provides "a wall of tips" which gives the opportunity to visitors to contribute to the exhibition's theme. In the temporary exhibition "Nice feathers make fine birds" about sustainability and durability of clothes, visitors can contribute with their knowledge and write some tips on the wall. The interviewee mentioned examples of children sharing ideas on swapping or repurposing clothes which were based on their personal experiences mostly from the family's habits.

To conclude, the responses of the interviewees indicated that labels invite children to share their personal input, by reflecting on the central themes of the exhibitions. The Villa Zebra and Groninger museum educators believe that stimulating children to reflect on important matters that influence their lives is far more important than providing explanations of artefacts. The reflecting process can be promoted by labels and children are encouraged to express it. In Groninger museum by asking questions such as *How does that make you feel?* and in the ZuiderZee by introducing the "wall of tips" where audiences can offer their personal input which is a result from the reflecting process through the exhibition. In Rotterdam museum children are encouraged to reflect the collective message that the city is made by its people and how they can play a role in it. Last, the Villa Zebra Museum stimulates reflection by encouraging visitors to keep asking questions (*keep asking... this way you discover more and more!*, Villa Zebra).

To sum up, the results from the interviews indicated that labels can assist young audiences in the reflection process on the central theme of the exhibition. All participants in the interviews indicated that labels engage children to the exhibition's idea by addressing their knowledge, emotions or experiences. Analysing the interviews made clear that reflection is

interconnected to the central themes of the exhibition. They all aim to convey a message which is not directly related to the exhibition's content, but to its general idea.

In the following section I am going to present the second part of the results which derives from the content analysis of the labels.

4.2 Content analysis of labels

After answering the sub-questions by conducting interviews, the second part of the empirical research of this thesis contains the results from the content analysis of labels. The scope of analysing them is to identify and explain the cognitive skills that labels can advance to their young audiences under the central research question: To what extent do museums advance cognitive skills in young audiences of primary school by the use of exhibit labels?

The way I have approached this, has been explained in the methodology part (section 3.3) of this thesis. To recap, as both literature on labels and interview results have indicated, label writers employ various ways/tools to communicate the exhibition's message, to engage visitors and to sometimes present an interpretation of exhibits.⁴ Therefore, the first step was to gather and attentively read the labels to identify these tools. Then, through the use of Atlas.ti software, I organised them into codes - categories corresponding to each label. These are the following categories:

❖ Activity tool

The tool of activity proposes visitors to physically engage in an activity related to a specific exhibit. It invites visitors to engage in hands-on activities, where they need to move around, to use their body, to imitate or use their senses. Such activities mostly appeared in the ZuiderZee and Villa Zebra museums. A label that suggests can also be accompanied by a question as in the following example from the VillaZebra Museum:

*When you think of spring, what do you think of? How do you feel then? What do you smell?
You can tell it in words, but you can also show it in colours, materials.*

❖ Assignment tool

The labels that give assignments have constructivist characteristics and are open ended. In contrast to the activities which as mentioned above invite the audience to physically engage, the assignments invite the audience to engage mentally. Children are assigned to contemplate on a suggested topic or reflect on themselves and to write, colour or draw their opinion and ideas. Assignments are sometimes combined with a question, like in the following example from the ZuiderZee workbook:

⁴ Examples on how these tools are presented in appendix C.

What things can you do in the same time people need in the old days to make clothing? Tick the box of your choice:

- a. Have a holiday in Spain*
- b. Buy 300 shirts*
- c. Watch 30 films*
- d. Go to school for 20 days*

❖ Question tool

The labels that use the question tool have a stimulating character and address directly the visitors. By the use of “you” in the sentence they directly instruct the audience to interpret the exhibit or reflect on a concept. They offer open-ended experiences to visitors, who are responsible for engaging in answering the question or not. Two types of questions have been identified: the first type invites the reader to look closely at an element in the exhibit e.g *which parts of this plant may be edible?* (VillaZebra), while the second type of question stimulates the reader to recall prior knowledge or think or imagine in order to answer the question. E.g: *Do you know why there’s a horse on top of the Martinitoren?* (Groninger Museum).

❖ Interpretive description tool

The labels that employ the interpretive description tool are open ended labels. The narrative in these is open to interpretation or suggests but not imposes an interpretation to the reader. The visitor has the liberty to agree or to argue the content of the interpretive description. This tool has been used in the labels written by children in Groninger Museum and occasionally in the booklet for young audiences of Rotterdam Museum.

For example: *Lisa and Otto discovered a piece of the skull of a human from the Middle Stone Age on the beach of the Second Maasvlakte: this 'primal Rotterdammer' walked around here over ten thousand years ago!* (booklet from Rotterdam Museums)

❖ Storytelling tool

The storytelling tool contains narratives about an exhibit. The narratives are stories regarding the origin or an interesting story about the object. While reading such a label the visitor is able to look back and forth between the label and the object, as was also described by Serrell (p 22). This label helps the visitor to follow the details presented in the text. The reader cannot argue on the narrative since it describes a fact or a true story about the exhibit. For instance: *Do you know why there’s a horse on top of the Martinitoren? It’s*

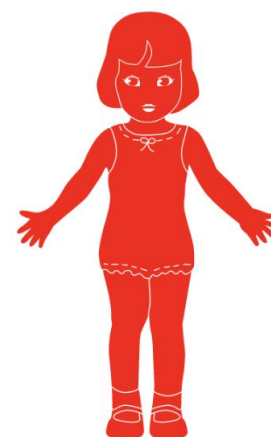
because there were really good horses for sale in the city of Groningen. The silver Martinitoren weighs 3.53 kilos. It's 100% smaller than the real tower: this one is 96 centimeters tall because the real tower is about 96 meters high. This one was placed in the display window during festivities. (label from the collection exhibition of Groninger museum)

The second step was to relate each of the tools used in labels to which of the four strategies (perception - imagination - conceptualisation - analysis) of the Van Heusden framework was manifested. This was not done arbitrarily, but was based on the publication by Vermeersch et. al, which can be found in the section 3.3. To recap, the first column in Vermeersch's publication presents the label text and the second column shows the specific activity the label invites the viewer to do. The third column shows the general category in which the activity belongs to according to Vermeersch et. al. Then the fourth column reveals the cognitive skills which are advanced by engaging in the proposed actions and finally the fifth column points to the specific tool that was used in the text.

Finally, in the following paragraphs I will present the key findings of my methodology in 4 case studies for each of the museums in my sample. I begin each case study with a brief description of the exhibition. Then, I present a table including the frequency of the skills manifested in the labels analysed and the number and type of tools used to do so. For each table there is also a corresponding Doughnut Chart I prepared in Excel to better visualize the results and accommodate the reader. Based on these, I report the key findings for each museum accompanied with examples of the analysis conducted on their labels. Finally, the last section will include an analysis on all the labels gathered. Through the use of pie charts I will be able to report which skills have been identified the most and which tools have been used in the total number of 63 labels analysed. In addition, I have also prepared a third chart to explore the correlation between the use of tools and the skills identified within each label. These findings will be discussed in accordance with the results in the interview in the next section.

Case #1 ZuiderZee Museum

The first museum that was examined is the ZuiderZee Museum in Enkhuizen which is devoted to cultural heritage and maritime history of the area. The audience of the museum consists of families and school groups mostly. The labels refer to an audience of various age groups and educational backgrounds. The educator specified that the language used in the labels is accessible to everyone. As I indicated in the interviews results, the museum wants children to be able to experience the exhibition on their own, therefore this is also achieved by using easy and child - friendly language in the texts. In addition, a complementary workbook has been designed for the young audiences which contains labels with activities and assignments. These texts have also been analysed and their results will be presented in the following paragraphs.



This symbol accompanies the texts addressing children.

Designed by
Annemarie Mosterd

The exhibition “Fine feathers make fine birds”⁵ presents clothing habits from the past and touches upon the topics of sustainability and durability of clothes.

The table below and the doughnut chart demonstrate which skills and how often were they manifested in the labels through the use of various tools.

ZUIDERZEE MUSEUM (15 labels in total)		
Skills	Times shown in the labels	Tools
Perception	3	2 Questions 1 Activity
Imagination	7	5 Activities 2 Questions
Conceptualisation	5	3 Storytelling 2 Questions
Analysis	3	1 Question 2 Assignments

⁵ Page of the exhibition in the website: <https://www.zuiderzeemuseum.nl/en/klerenmakendevrouw>



As we see in the figure above, the inner rim relates to the skills that were identified in the content analysis. All skills are equally apparent apart from the imagination skill, which is the most prevalent. Regarding the outer rim related to tools, there is an equal use of all five tools (questions, activity, storytelling and assignments) with slightly more use of the activity tool. In the same manner, all four cognitive skills are manifested through those tools. Imagination is the most often proposed skill with 7 times identified in 15 labels, while those of perception and analysis are the least often proposed tools, with 3 times respectively identified in the labels.

The skill of perception was manifested 3 times in the labels, twice by the use of questions and only once by the use of activity. For example, in the following labels the skill of perception was proposed by the use of a question and an activity.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
Where do the clothes you're wearing come from? Did you go to the shop yourself to buy them? Or did your mum do it for you?	Remember and think on habits. Reflect on self	Recognising and remembering	Perception	Question

The label above advances the skill of perception. In order to answer the questions one needs to remember and review personal habits. The questions are personal and address directly the reader. That indicates an invitation to the reader to reflect on personal clothing habits. Memories and experiences can be used in order to answer the questions.

