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Inclusivity in Dutch Science Museums

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Abstract

This study explored what Dutch science museums are currently doing to reach an inclusive audience. Furthermore, it explored their current visitor profile and the problems these museums encounter while trying to be inclusive. I analyzed publicly accessible documents of seven science museums across the Netherlands, conducted semi-structured interviews with their representatives and had an interview with the project leader of Diversity and Inclusivity of the sector organization of science museums and science centers in the Netherlands. For the analysis of the transcripts I used a combination of deductive and inductive coding methods. The results show that the dominant groups which visits Dutch science museums are higher educated, higher income, with white European background families, experienced museum visitors, elders and tourists. The nondominant groups are teenagers, younger students, people from a migration background and people with lower socio-economic backgrounds. The results imply that the museums do not yet have a definition of inclusion. The nondominant groups are mostly reached through formal education programs and activities the museums provide. Other inclusive actions undertaken are being free of admission, (free) one-time events, activities and programs. The problems museums encounter while trying to be inclusive are not having a diverse management, not knowing how to communicate with nondominant groups and not having enough money to bind new target audiences to the museum. I conclude that inclusion in Dutch science museums is at the beginning stage, but that the museums are gaining awareness regarding attracting inclusive audiences and becoming an inclusive institution.

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Introduction

Inclusivity in science leaves much to be desired and in the last couple of years this has become an important topic (Dawson, 2014b). Science and technology have become very influential in society and can affect people's career choices, politics and personal decisions (Dawson, 2014a). Information on science and technology, and science education in general, is therefore essential. Informal science education (ISE) institutions such as science museums bring science to the general public in a meaningful and relevant manner (National Research Council, 2009). Nevertheless, from visitor statistics it has been shown that science museums are not reaching a broad audience (Feinstein & Meshoulam, 2014). Their audiences are not a reflection of society. Science museums are more visited by middle-class whites and less visited by people from other socio-economic backgrounds or ethnicities (National Research Council, 2009). So, if science museums do not become more inclusive, they actually might make the knowledge gap bigger between the already privileged and successful audiences and the less privileged people in society (Feinstein & Meshoulam, 2014).

Studies about inclusivity in ISE institutions are mostly about the United Kingdom (UK), United States of America (USA), Australia or Europe in general and describe that there is a dominant group which visits ISE institutions and a nondominant group which feels excluded from ISE institutions (Dawson, 2014a; Dawson, 2014b; Feinstein & Meshoulam, 2014; Levin, 2010; National Research Council, 2009; Robinson, 2017). The dominant group is described as people with white European backgrounds (Dawson, 2014b) or middle-class whites (National Research Council, 2009). The nondominant group is described as people from minority ethnic backgrounds, socio-economically disadvantaged backgrounds, women and disabled people (Dawson, 2014b; Dawson, 2018; National Research Council, 2009).

Science museums have been trying to be more inclusive over the past years, mostly by one-time events or temporary programs for specific non-visiting audiences (Dawson, 2011). What is missing is the knowledge to actually engage non-visitors in a long-lasting relationship. From the UK and USA, there are some examples of museums that did initiate projects and programs to reach for this goal. A case study by Machin (2008) explored the biased display of male and female specimen in the Natural History Museum of Manchester and made recommendations on how this bias can be improved by the museum. The texts provided by each specimen was surveyed on the language used to describe a specimen and the distribution between female and male specimen in the museum was determined. It was recommended that the informative texts should better represent the roles of females and not only describe them as submissive to males (Machin, 2008). Another example is Thinkthank, a science museum in Birmingham, which worked together with local communities to make a program to enhance skills for future jobs and self-reliance for teenagers from disadvantaged areas (Dawson, 2011). In San Jose, the Children Discovery Museum underwent an organizational change after they found out that they did not longer match the community demographic where the museum was situated. By reaching out to Hispanic and Vietnamese communities and working together on a more inclusive museum for all, the museum has managed to match the community demographic within five years (Martin & Jennings, 2015). An important aspect regarding becoming more inclusive that came from these projects is that it is important for the institution to be patient, because new audiences will not bind to them overnight. Furthermore, the institution needs to make sure that the staff in all levels of the organization needs to be engaged in trying to reach out to new communities (Martin & Jennings, 2015) and it is important to work with the new audiences an institution wants to reach, to make them co-owners of the institution (Dawson, 2011).