In addition, the skill of perception is also advanced by the use of activities such as:

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
Feel, guess and find out what was needed to make an apron, shirt, pullover or trousers. Know your fabrics. This is how you do it: Feel the fabric and guess what kind it is. Fold it upwards and read the text to see if you're right.	Feeling a texture of textile and guessing the kind	Sensory perception	Perception	Activity

This label invites the visitor to perceive through senses the texture of a fabric and guess its kind. The visitor by engaging in the activity develops a clear understanding of how relevant the exhibits fabric would feel. The skill is perception and the process he/she goes through is accommodative because the real facts influence the visitor's cognition.

To continue, the skill of imagination was identified 7 times in the 15 labels which makes it the most proposed skill. It is delivered by 5 activities and 2 questions.

The following labels present how the tools were used and what actions they invite visitors to take.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
Try your hand at embroidery: find yourself a place at the embroidery table and have a go!	Following instructions and knowledge to apply a technique	Create with materials	Imagination	Activity

This label invites children in an activity where they need to follow instructions, apply their knowledge in order to create something using a specific technique. Creating with materials triggers imagination and artistic expression. In the Vermeersch figure the corresponding

activity is: *Applying a specific painting technique*. Here the visitor instead of applying a painting technique, applies an embroidery technique.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
But would you like to know how you can give your clothes a second life?	Trigger curiosity and excitement for creative thinking.	Fantasise	Imagination	Question

The label above uses the question to trigger the visitor's interest and aims to encourage reflection on clothes sustainability. By inviting the viewer into an assimilating procedure, the use of concrete memories need to be utilised in order to imagine ways to give clothes a second life.

Moreover, the skill of conceptualisation has been shown 5 times in the labels: 3 times through the storytelling tools and twice through that of questions.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
In former times it was too expensive to buy clothes, so the women made almost all their clothes themselves, by hand. That was a lot of work.	Explain the characteristics of how a situation used to be.	Formulate a vision/ picture on a concept/story	Conceptualisation	Storytelling

This label aims in explaining the characteristics of how a situation used to be and how women were handling it. The visitor can formulate an idea of how the situation was, therefore the use of the skill of conceptualisation is proposed. The process is assimilative because the reader needs the information to influence the existing knowledge.

Then, after formulating the idea of how clothing habits used to be in the past, an assignment continues the sequence of the cognitive skills.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
What in your opinion is the 'most useful' subject taught in your school now?	Using knowledge on what was useful, to reflect and access what is useful today	Critical thinking	Conceptualisation	Question

This label aims in stimulating critical thinking upon what is important to be taught at school today and implies to make comparisons between what was considered to be useful in the past and what is important nowadays. Children in order to answer the question, need to critically reflect on the concept and express their point of view. Hence the skill of conceptualisation is developed.

Finally, the skill of analysis was found three times in the labels. Once facilitated by the use of questions and twice by the use of assignment.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
What things can you do in the same time people need in the old days to make clothing? Tick the box of your choice: <ul style="list-style-type: none"> • Have a holiday in Spain • Buy 300 shirts • Watch 30 films • Go to school for 20 days 	Calculating time based on knowledge provided in the exhibition and reflecting on present in order to solve the assignment	Critical thinking	Analysis	Assignment

Here the assignment can bridge the gap between the past and the present by the use of an assignment. A child is invited to calculate the time based on knowledge provided in the exhibition and reflect on time spent nowadays in order to solve the assignment. Answering such an assignment requires critical and systematic thinking, therefore the skill of analysis is advanced.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
How can you give your clothes a second life?	Make connections between what was presented in the exhibition and personal choices	Decompose and investigate	Analysis	Question

In this label the question invites the child to bring back abstract memories in order to make connections between what has been learnt and the personal choices on clothing. The child needs to decompose the concepts learned and reflect on personal habits in order to reach a conclusion.

Key findings

In summary, the labels and the workbook from ZuiderZee Museum achieve in advancing all four skills as proposed by the Van Heusden framework. However, the order of the skills is

not followed, as each label proposes a different skill. By the use of interpretive descriptions, assignments, activities and questions the labels manage to present a bridge on clothes sustainability and durability between the past, present and future. They provide a clear picture of the past clothing habits, provoke a reflecting process of personal and contemporary habits and finally trigger curiosity on how individuals can ameliorate their habits in the future.

Case #2 Rotterdam Museum

The second museum that was examined is Rotterdam Museum. The history museum focuses on Rotterdam and presents exhibitions about the city in different time periods. The museum addresses a wide audience from various educational and cultural backgrounds and age groups. A large part of it consists of families and school groups. The labels of the museum were written or adapted by the museum's historian who was interviewed. He clarified that the labels do not directly address a young audience, but since a lot of pupils visit the museum, it provides the *Tijdreis Rotterdam* booklet. The booklet is written in Dutch and it has been translated to English in order to analyse the texts. Furthermore, it has been written in cooperation with the educational department of the museum and it has a complementary role to the visit. It provides a short text as an explanation on only the objects that were considered interesting for a young audience. Its language is simple and appropriate for young ages, while its presentation style follows the adventures of two children-characters (Lisa and Otto).

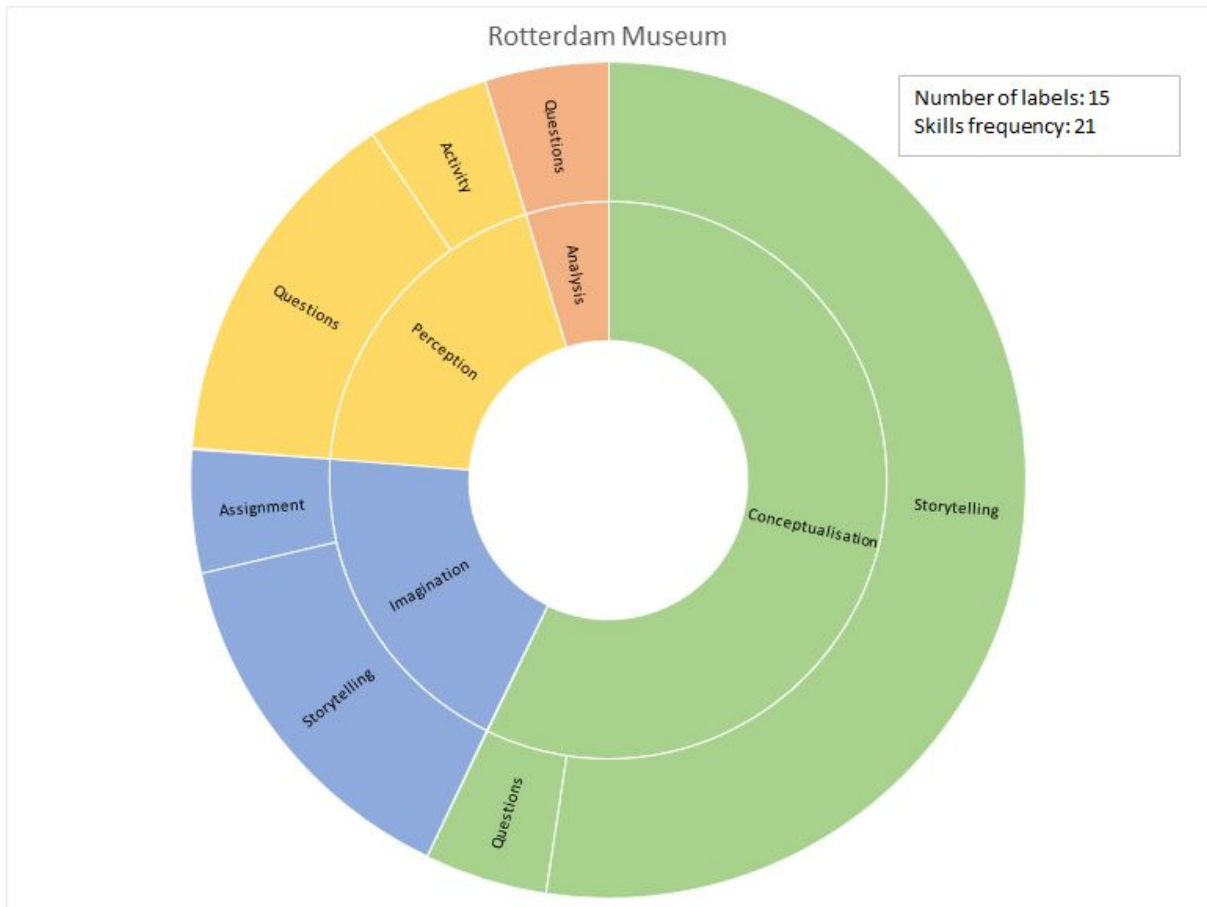
The connection between the past and the present state of the city is highlighted by the use of phrases such as: *where you are now | under your feet | walked around here*. Such expressions create a connection between the place and a historical event as one can feel excitement about the specific spot where something happened in the past. It is also likely that one will remember the spot and recognise it each time he/she passes by. In addition labels invite children to appreciate Rotterdam as a changing and progressive city that is evolving towards modernity. They point out that the city is shaped by its people, thus inviting children to be active participants in it. In general the labels in the booklet are stimulators to pass a message to children about history (*history is not only something from a long time ago, but still continues*) and about the city and its people.

Besides the themes and the educational character of the booklet labels, the analysis revealed the cognitive skills they advance to the young audience. In the following paragraphs I will demonstrate how the perception, conceptualisation, imagination and analysis skills can be advanced through the booklet labels.

In the following figures I demonstrate the results of the labels analysis of Rotterdam museum. In the first table, I present how many times and in which ways each skill was manifested.

ROTTERDAM MUSEUM (15 labels in total)		
Skills	Times shown in the labels	Tools
Perception	4	3 Questions 1 Activity
Imagination	4	3 storytelling 1 assignment
Conceptualisation	12	11 storytelling 1 question
Analysis	1	1 Question

The next figure schematically presents the frequency of the cognitive skills identified in the labels.



The 15 labels from the booklet, manifest all four cognitive skills, but not equally. To explain, the skill of conceptualisation seems to be most often proposed skill to young visitors and it is proposed mainly by the use of the storytelling tool, and only once by the use of questions. To continue, the skills of perception and imagination were equally suggested 4 times each. The first one by the use of 3 questions and 1 activity, and the latter through 3 storytelling labels and 1 assignment. Finally, the analysis skill was only generated once with the use of one question.

The skill of perception was found 4 times in the 15 labels and it was delivered by questions and an activity.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
What is the most special thing you have ever found?	Recall memories	See and remember	Perception	Question

The audience after looking at a historical object and understanding its story, this question invites children to recall specific memories and remember a special object. The skill proposed is perception.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
During the construction of the Markthal, remains of houses were found deep underground.	Recognise a familiar place and connect new knowledge to the present image	See and remember	Perception	Storytelling

Moreover, the skill of perception can also be addressed by the use of the storytelling tool. In the label above, the text presents a story about Markthal. The visitors can recognise the building and draw association between the former and present image. Hence, by using specific memories they can perceive the new information. Vermersch et. al. in the publication's figure refer to the similar action: *viewing industrial heritage*.

To continue, the booklet's labels also promote imagination, through 3 storytelling labels and 1 assignment.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
Lisa and Otto discovered a piece of the skull of a human from the Middle Stone Age on the beach of the Second Maasvlakte: this 'primal Rotterdammer' walked around here over ten thousand years ago!	Imagine how a real place looked like and compare it to its present image.	Fantatising	Imagination	Storytelling

The first label narrates the story of the characters finding a pre historical object. Children are stimulated by the use of words such as "walked around here" to imagine how the actual place would be in those times.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
Draw your favourite Rotterdam building here.	Expressing preferences in drawing	Creative expression	Imagination	Assignment

Then, the imagination is also triggered here by the inviting children to complete an assignment. They need to use their memories of their favourite building and their imagination to draw it. In the figure-guideline the relative action is described as: *drawing a plan for an imaginary building*.

Furthermore, the skill of conceptualisation was used the most. The tool of storytelling presents stories and facts of iconic buildings or places in the city. By presenting how they used to be, the labels invite young readers to understand their present state and how they came to become what they are now. For instance:

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
Around 1450, the Rotterdammers started building the stone Laurenskerk. It has been the largest building in the city for centuries. Today this medieval giant is a little boy on the skyline.	Interpret the present state of a building upon historical information.	Justify	Conceptualisation	Storytelling

Here the label provides historical information on Laurenskerk and places it in a contemporary context. It makes a comparison on how it used to be the tallest building, while now it looks rather short if we compare it to Rotterdam's skyscrapers. The story presented in this label contributes to a child's schema of the building and while looking at it, is able to justify its significant place in the history of the city. Hence, the visitor relates and assimilates the new information to the existing knowledge and experience of the church. Therefore, the skill advanced is conceptualisation.

Moreover, the only time the tool of question was utilised to promote the skill of conceptualisation was in the following label.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
Don't you think McDonal's plate is weird in a museum?	Debate on what is of value to be exhibited in a museum	Define and debate	Conceptualisation	Question

After providing a story on the McDonal's plate, the question invites children to reflect on why it is a part of an exhibition. They need to reflect and debate on what items are usually presented in museums. Through this assimilative process, the skill of conceptualisation is enhanced

Finally, the following label combines two tools (storytelling and question) and advances two skills (conceptualisation and analysis). The skill of analysis was found only once, in the following label, and it was delivered through a question.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
The oldest coin is from 1472 and the youngest from 1592. The coin-treasure must therefore be buried in or shortly after 1592. It is the time of the Eighty Years' War with Spain. A Rotterdammer probably wanted to safely hide his savings.	Combine the historical facts to understand the existence of a coin as a historical object exhibited in a museum.	Conceptual naming	Conceptualisation	Storytelling
Why do you think the man never dug up his shoe treasure again?	Formulate an idea by debating previous knowledge and facts	Explain	Analysis	Question

The first four sentences narrate a story of a coin-treasure which was buried by a man and also help the audience to define the value of an object of the past. The audience by looking at the coin and reading the label are suggested to first combine the historical events in order to understand why someone would bury a coin. Then they can assimilate their perception of a coin to estimate why this coin is considered a historical object. That enhances the skill of conceptualisation. In the Vermeersch figure the corresponding action is *Giving artworks different denominations*. Here instead of an artwork, we have an ordinary object which is turned into a historical object.

Then, the last sentence poses a question which in order to be answered one needs to synthesize the information from the narration and personal critical thinking. The reader needs to go through an accommodating process, where the gathered information can

determine his schema on the object of coin. Finally, synthesising and analysing various information in order to answer this question, advance the skill of analysis.

Key Findings

To summarise, the museum uses two types of labels, those in the exhibition which are informative and those in the booklet which address only children. Since the first type provides only information and does not address specifically a young audience, I have analysed only the labels from the booklet. The goal is to trigger imagination and curiosity and for children to imagine that they experience the adventures of Lisa and Otto as they were there. The writing style of the booklet coincides with one of Tilden's principles of interpretation as explained in the first chapter of the theoretical framework:

Interpretation addressed to children (say, up to the age of twelve) should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program.

As shown above, they can advance all four cognitive skills as presented in the Van Heusden framework but not all of them equally. In some cases we observe that one label promotes only one skill while others refer to more than one skill. It appears that only the labels that use more than one tool can address a second skill. As they mostly utilise the tool of storytelling to describe historical objects and events, mostly the skill of conceptualisation is promoted. The young visitors by using mostly abstract memories they can relate the already familiar places to the presented stories in the labels. All in all, they aim to stimulate associations between Rotterdam's history and its present state. Finally, by creating a connection between the past and the present they promote the central theme of the exhibition: Rotterdam.

Case #3 Villa Zebra Museum

The third institution that was examined is the Villa Zebra museum in Rotterdam. It is a modern art museum especially designed for children. The labels are primarily written by the artists in residency that exhibit in the museum and then edited and curated by the educator who was also interviewed. The museum educators curate an exhibition which does not present a collection of completed art pieces, but the artistic process as the artists are usually present in the exhibition area. To explain, the museum invites five artists that set their studios as parts of the exhibition and offers them space to work in-situ. According to the exhibition's central theme, the artists set their focus according to their personal interests and work on their projects during the whole duration of the exhibition. The children/audience are invited to look at their studios where all the materials, sketches and tools are displayed and hold a conversation with the artists regarding their work in progress. The labels facilitate that interaction, serve as conversation starters and invite pupils into a reflecting and imaginative process. They are displayed on a table next to materials such as pencils, paper, questionnaires, that children can use to answer the questions. They are able to answer in any way they feel more comfortable with, meaning by drawing, writing, answering the questionnaire or by placing objects. Afterwards, the artists collect the answers, draw inspiration from them, reflect on the children's ideas and incorporate them in their art works. This creative process lasts as the exhibition is presented. Therefore, the exhibition is constantly evolving and progressing and does not remain identical.

The current exhibition "De Moestuin" (the Vegetable Garden) addresses children aged 7 to 12. Central themes in the exhibition are the concept of growth, ecological issues, the nature of vegetables, their function in nature and the circle of seasons.

In the following paragraphs, I will present the results of the labels analysis of Villa Zebra Museum which are summarised in the next table.

VILLA ZEBRA MUSEUM

(15 labels in total)		
Skills	Times shown in the labels	Tools
Perception	5	5 Questions
Imagination	16	6 Questions 5 Assignments 5 Activities
Conceptualisation	12	7 Questions 2 Assignments 3 Storytelling
Analysis	8	3 Questions 2 Assignment 3 Activities

In the following doughnut chart I demonstrate the frequency of skills identified in the labels of Villa Zebra Museum.



As the chart indicates, the skill of imagination was identified the most (16 times in 15 labels) followed by conceptualisation (12 times in 15 labels). Imagination was facilitated through an equal presence of questions, assignments and activities, while conceptualisation mostly by the use of questions and less by activities and assignments. Moreover, the skill of analysis was identified 8 times in the labels, equally through three tools: questions, assignments and activities. On the other hand, the analysis showed that the skill of perception was the least promoted skill, with 5 indications all through questions.

Label text	Activity proposed to visitor	Specific action	Skill	Tool
1. What is your favourite vegetable? What is your favourite fruit? 2. Draw how it would look if you combine these two.	1. Express preferences 2. Artistic expression of an imaginary combination of preferences	1. Classifying 2. Synthesising & creative expression	1. Conceptualisation 2. Imagination & Analysis	1. Question 2. Assignment

The first two sentences invite the visitor to think and and express a preference on the favorite fruit and vegetable. The child needs to first think and classify which ones he/she likes the most and therefore conceptualisation is promoted. Then the third sentence proposes an assignment which includes two stages and two skills. The visitor after classifying the favourite fruit and vegetable, needs to use imagination in order to fantasise a combination of these two. The final stage is for the visitor to express this fantasy through artistic creation. The key-words in this label are:

‘*your*’ invites the visitor to personally involve.

‘*would look if*’ stimulates the visitor to imagine a fantastic situation.

By following this process the visitor advances the skill of analysis and can provide insight on the concept and reach conclusions. This label is a prime example of a sequence of how one skill builds on the existence of another, in an assimilating and accommodating process.

The skill of perception was identified in 5 questions and it was used as a base to promote other skills.