The current situation regarding inclusion in Dutch science museums is not yet extensively researched. The topics inclusivity and diversity are gaining grounds in the Netherlands, this is shown by the initiative of the sector organization of science museums and science centers (VSC) which started their program 'Diversity and Inclusivity' in 2019 (VSC, n.d.-a). With this program they want to inform, inspire and activate their members (35 science museums in 2018) to connect and learn with each other and to involve them in joint group projects (Benning & Verkade, n.d.; VSC, n.d.-a). VSC will for example help their members with making inclusive policy plans, how to formulate goals from these plans and make action points. With a couple of members, they start a project group who works on concrete goals regarding inclusivity and diversity and share their progress and lessons with other members and interested parties (VSC, n.d.-a). Furthermore, a project about gender inclusion in science, technology, engineering and mathematics (STEM) sciences, named The Hypatia Project, resulted in a report on criteria for gender inclusion and how to implement these criteria (Achiam & Holmegaard, 2015a; Achiam & Holmegaard, 2016). This report presents several assessment criteria for the inclusiveness of activities organized by science centers. The levels the Hypatia Project distinguished are the individual level, the interactional level, the institutional level, and the societal/cultural level. These levels are each accompanied by several questions the science activity developers, or ISE policy makers, can ask themselves about their activities. Added to each question is a brief description of what points the developers and policymakers of ISE activities have to pay attention to in order to make the activity gender inclusive (Achiam & Holmegaard, 2015b). They also developed so called 'good practices', which sums up different points an activity has to meet in order to be gender inclusive (Achiam & Holmegaard, 2016).

Even though the topics of inclusion and diversity are gaining grounds and some policy suggestions have been made, it is not yet researched what the dominant and nondominant groups are for Dutch science museums, what activities they are organizing in order to attract an inclusive audience, which difficulties the museums might encounter regarding inclusion and what Dutch science museums define by inclusion. Therefore, the aim of this research is to explore the current situation of inclusivity in Dutch science museums. The main research question is: 'What are Dutch science museums currently doing to reach an inclusive audience?'. In order to answer this question and reach my research aim, it is important to have an understanding of how science museums in the Netherlands interpret the term inclusiveness. Different museums can have a different vision of inclusion, which can lead to different experiences of problems and successes, and different activities they undertake. For example, one museum can view inclusion only on the base of gender-bias, but another institution can have a broader view and notice that their public isn't ethnically diverse as well. Therefore, the sub research questions will be: 'What is the current view on inclusion?', 'What audiences are they reaching and missing?' and 'Which problems and difficulties do they encounter regarding inclusion?'

This is an explorative study, with qualitative methods to explore inclusivity in Dutch science museums. This study provides interpreted results, from qualitative data gathered through publicly accessible documents provided by Dutch science museums, semi-structured interviews with representatives from these museums and a representative from VSC. I tried not to give a definition of inclusion myself throughout the interviews, so that the respondents would describe their own visions and definitions of the topic and give examples of what they ought to be inclusive actions, exhibitions or programs undertaken in their museum. Consequently, this study provides examples of inclusive actions undertaken by several

museums in the Netherlands, their visitor profiles, their interpretations of inclusion and the problems and difficulties they encounter regarding inclusion.