Label text	Activity proposed to visitor	Specific action	Skill	Tool
1. What does this remind you of? And when do you think of vegetable garden? 2. Think of a vegetable for each colour and / or structure that you see.	1. Remember - link to memory 2. Express preference	1. Memorising and recognising 2. Classifying	1. Perception 2. Conceptualisation	1. Questions 2. Assignment

For example in the label above, the first two questions invite the child to link what is perceived to memories. The actions of recognising and recalling use concrete memories in an accommodating procedure, where the skill of perception is advanced.

The two questions suggest bringing memories back in order to perceive and make meaning of the exhibit. As in the Vermeersch figure the action: *recognising a certain fragrance and linking it to one's own memory*, here the label proposes to recognise the object and link it to a concrete memory.

Then the assignment proposes conceptualisation as one needs to use that memory to classify types of vegetables according to what he/she perceives. The combination of words "think of" and "that you see" invites the viewer to associate the memory to what is perceived.

Moreover, the labels of the museum suggest reflection and imagination through the use of hands-on activities such as imitating. For example:

Label text	Activity proposed to visitor	Specific action	Skill	Tool
1. Imitate a butterfly looking for a flower. 2. What sound do you think a mechanical butterfly makes? 3. Try to imitate this sound.	1. Imitate an animal-act 2. Make up-an imaginary concept 3. Imitate what has been fantasised	1. Physical expression 2. Imagining and inventing 3. Physical expression	1. Imagination 2. Imagination 3. Imagination & Analysis	1. Activity 2. Question 3. Activity

Here the label advances the skills of imagination and analysis by the use of two activities and one question. First, the child is invited to imagine how a butterfly looking for a flower would look like and then physically express by imitating it. Then a new characteristic of the butterfly is proposed: mechanical. The child here assimilates this new information upon the already schema of the butterfly. Finally, the child physically expresses what has been imagined. Hence, the skill proposed is imagination.

The final label I would like to bring as an example is the only one that enhances all four skills in the order as indicated in the Van Heusden framework:

Label text	Activity proposed to visitor	Specific action	Skill	Tool
1. When you think of spring, what do you think of? How do you feel then? What do you smell? 2. You can tell it in words, but you can also show it in colours, materials. 3. Do you see the panels with all colours and materials? Also look and enjoy. Which colours, materials and scents do you like for spring?	1. Think of a season and express thoughts about it. 2. Express memories in artistic way 3. Think of a season and describe its elements	1. Remembering 2. Creative expression 3. Conceptual naming	1. Perception 2. Imagination 3. Conceptualisation & Analysis	1. Questions 2. Assignment 3. Questions

Here we observe that each skill works as a stepping stone to advance another one. The three first questions propose perceiving the exhibit through recalling memories of seasons. Then, these memories are requested to be shown through writing and drawing. The child here is asked to form a concept which includes preferences and ideas on the concept of seasons and expressed in an artistic way. Finally, after engaging in these actions, the visitor is able to reach conclusions by observing the exhibit and what has been drawn, therefore analytical skills are enhanced. The related specific actions described in the Vermeersch figure are: *make connections, explain, interpret*.

As I have demonstrated through the examples, the labels in Villa Zebra Museum propose an assimilative and accommodative process of new information. The visitors use previous knowledge, memories, express preferences and personal input, synthesise information and finally engage in activities and assignments that advance mostly imaginative and analytical skills. The order of skills in the labels does not always follow the sequence presented in the Van Heusden framework, as they usually first employ conceptualisation or imagination instead of perception. In addition, the skill of analysis is proposed last in order in a label, which indicates that synthesising and concluding, one needs first to go through the strategies of perception, imagination and conceptualisation. However, it is important to note that all labels manage to advance more than one or two skills which is correlated to the variety of tools implied in each label.

Regarding the tool, as the interviewee indicated, the tool of question is the mostly preferred one, while the second mostly used tools are those of assignments and activities. The questions either invite children to look closely at the exhibit or its specific elements and therefore enhance perception, either propose to remember and reflect, hence they enhance imagination or conceptualisation. Then, assignments activities help the visitors to imagine and express imagination.

Key findings

To sum up, the labels in Villa Zebra mostly advance the skill of imagination and analysis, less the skill of conceptualisation and even less the skill of perception. The labels use all tools except for interpretive description, but they mostly use the tool of question and less of the storytelling. As it has been also clarified in the interviews results, the questions serve as stimulators of imagination and curiosity, as well as facilitators of conversation. Following the questions, activities and assignments facilitates expressing the imagination. They challenge children to combine their imagination with their personal input, memories and concepts, in order to artistically or physically express this combination.

In each label there is more than one skill that is proposed to the audience and all skills follow an assimilating and accommodating process. Visitors first understand an idea, an exhibit or a concept, then connect it with personal input and finally combine these in creative expression.

Case #4 Groninger Museum

The fourth museum that was examined is Groninger Museum. The professional who was interviewed is responsible for the JuniorClub of the museum. She was selected because of her long experience in working with children and most importantly because she is actively involved in the labelling process. She is coordinating the JuniorClub of the museum which offers special activities to its members, children aged 7 to 12. The activities for the members range from meeting and talking with artists, to workshops, getting familiar with the depot and of course writing labels for some of the exhibits. At the moment of writing, labels written by children are available in the permanent exhibition of the collection and in the temporary photography exhibition "What will the neighbours say?". Themes of the exhibition are *diversity, artificiality and identity* while the central question the exhibition poses is: *why do we increasingly look at ourselves through the imaginary lens of another?*⁶



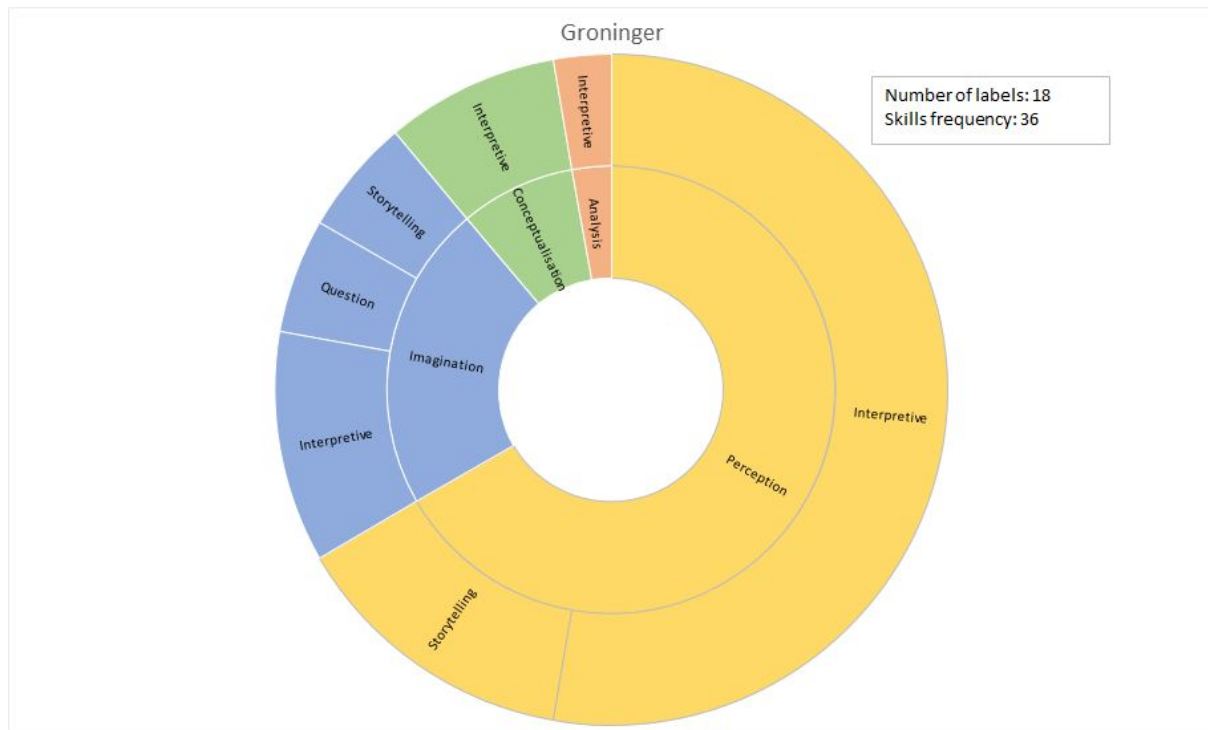
The symbol indicates the labels written by the children - members of the JuniorClub.

GRONINGER MUSEUM (18 labels in total)		
Skills	Times shown in the labels	Tools
Perception	24	5 Storytelling 19 Interpretive description
Imagination	8	2 storytelling 4 Interpretive description 2 Question
Conceptualisation	3	3 Interpretive description

⁶ Information from the website of Groninger Museum:
<https://www.groningermuseum.nl/en/art/exhibitions/wat-zullen-de-buren-zeggen>

Analysis	1	1 Interpretive description
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The next doughnut chart presents the frequency of the cognitive skills identified in the labels.



As we see in the two figures the skill which was proposed the most, was that of perception. It was found 24 times in the labels and it was facilitated by the tools of storytelling (5 times) and interpretive description (19 times). Then, imagination was found 8 times in the labels, while conceptualisation was proposed by 3 times. The skill which was suggested the least in the labels was that of analysis, which was identified in one question.