Defining inclusivity

From literature on inclusivity in ISE, a lot of different meanings, characteristics and definitions can be derived for the term 'inclusivity'. Terms like accessibility, ethnic minorities, gender, socio-economic status, etc. are all mentioned in literature on inclusion in ISE (Achiam & Holmegaard, 2015b; Dawson, 2014a; Dawson, 2014b; Feinstein & Meshoulam, 2014; National Research Council, 2009). What the literature on inclusivity in ISE institutions has in common is that they all focus on the accessibility of ISE institutions for so-called dominant and nondominant groups. For example, Dawson (2014b) looked at how accessible ISE institutions are for ethnic minority groups, women, and low-income families, the nondominant groups in this study. People from ethnic minority backgrounds and disadvantaged social positions were interviewed on their experiences before, during and after visiting ISE institutions. The nondominant group in this study had the preconception that ISE institutions would be unwelcoming for them and after their visit this preconception was strengthened (Dawson, 2014b). National Research Council (2009) described as well that people from a nondominant culture, in this case Latin-American, perceive ISE institutions as unwelcome. These institutions are not accessible for them since it feels as if they are managed only by the dominant group, their language was not available, and the content was not relevant for them (National Research Council, 2009).

Thus, literature on inclusivity in ISE, mainly focusses on equal accessibility of science education for the dominant, as well as the nondominant group. Therefore, the definition of inclusivity used in this article is: 'Inclusivity is the equal accessibility of an ISE institution for the dominant, as well as the nondominant group.' The dominant and nondominant groups are mostly described by ethnicity, socio-economic status or gender. The nondominant groups differ per article, sometimes this group is described as Latin-Americans (National Research Council), low-income families and women (Dawson, 2014b). The dominant group is described similar in most literature on inclusion, namely people from a white European background with a higher socio-economic status (Dawson, 2014a; Dawson, 2014b; National Research Council, 2009).

Criteria for inclusion in science museums

In order to know which activities described by Dutch science museums can be regarded as inclusive, or what questions to ask their representatives, I used the criteria described by The Hypatia Project (Achiam & Holmegaard, 2015a; Achiam & Holmegaard, 2015b; Achiam & Holmegaard, 2016) and The Index of Inclusion (Booth & Ainscow, 2002). I used the criteria in order to form codes for the transcripts (see Table 1) and to develop an interview scheme for the semi-structured interviews with the representatives (see Appendix A).

The Index of Inclusion described criteria for formal science education (SE) settings, which can be implemented in order to create an inclusive environment in a school setting (Booth & Ainscow, 2002). Some examples of these criteria are: valuing all students and staff equally; restructuring the cultures, policies and practices in schools so that they respond to the diversity of students in the locality; reducing barriers to learning and participation for all students, not only those with impairments or those who are categorized as 'having special

educational needs'; viewing the differences between students and resources to support learning, rather than problems to be overcome, etc. (Booth & Ainscow, 2002, p.3). The index furthermore provides questions one can ask to evaluate the current circumstances regarding inclusion in the school environment. For example:

Who experiences barriers to learning and participation within the school? What resources can be mobilised to support learning and participation and develop the cultures, policies and practices within the school? (Booth & Ainscow, 2002, p.18)

These criteria and questions can be used as well in science museums, by adapting them towards focusing on visitors, instead of the 'student' and asking about the policies and practices within the museum. This is what I did in order to create prompt questions for the semi-structured interviews, such as 'Do you take in account any barriers that visitors might encounter in the museum?'. Furthermore, I used the index to form codes such as 'review', which can be seen in Table 1, by adapting this criterium towards a museum setting.

The Hypatia Project provides criteria regarding gender inclusion in ISE settings by providing a framework that consists of several levels that have effect on the implementation of activities provided by ISE institutions (Achiam & Holmegaard, 2015a). These levels are the societal/cultural level, the institutional level, the interactional level and the individual level (Achiam & Holmegaard, 2015a, p.15-16). With each level The Hypatia Project provides questions science educators can ask themselves in order to become aware of gender bias, action points institutions can implement to decrease gender bias in activities and instances and examples of good practices regarding these action points. The social/cultural level covers questions, action points and examples on the culture and society that the institution and learners are based in. For example, a question on the societal/cultural level is: "What are the cultural constraints for the activity?" (Achiam & Holmegaard, 2015a, p.22). The institutional level covers questions, action points and examples about ideas on gender that exists inside the institution. The focus is on the core aims and profile of the institution, their approach toward science and pedagogical methods and how an institution can optimize these aspects in order to attract a diverse audience (Achiam & Holmegaard, 2015a). The interactional level provides question, action points and examples on how institutions can become aware that interactions between learners and staff can create gender inequality and how to minimize this. For example, an action point regarding the interactional level is:

Ensure that the involved science educators and scientists reflect a variety of personalities. Girls and boys are most inspired by role models they feel psychologically similar to. Otherwise, the standards set by the other person become a contrast that girls and boys may react against. (Achiam & Holmegaard, 2015a, p.19)

I used this action point to make the code 'representation on the floor' (see Table 1).