The 18 labels that I analysed were written by the children-members of the JuniorClub and in the following paragraphs I will present the results from the content analysis. As I explained in the interviews results, the children who wrote the labels of the museum's collection, received prior information on the exhibits. However, those who wrote the labels in the photography exhibition did not receive any information regarding the exhibits. As the interviewee specified, what made a big difference in the labels of these two exhibitions, is the children's interpretation. In the first case they tried to communicate the information they got by the curator, while in the second case their opinion was not influenced by any adult. This difference is obvious in the analysis as all the six labels from the collection enhance the skills of perception and imagination, but not of the conceptualisation

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
The mascot Ranja Rienus is from the ranja lemonade factory. The ranja factory used all sorts of things to advertise. Like glassware with the mascot on it, or napkins or straws or a stirring rod.	Providing details and facts on the use of a symbol.	Look and identify the characteristics	Perception	Storytelling
I also drink a lot of ranja lemonade because I like it way more than water. I'm sad that the factory is gone now, otherwise I would have loved to go see it. I think it's cool to know where ranja came from.	Think of personal preferences and express an emotion or desire.	Express personal idea and emotion	Imagination	Interpretive description

The first part of the text employs the tool of storytelling, because it presents true information and facts. The label gives details on the mascot of the Ranja factory in Groningen and gives details on how it was used for advertisement. The new knowledge introduced is: the function of a symbol (mascot) in advertising the factory's products. The reader is invited in an accommodating process where the new information about the mascot can determine the already existing idea he/she has about the presented object. Therefore the proposed skill is perception.

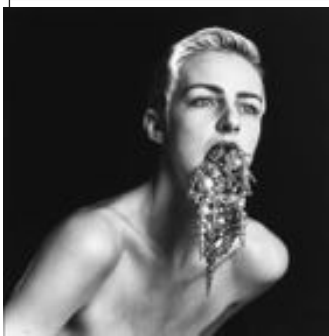
The second part of the label contains the interpretive description tool. The reader is now reading the personal interpretation of the writer and is invited to interpret the exhibit as well. This part presents personal information based on the exhibit revealed in words such as: *I also... , I think...* and it suggests an assimilating process. The reader can think of personal preferences and emotions regarding what has been perceived before and express them. Hence the skill of imagination can be promoted. The corresponding specific action from the Vermeersch figure is: *express yourself (individual belief or or opinion), express a feeling*.

As we see in this label the sequence of cultural skills has been followed as in the Van Heusden framework and the first two (perception and imagination) have been suggested to the audience.

On the other hand, the labels from the photography exhibition "What will the neighbours say?" propose a different approach to labelling. All labels use the interpretive description tool but do not use the storytelling tool. That occurs because the children who wrote them, were completely independent in the labelling process and were not provided with factual information about the photographs. Hence, they do not include facts and actual stories, but their personal interpretation of the photographs. The labels here propose only the skill

perception inviting the audience to take the following actions: observe specific elements in the photographs, follow the writer's narration, assumptions and associations. For instance:

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
I think this woman is very rich, but not happy. She would rather be less rich and that's why she puked up her valuables.	Look in the photograph and try to spot the elements indicating she is rich.	See and identify	Perception	Interpretive description
She wants to start a new life with a new job that she likes. The first thing she will do is go to the pound to adopt a sweet little dog so she won't be lonely any more. She hopes that she will also find good friends now she isn't so rich any more. Her previous friends only wanted to hang out with her because of her money.	Follow a follow a storyline. Remember relevant incidents or stories.	Identify and remember	Perception	Interpretive description



Here the label of the photograph (Erwin Olaf, Pearls (Sabine), 1986) proposes the skill of perception by using the interpretive description tool. The viewer is invited to look closely in the photograph to identify the concept describing wealth as a source of unhappiness. By following the narrative one can associate the basic idea to personal memories. In the Vermersch figure, this action is presented as *hearing a fable and remembering an incident*.

Label text	Activity proposed by label	Specific action	Basic cultural skill	Tool
The kid in the middle is wearing a yellow outfit which is the same colour as the background.	Locate interesting subject in artefact	Close examination	Perception	Interpretive description
I think there has been a war and this was the only school that was open, because no one looks happy. Most of the faces don't fit on the bodies.	Follow an imaginary story explaining the content of the photograph.	Recognise and identify	Perception	Interpretive description
You start to look for the right body for the right face, but is that right? All eyes are looking at you. They want to tell you something, or that's what it seems like. And if they want something, what is it?	Make associations based on the description and make then hypothesis.	Decompose and investigate	Imagination	Question

In this label, in the first part the writer guides the viewer's eyes through the photograph. While looking at it, one can observe the child in the middle. Then, in the second part the writer describes an imaginary story about war which made the children unhappy. This can

function as a potential background story of what is depicted in the photo. Finally, the writer poses two questions in the third part. *You start to look for the right body for the right face, but is that right?* By posing this question, the reader now starts questioning if the faces match the bodies and if not why? Then the following two sentences: *all eyes are looking at you. They want to tell you something, or that's what it looks like.* These two sentences again place the attention on the children's faces and the reader is proposed again to observe the faces in order to understand what the eyes are trying to say. Finally the question: *And if they want something, what is it?* Here, the suggested skill is imagination. After perceiving all the specific elements suggested by the writer, the visitor is proposed to draw associations between them by using the skill of imagination. Then, making a hypothesis on what would they want by looking at you?

Key findings

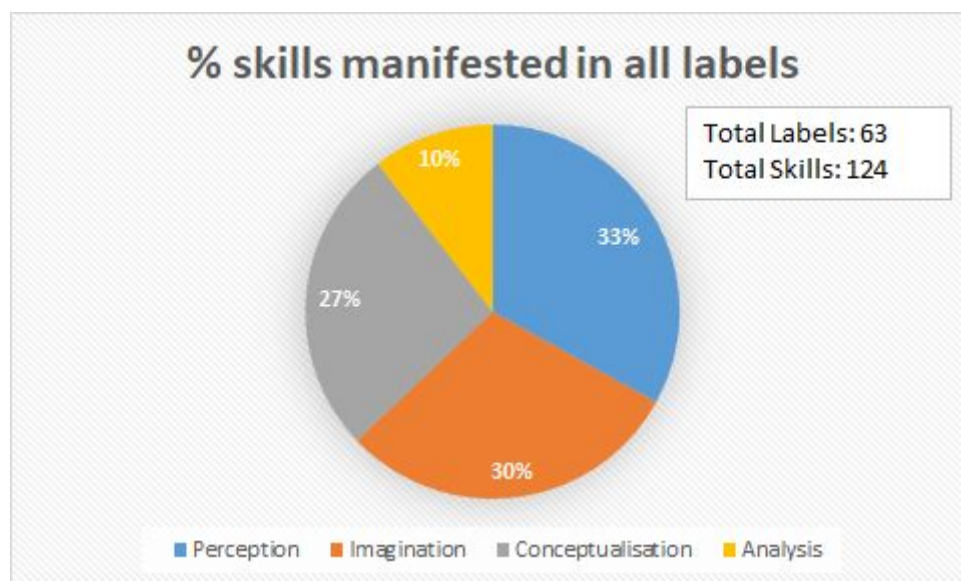
To sum up, the labels written by children in Groninger Museum advance close examination of elements in the art pieces and follow the writer's imaginative narration. As the participant in the interview has mentioned, when the children read these labels, they felt invited to react, to express their ideas and feelings about. However the cognitive strategies proposed to those children cannot be tested here, except for the only example of the question. This label proposes that the use of more than one tool can promote more skills through the labels.

To conclude, the labels written by children constitute a completely different case in comparison to the other museums that I examine in this thesis. The labels are written by children who therefore have already been through the cognitive processes proposed in the framework. Hence, the aim of the thesis is to identify only the skills proposed to the young audience and not the skills already advanced by writing the labels.

Analysis on the total number of labels

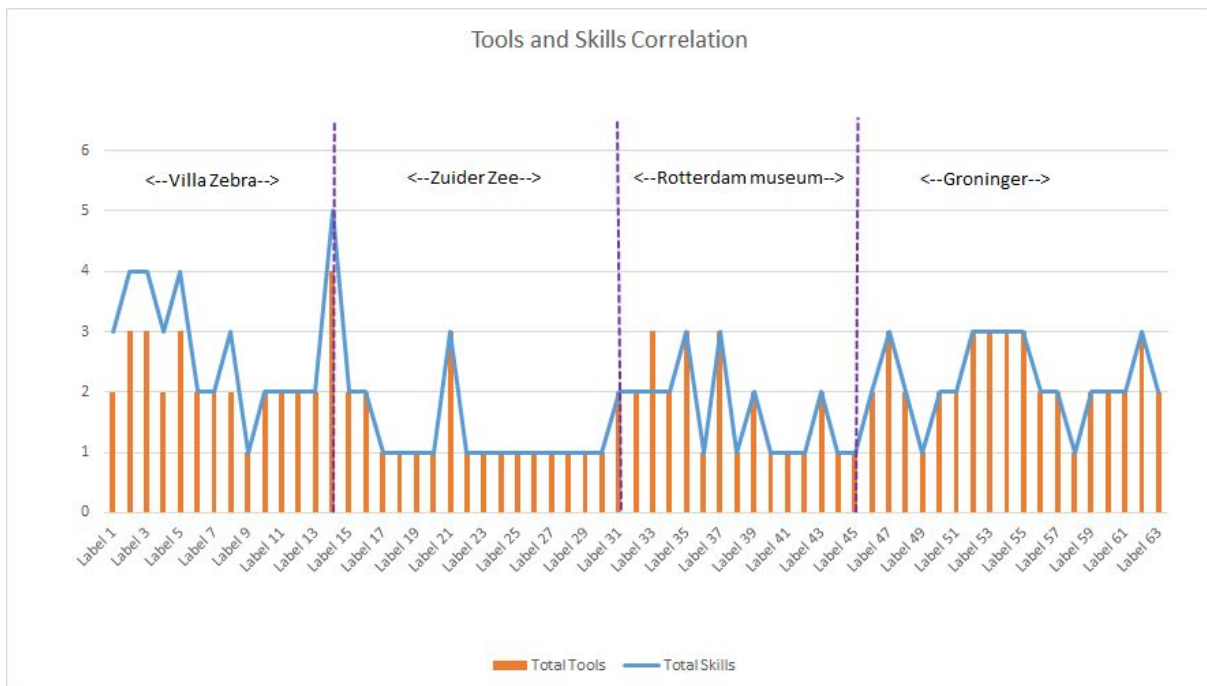
In this final part and unlike the previous ones, I approach labels holistically rather than segmented into case studies according to museums. This will serve to create a complete view of the skills and tools employed in labels and will check for any correlation between tools and skills within labels.

In terms of skills, the pie chart below depicts an almost equal occurrence of perception (33%), imagination (30%) and conceptualisation (27%) of the 124 skills in the 63 labels that were analysed. However the skill of analysis occurred the least in all labels analysed (10% approximately). At this point it is important to observe that this distribution of the skills based on the total number of labels, does not reflect the distribution of each individual case as shown in the previous section. For instance, the doughnut charts of Villa Zebra and Zuider Zee show a relatively equal appearance of skills, while the skill of perception was most prevalent in the Groninger museum as was the skill of conceptualisation in Rotterdam museum. What is consistent though with the case studies is the fact that the analysis skill appears the least in each museum. At a first glance, then this seems to validate Van Heusden's claim that analysis is the most difficult skill to be advanced because it does not come naturally like the other three skills, but needs to be taught (Van Heusden, 2012⁷).



⁷ Video from YouTube: <https://www.youtube.com/watch?v=IctS532nypw&t=1698s>

In regards to tools, I have added the following chart that depicts the amount of skills generated by the corresponding tools used in each of the 63 labels. The X axis includes each label in my analysis and the Y axis the amount of tools and skills. The labels have not been randomly placed in the sample but are grouped according to each museum. For instance, labels 1 to 15 are the labels from the Villa Zebra museum, labels 16 to 30 are those from Zuider Zee, 31 to 45 the ones from Rotterdam museum and the rest belong to Groninger. The orange bars depict the amount of tools (regardless of category) used and the blue line shows the skills identified in the labels (regardless of type).



What is evident in the graph above is that there seems to be a strong correlation between the number of tools employed and the number of skills that are identified in each label. In three out of four museums the ratio seems to be 1:1 - for each tool there is a corresponding skill. What is also interesting is the fact that in the Villa Zebra museum the ratio seems to be higher than 1:1 - more skills for each tool employed. This is an important outlier which will be discussed in the next section along with other important observations made.

5. Discussion and Conclusion

In this final section of the thesis I am going to discuss, how the results of the research help me answer the research questions and explain the implication of the results. Then, I will explain what has not been revealed in the results and the limitations I confronted in doing this research. Finally, I will provide some recommendations on the practical matters regarding labelling and suggestions for further research.

5.1 Discussion

Answering sub-questions through interviews

Analysing the interviews with the professionals who are responsible for the labelling process of each museum, facilitated in answering the following sub-questions:

- a. What is the role of labels in the exhibition and what actions do they invite the viewer to do?
- b. To what extent do labels in museums encourage young audiences to construct personal meaning?
- c. How do museums stimulate self-reflection through labelling?

The first question seeks to identify the role of labels and the actions they invite a young audience to do. All four museums that have been investigated are diverse, they differ in terms of content, aspirations and give different importance to labels. The nature and the content of each exhibition seem to influence the way the professionals proceed in labeling. Therefore, one cannot respond to the questions with a single sentence. In order to understand the roles of labels and the actions they suggest, one needs to take into consideration the nature and the goal of the museum itself. In one word, it was proven that labels have a stimulative character which is translated differently in each museum. To explain, in VillaZebra, the labels contain mostly questions and the goal is to trigger the audience's imagination and sparkle conversation. Then the stimulative character of Groninger labels is to give weight to feelings and emotions. On the other hand, Rotterdam museum's labels from the booklet aim to stimulate the visitors' curiosity about the history of the city, while the combination of labels and workbook of ZuiderZee seek to stimulate children's reflection and creativity.

Although the museums have different views of the stimulating character of labels, they have an important common point about it: they encourage children's voices. That occurs by posing questions and assignments, by starting conversations and by using booklets and workbooks. Villa Zebra mostly employs questions in order to stimulate perception and then imagination. Then, Groninger Museum is unique in using children's interpretations in order to encourage children to express their emotions and experiences. On the other hand, Rotterdam and ZuiderZee are respectively history and cultural heritage museums, which address a wider and more diverse audience (age groups, nationalities). Hence their labels tend to be more inclusive. They achieve to meaningfully address young audiences by the use of extra materials such as the booklet and the workbook. Both supplementary materials contain narrations, questions and activities which suggest children to personally connect to the exhibitions' content.

In addition, what is interesting to notice is that regardless of the audience target and the type of museums, the language used in all labels is simple and understandable by everyone. Hence, I find that all labels in these museums have an inclusive character as well.

Another point revealing the role of labels in all museums, is the stimulation of discussion between children and adults. All interviewees referred to the social aspect of characters as one of the basic characteristics of the labels. However it is important to add at this point that opinions on the interaction of children and adults vary. To elaborate, although all four participants explained the ways children and adults use the labels to interact in a museum context not all of them see the interaction from a positive point of view. While in Rotterdam Museum, the interviewee ideally wants children and parents to use labels as conversation topics, in ZuiderZee the participant wants children to both parents to read the labels to children and children to be able to engage on their own. Although the professionals did not clearly state how they want adults to use the labels, they implied the basic rules of Vygotsky's zpd (chapter 2.3). On the contrary, the educators from Groninger and Villa Zebra museums expressed not entirely positive opinions towards the interaction of adults-children. Their opinions revealed a concern about the proper use of labels by adults. They worry that adults may lead the conversation according to their personal interests and beliefs, instead of letting the child lead the conversation in proportion to their interests. Consequently, they focus the use of labels as stimulators of interaction on the museum staff which is trained and qualified to meaningfully lead the dialogue. This is an important matter indeed but analysing it would be beyond the scope of this thesis. Nevertheless, it was important to be mentioned as it occurred as a theme during the interviews.

To conclude, the basic finding of the interviews related to the first sub question is the stimulating character of labels which takes a different form according to the type and aspirations of each museum. Stimulating discussion, curiosity and expression are present in the labels which invite young audiences to express their imagination, feelings, ideas through questions, narrations and activities. The proposed actions lead us to the answers of the second and third sub-questions.

The second sub-question refers to the encouragement of making personal meaning by engaging with labels. As it has been analysed in the 2.3 section the process of personal meaning making is essential in the constructivist approach in museums. Three museums (except for Rotterdam Museum) seem to follow a constructivist approach as described by Hein, since visitors are able to let their interests guide them through the exhibition rather than following a specific route. Since Rotterdam museum is the history museum of the city, the exhibition line follows a chronological order in presenting historical events and objects. Therefore, applying a constructivist approach on the exhibit order in such a museum may be quite challenging.

The three museums seem to encourage personal meaning making by letting children follow their personal interests and engage in the exhibition the way they prefer. The educators from the art museums believe that meaning making can be facilitated by creating a safe and welcoming environment which aims in letting children express their emotions and ideas. In that sense, discussing the exhibits and following labels is fundamental to be open-ended. They believe that children should not be judged on their answers since there are no right or wrong answers. On the other hand, such a concept was not elaborated by the ZuiderZee educator. A possible clarification on that difference between the art museums on the one side and the cultural heritage and history museums on the other side, may be due to their contents. To elaborate, while art museums are by nature open to interpretation, the other two aim in delivering undebatable content based on historical facts.

Moreover, as the literature in the sections 2.1 and 2.2 has indicated the reference to children's prior knowledge in order to facilitate meaning making, I was expecting a correlation between the exhibitions' topics and the school curriculum. However, each museum follows a different approach on that matter. They mostly connect to school subjects not through labels but through either specially designed programs or by tour guidance. In VillaZebra the connection is facilitated by tour guides who use labels as an inspiration to

facilitate dialogue, while in ZuiderZee and Rotterdam museums, such correlations are facilitated by separate programs.

Finally the third sub-question is related to the Van Heusden framework and concerns the stimulation of self-reflection through labels. Conducting interviews helped me understand how the connection to the central theme can encourage self-reflection. As expected, it was verified that all labels in the exhibition lead visitors to a reflecting process based on the central theme. In the theoretical part I have argued that Serrell supports that the exhibition's "big idea" is present in all labels (chapter 2.1) I came to understand that labels can do much more than that. While all labels are connected to the central theme, they assist visitors to self-reflect in relation to it. To explain, labels with assignments in ZuiderZee make children reflect on their own practices regarding clothes sustainability, while Rotterdam Museum stimulate children to reflect on what is their position in contributing to the city. In both museums it has also been observed the correlation with the notion to familiar places and topics. In chapter 2.2, I have presented the argument that connecting labels to familiar places and knowledge, can increase children's interest in engaging with labels. That was confirmed by the interviews as all of them referred to their goal of connecting the labels' content to the audience's prior knowledge. In addition, they also stressed the importance of delivering topics that directly influence the children's lives.

Therefore, the interviewees made clear that labels do not only provide information or teach the central theme, but challenge visitors to reflect on themselves in relation to it.

Answering the main research question through content analysis of labels

Conducting interviews helped me answer the sub-questions and understand how the museums in question perceive the medium of labels in their exhibitions. The interview results were able to set the foundation in conducting the content analysis of the labels and therefore answering the central research question: to what extent do museums advance cognitive skills in young audiences of primary school by the use of exhibit labels? With the Van Heusden framework as a guide in this research, I achieved to identify cognitive skills promoted through the labels in all four museums. The conditions that verify to what extent exhibit labels promote cognitive skills depend on three fundamental factors: the amount and variety of the tools used and the structure of the label.