Lastly, the individual level provides criteria that can be implemented in order to improve the gender equality of an activity on the level of an individual learner. These criteria cover topics such as the prior knowledge of learners, the scientific interests of learners and previous experiences learners may have had with scientific activities (Achiam & Holmegaard, 2015a). I will now further elaborate on the implementations of these criteria in this study in my methodology.

Table 1: Some examples of deductive codes derived from the Hypatia Project (Achiam & Holmegaard, 2015a), the index for inclusion (Booth & Ainscow, 2002) and literature by Feinstein & Meshoulam (2014) and Dawson (2014a)

Code	Description	Example	Source
Representation on the floor	The museum ensures that the employees represent a variety of personalities and that almost everyone in society can recognize themselves	A museum has for example an even distribution of men and women who give tours in the museum of the museum makes sure that the employees who are visible for the visitors are a variety of men, women, old, young, colored and white	Achiam, M., & Holmegaard, H. T. (2015a). Criteria for gender inclusion. <i>Hypatia Deliverable, 2</i> , 1-28
Review	The museum reviews whether their view on inclusion, gender roles and minimizing exclusion is still up-to-date and enforced by all staff	The staff comes together to discuss whether exhibitions and/ or programs are still meeting the current inclusion criteria or takes part in research about gender/ ethnic inclusion and incorporates findings in their new exhibitions/ programs	Booth, T., & Ainscow, M. (2002). <i>Index for Inclusion: Developing Learning and Participation in Schools</i> . Bristol, UK: Centre for Studies on Inclusive Education
Reducing Matthew Effect	The museum makes sure they are not only serving those whom are already succeeding in school and society	The museum has for example a school program with which they go to schools who cannot come to the museum, or the museum organizes activities which are free of admissions	Feinstein, N. W., & Meshoulam, D. (2014). Science for what public? Addressing equity in American science museums and science centers. <i>Journal of Research in Science Teaching, 51</i> (3), 368-394.
Decision-making	The museum involves audiences in the decision-making processes regarding programs, accessibility and exhibitions	The museum has for example focus groups from different target groups coming by and testing new activities, programs, exhibitions and incorporates the feedback of the focus groups in their new programs or hands out anonymous surveys in which visitors can state their opinion of what is missing or could be done better	Dawson, E. (2014a). Equity in informal science education: developing an access and equity framework for science museums and science centers. <i>Studies in Science Education, 50</i> (2), 209-247

Methodology

For this study I used an explorative design, with qualitative, semi-structured interviews methods to explore what Dutch science museums are currently doing to reach an inclusive audience, which audiences they attract and miss and which problems and difficulties they encounter regarding reaching inclusive audiences. This qualitative method was chosen since

this provides more nuanced, detailed and privileged information than quantitative methods, which was more valuable for this study, since inclusivity in Dutch science museums is a relatively unexplored topic (Denscombe, 2010, chapter 10). Furthermore, I looked into public documents, for example annual reports, provided by the participating science museums and for data triangulation I had a semi-structured interview with a representative from VSC and looked into their annual report of 2018 (Benning & Verkade, n.d.).