1. More skills are promoted by the use of more tools.

The first factor that influences the advancement of cognitive skills proposed in object labels concerns the correlation between the variety of tools employed. It appears that museums that equally use a wide variety of tools, promote a broader range of skills. On the other hand labels that use less tools and a smaller variety, enhance a smaller range of skills. In the last part of the Qualitative Content Analysis the chart demonstrated a strong correlation between the number of tools employed and the number of skills advanced. In each label analysed there was at least 1:1 ratio on the tools employed and skills advanced. However this chart fails to take into account which specific skills are being advanced and by which tools. While the pie chart in the same section depicted that all skills were equally represented in the labels apart from analysis, this would not be a reliable conclusion as the doughnut charts in each of the case studies depicted a different distribution. However, the chart was accurate in regards to the analysis skill as it appeared the least in almost every museum.

Groninger museum uses mostly the interpretive description tool and enhances to a great extent the skill of perception and to a lesser extent that of imagination and conceptualisation while the analysis skill is minimal. Then, in the Rotterdam Museum the storytelling tool is mostly used and the skill of conceptualisation is mostly apparent, followed by imagination and perception. In this museum also the analysis skill appears the least. In the other two museums, the distribution is different from the previous ones. Both Villa Zebra and Zuider Zee have a more balanced representation of Van Heusden's framework. At the same time they have a greater variety of tools used. Villa Zebra uses questions in combination with activities, assignments and storytelling, while Zuider Zee does the same but to a lesser extent. What is also worth noting is that Villa Zebra had the highest occurrence of the analysis skill.

Thus, the findings demonstrate that by using more tools, more skills are likely to be advanced. However it is important to observe the case of VillaZebra. We see that the skill of analysis was the least proposed skill in all the museums in total, but the most proposed in VillaZebra in comparison to the rest. Although it is hard to explain why this occurred, in my opinion there is a correlation between the amount of skills enhanced in each label as well as the sequence in which they are organised. That observation brings us closer to the next important finding.

2. Advancing all skills depends on a building up sequence.

The second fundamental finding concerns how the skills are structured in a text. As I presented in the results section (4.2) the majority of labels promote more than one skill. However, it has been observed that labels do not usually follow a building up sequence order to develop a skill on top of the other.

A pattern of sequence in the labels was identified only in the Villa Zebra exhibition. All labels from this museum suggest more than one skill and usually with the following order: conceptualise - imagine - analyse or perceive - imagine. By making an association between this observation and the results of the VillaZebra labels analysis which was the one with the most skills advanced, I conclude that the advancement of skills also depends on the structure in which they appear. Structuring the skills in a way that one skill leads to suggesting another one, can be significant in advancing all cognitive skills. This observation verifies Van Heusden theory that the skills are interconnected and one skill builds up on the previous one (section 2.4). Finally, going back to the observation about the low frequency of the analysis skill, it seems that if all skills are promoted in building-up sequence (perception-imagination-conceptualisation), only then the skill of analysis can be enhanced. That is consistent with the *systematic logic* in which they appear in the Van Heusden scheme: *There is a logic of sequence in it. All human cognition starts with perception... This is a necessary sequence but it is not always followed all the way through. Most of the time we simply stop here, perception is enough. Sometimes we go one step further, even less often we go to conceptualisation and analysis is very seldom.* (Van Heusden, 2012, 26:20 - 27:10)

In conclusion, analysing the interviews and the labels through the Van Heusden framework showed that indeed cognitive skills can be advanced through engaging with labels. In general, assimilating processes such as conceptualising and imagining are proposed significantly more often. Through these, children are invited to understand new information and add them into their existing knowledge and ideas. However, accommodating processes such as perception and analysis were seldom proposed. That is interesting, since perception is the first in the logic sequence as we first perceive, but analysis is the most rare and hard skill to approach. According to Van Heusden, analysis is the only skill that needs to be taught.

After discussing the findings of the research it is interesting to mention what I was unable to identify through the content analysis of the labels. I couldn't identify precisely the social aspects of the labels which was presented under the theory of Vygotsky (chapter 2.3) and in

the interview results. I was expecting to identify elements in the labels that would promote discussion between adults and children. However, after analysing the labels it was not clear how they can facilitate such interaction. In a broad sense any label can potentially become a topic of conversation, but I did not identify any specific elements that trigger discussion.

5.2 Limitations

In many ways this research has been an interesting and valuable journey. I have tried to shed light into a tiny part that may offer input in connecting cultural education and museums. Moreover, it has helped me to gain some insight in the labeling process that I have always admired. However, it is important to present the limitations I have faced in the data collection process and the limitations of the thesis in general.

As the writing of the thesis was conducted during the country's lockdown due to the Covid-19 virus, I was not able to reach the museums that I chose while planning the research. Unfortunately, the museums remained closed during the whole period of conducting the thesis, therefore I had to look for alternative ways to collect the data. My original plan included research on 6 art museums instead of 4 diverse institutions. Thus, I chose the museums based on their websites and my previous experiences and not by physically visiting them.

Hence, the most important limitation I experienced was the fact that I was not able to physically visit the museums. I was unable to personally experience the engagement with the labels not to choose the data that would bring me in depth results. As I mentioned above, what I was not able to find in the analysis of the labels, was the way they can trigger interaction with adults. By visiting the museums and observing the interaction between the audience as part of the research would have proven if the labels play this role. In addition, looking for myself audiences engaging in activities proposed in labels or using them as conversation topics, would have given me a clear idea on how the public interacts with them.

Another limitation is associated with the methodology I used in my research. In my opinion, in order to verify if labels can be used to promote interaction between adults and children, the method of observation would have proven to be more fruitful. To explain, observing families interacting in a museum context, would provide additional information on if and how they use them as conversation topics.

Another limitation I believed influenced my thesis is the diverse character of the investigated museums. The museums I researched cannot be placed in a single category, since there are two museums about art, one about cultural heritage and one about history. Moreover, their approaches in labeling are diverse in terms of who writes the text, what tools are used, who

is the audience and what are the goals of each one. Consequently, investigating museums that have more similarities between them would have given more concrete results. I believe that researching only one type of museum or museums that follow the same labelling process would bring rich insight on the topic. However there are two sides to the coin. While examining museums of diverse types and content may be considered as a limitation of the thesis, I believe that it also offers diversity in the findings. Moreover, I find that this diversity is consistent with Van Heusden ideas on cultural education. To explain, he supports that arts, history, heritage etc are parts of our culture, therefore parts of cultural education. Hence examining a variety of museums, may bring us closer to developing labels which follow this framework in pursuit of unifying the different subjects under the common umbrella of cultural education.

5.3 Recommendations

After discussing how I have answered the research questions, what I was unable to find and the limitations I encountered, I am going to present some recommendations regarding labels and for further research.

First of all, as I explained in the 2.3 chapter, according to the zone of proximal development theory of Vygotsky adults can play the role of mediators to approach knowledge. Though, the challenge is how they can efficiently use labels to start a conversation. Although, all of the participants in the interviews referred to labels that are used for dialogue, I was not able to justify this aspect by analysing the labels.

- ❖ To facilitate the social aspect of labels, I would propose including directions and suggestions in a form of questions or assignments to discuss what has been described in a label. For instance, using phrases such as: “what is your opinion on.....? Describe your idea to a fellow visitor/to the person next to you”. “Ask your friend what he/she does feel while looking at the exhibit and then describe your feelings”. In addition, while there are assignments for the young audience, are there for the older audience as well? Designing activities and assignments that propose collaboration between adults and children can promote dialogue and enjoyment.

- ❖ The second recommendation I would like to propose is related to the Van Heusden framework and its possible application in object labels. As I explained in the content analysis, the museums do not propose all four skills proposed by the researcher. On

that matter I concluded that the more tools used in labels in the sequence proposed in the framework, the more chances are to enhance the cultural skills. Hence, I propose label designers to make use of all types of the five tools (storytelling, questions, interpretive description, activities, assignments) in the texts. In such a way the labels can promote the skills of perception, imagination, conceptualisation and analysis. Moreover, following the sequence of skills as in the framework can raise the chances of advancing the skill of analysis. As previously mentioned, the skills of analysis is the least proposed in the labels. In my opinion, that result is correlated to the fact that not enough tools are used in the labels and because they do not promote the other three skills in the proposed order.

❖ A brief guideline would look like this:

“For enhancing the imaginative skills, labels may contain example words and expressions such as: what if...? How would you like to see...? Draw/write how this idea looks like. For instance, the use of a workbook where children creatively express concepts and meanings constructed by reading the labels. Then, in order to conceptualise what has been imaged labels may contain: What is your opinion on....? Describe an imaginary concept about... Discuss this concept with a fellow visitor. Finally, after proposing the three skills, analysis can be enhanced. The visitors at this stage can be asked to reach conclusions or actively test their ideas and creations.”

❖ Another interesting recommendation concerns the aspect of time as proposed in the section 2.2. As I explained in interviews results, the educator from the ZuiderZee museum explained that by taking the workbook back home, visitors can keep the memory of the museum experience alive after the visit. As explained in the theoretical background, the aspect of time may have a significant influence in constructing knowledge. That occurs because memories from an exhibition can be stimulated under the right conditions. Therefore, I believe that following the example of Zuider Zee, engaging young audiences in assignments in a booklet that can be taken back home can prove fruitful in the future.

5.4 Conclusion

In this research I wished to show that all labels have the capacity of taking the young audience through a cognitive process which advances skills crucial and necessary in adulthood. The most precious conclusion of this study is that labels by using a variety of tools have the capacity to enhance crucial cognitive skills to young visitors. It seems that museums can indeed promote cognitive skills through object labels, but in order to succeed in advancing all four skills, a diversity of tools needs to be utilized in building up sequence. Also, in order to tackle the limited representation of the analysis skill, organising them according to the Van Heusden sequence, labels can also advance analytical skills.

The labels which were researched, although do not enhance all the cognitive skills, they manage in their own way to connect children to their central themes and invite them into a reflecting process upon it which in turn lead to promoting skills. The program which allows children to write labels of Groninger museum, stands out for empowering children's voices, while Villa Zebra museum sets the example for a cultural cognitive journey. Rotterdam museum embraces the continuum of history and inspires for the future, while in ZuiderZee the past provokes the present, and the present reflects the future.

To conclude, I hope I have demonstrated how engaging young audiences with labels is an important step in acquiring crucial competences for adulthood. I also hope that my thesis can serve as a stepping stone for further research and that my methodology may be considered to explore further the matter of labels promoting cognitive skills. Going back to the introduction, some of the 21st century skills are critical thinking and creativity. I support that by designing labels according to the Van Heusden framework, object labels can earn their rightful place amongst the ways cultural education is connected to museums which can ultimately shape the adults of tomorrow.

6. References

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Appendices

Appendix A. Consent request for participating in interviews


Standard EUR Informed Consent Form



Project Title and version	Exhibit labels and young audiences
Name of student	Athina Zisimopoulou
Name of master program	Arts, Culture and Society Erasmus University
Purpose of the Study	This research is being conducted as a master thesis. I am inviting you to participate in this research project about the role of labels in museum education. The purpose of this research project is to explore the skills that labels in museums enhance to young visitors.
Procedures	You will participate in an interview lasting approximately 45 minutes. You will be asked questions about the procedures you following the labelling process. You must be at least 18 years old, work at the Groningen Museum and be involved in the labelling process of the exhibitions.
Potential and anti-cipated Risks and Dis-comforts	There are no obvious physical, legal or economic risks associated with participating in this study. You do not have to answer any questions you do not wish to answer. Your participation is voluntary and you are free to discontinue your participation at any time.
Potential Bene-fits	Participation in this study does not guarantee any beneficial results to you. The broader goal of this research is to suggest effective strategies in labelling in museums with young audiences.
Sharing the re-sults	Your plan for sharing the findings with the participants should be provided. If you have a plan and a timeline for the sharing of information, include the details. You may also inform the participant that the research findings will be shared more broadly, for example, through publications and conferences.

Standard EUR Informed Consent Form



Confidentiality	<p>Your privacy will be protected to the maximum extent allowable by law. No personally identifiable information will be reported in any research product. Moreover, only the researcher and the thesis supervisor will have access to your responses. Within these restrictions, results of this study will be made available to you upon request.</p> <p>As indicated above, this research project involves making audio recordings of interviews with you. Transcribed segments from the audio recordings may be used in the master thesis and pseudonyms will be used. The audio recordings, forms, and other documents created or collected as part of this study will be safely kept and will be destroyed after the completion of the study.</p>	
Right to Withdraw and Questions	<p>Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time.</p>	
Statement of Consent	<p>Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree that you will participate in this research study. You will receive a copy of this signed consent form.</p>	
Audio recording	<p>I consent to have my interview audio recorded</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p>	
Secondary use	<p>I consent to have the anonymised data be used for analysis</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p>	
Signature and Date	Name participant	Name master student Athina Zisimopoulou
	SIGNATURE	SIGNATURE 
	DATE	DATE

Appendix B. Interview guide

First of all I would like to thank you for agreeing to take part in my research. I would like to remind you that the interview will be recorded and all information will be kept anonymous and confidential. I will first ask you a few questions regarding the museum and then we will move to more specific questions regarding the labelling process.

1. Introduction

- Can you tell me about the museum and its audience?
- What is the audience target of the museum?
- What do you do in the museum?
- Can you tell me how children mostly visit the museums? With their class or with family?

2. Labelling process

- How is the process of writing labels like? What are the steps? Who is involved in the process?
- What kind of tools do you use in the labels?
- What is the role of the educational department in the process?
- There is a general perception that all labels should contribute in communicating the exhibition's "big idea". What is your opinion on that?
- How can labels communicate the exhibition's goal?
- Can you tell me if and how are labels connected to the school curriculum?

3. The labels & the audience

- How do you categorise the labels in the museum?
- How do you expect visitors to use the labels? How is it different to children and adults?
- How do you think a label can guide the viewer in understanding the art piece?
- How do you think the language can affect the levels of understanding of the viewer?
- Do you think it is possible a label can bring back memories? Activate the interest?
- Do you believe that labels can be used as conversation topics?

- If you could describe the role of the labels, would you say that is more educative or entertaining?

4. Questions about the specific labels of each museum

Groninger museum:

- Why does the museum offer this kind of label? Do they address only children?
- What is the process of recruiting young writers?
- How do you guide them during the process?
- What do you think the labels written by children can offer to them?

ZuiderZee museum:

- What kind of theme related activities do you offer to children?
- What is the role of the additional booklet?
- How is it part of the exhibition?

Rotterdam museum:

- How can the common point of the audience: the city be reflected in the labels?
- Can you explain the role of the booklet you sent me? How is it supposed to be used and what is its role?

Villa Zebra museum:

- What is the involvement of the artists in labels?
- How are the labels used in groups and how in individuals?
- In Villa Zebra I have seen parents reading the labels to their children or encouraging them to talk to artists. What is your opinion on that?

Appendix C. Examples of tools in labels

tools in labels	Activity tool	Assignment tool	Interpretive description tool	Question tool	Storytelling tool
examples	<ul style="list-style-type: none"> • Try your hand at embroidery: find yourself a place at the embroidery table and have a go! • Feel, guess and find out what was needed to make an apron, shirt, pullover or trousers. Feel the fabric and guess what kind it is. Fold it upwards and read the text to see if you're right. • Isn't it annoying to lose a button? It may come in handy if you can sew on a new one. Want to try it? This is how you do it:... 	<ul style="list-style-type: none"> • What is your favourite vegetable and fruit? Draw how it would look if you combine these two. • Draw your favorite Rotterdam building • What things can you do in the same time people need in the old days to make clothing? Tick the box of your choice: <ol style="list-style-type: none"> a. Have a holiday in Spain b. Buy 300 shirts c. Watch 30 films d. Go to school for 20 days 	<ul style="list-style-type: none"> • Even though it's a photograph, it looks like someone painted a white line on a black canvas with a human on it. If you look at the man's head you can see a tiny white bit, that's why it reminds me of a skull. I wish there had been some colour on the picture, although this does look cool. Maybe the road is a small path through the dunes. • Lisa and Otto discovered a piece of the skull of a human from the Middle Stone Age on the beach of the Second Maasvlakte: this 'primal Rotterdammer' walked around here over ten thousand years ago! 	<ul style="list-style-type: none"> • How can you give your clothes a second chance? • Do you know that there is a horse on top of the Martinitoren? • What would the city look like if plants were allowed to grow everywhere? Or the world? Or...? • Most of the faces don't fit on the bodies. You start to look for the right body for the right face, but is that right? All eyes are looking at you. They want to tell you something, or that's what it seems like. And if they want something, what is it? 	<ul style="list-style-type: none"> • Textile used to be very expensive. So clothes were mended all the time. And people definitely didn't throw them away, because you could always use them for cleaning cloths! Today we think it's perfectly normal to buy new clothes every now and then. • The mascot Ranja Rienus is from the ranja lemonade factory. The ranja factory used all sorts of things to advertise. Like glassware with the mascot on it, or napkins or straws or a stirring rod.

tools in labels	Activity tool	Assignment tool	Interpretive description tool	Question tool	Storytelling tool
examples	<ul style="list-style-type: none"> Find the pea plant fertiliser contest. Which pot has the fastest growing plants? Wash till you drop! Join the wash-game battle and try to do the wash as quickly as possible. And, of course, don't forget to hang out the wash to dry on the 'roop'! Imitate a butterfly looking for a flower. Show how a lemon gives a hug. And a mango? 	<ul style="list-style-type: none"> Find the children's games on tiles 425 at the bottom of the container. Which ones do you know? The eyes on butterfly wings deter enemies. Think of an enemy and draw an eye that it fears. ... you can tell it in words, but you can also show it in colours, materials. Think of a vegetable of each colour and/or structure that you see. Choose a potato variety and draw how it could draw. 	<ul style="list-style-type: none"> Rotterdam looks like a modern, new city. But under your feet there are still traces of the past. If you dig deeper and deeper, you actually travel through stacked layers of time. I think this woman is very rich, but not happy. She would rather be less rich and that's why she puked up her valuables. She wants to start a new life with a new job that she likes. There are lots of girls on this picture and just one boy. It looks like the one with the purple hair and the one with the blue hair are holding hands. They are in a fantasy world. 	<ul style="list-style-type: none"> When you think of spring, what do you think of? How do you feel then? What do you smell? What is the most special thing you have ever found? What is the name of Rotterdam airport now? Why do you think the man never dug up his shoe treasure again? How does this man feel? Why is he acting like this? How come the pear and apple are so big? What does this remind of you? What is in your opinion the 'most useful' subject taught in your school now? 	<ul style="list-style-type: none"> These leather gloves belonged to Juda Walg, a Jewish boy from Rotterdam. His parents ran a photo studio on the Coolsingel, and Juda spent a lot of time with his nanny. In the winter he would wear these gloves, in the summer they would stay at the Scheveningen beach resort for a month. In 1942 his carefree life came to an abrupt end. The family was arrested and deported. Juda was killed in Auschwitz on 22 October 1942, just like his mother and sister.