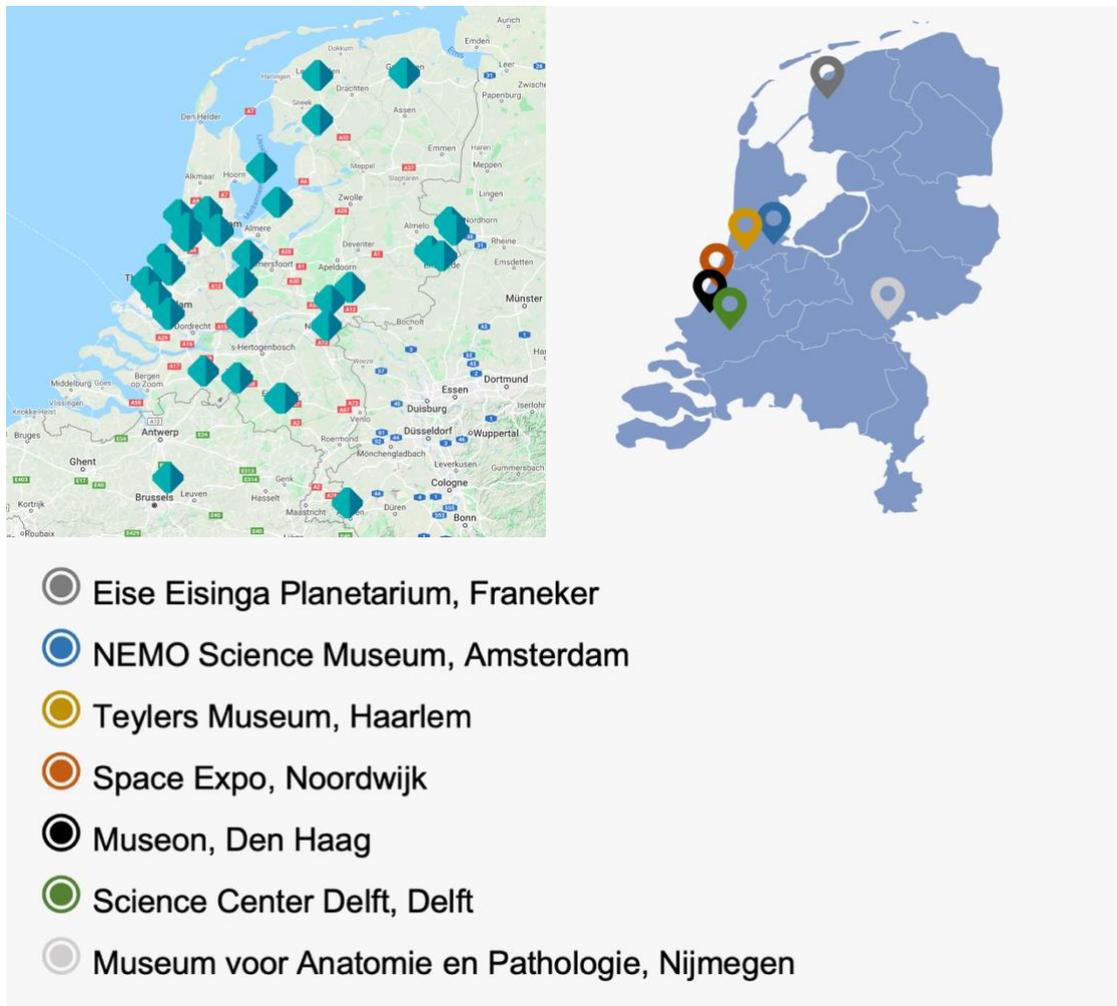


Figure 1: Global, geographical overview of science museums distributed across the Netherlands and Belgium which are members of VSC (VSC, n.d.-b) (left) and of the participating science museums in the Netherlands (right)

Participants

The Netherlands have a lot of different museums. Some of these are a member of VSC and Figure 1 (left) shows their distribution across the Netherlands. Most of them are situated in the provinces North-Holland and South-Holland (VSC, n.d.-b). For this study I e-mailed 12 science museums distributed throughout the Netherlands, asking whether I could have a semi-structured interview with a representative. I contacted these museums based on their location and whether they were relatively bigger or smaller science museums, to still create a versatile image without a big sample size. Seven museums responded from which I spoke with either a director, program maker, head of education or curator. Organizational staff with these functions often has the privileged knowledge needed for in-depth information about topics such as inclusion and diversity (Feinstein & Meshoulam, 2014). The respondents I spoke to

were Museum voor Anatomie en Pathologie, NEMO, Teylers Museum, Museon, Space Expo, Eise Eisinga Planetarium and Science Centre Delft. For information about the museums see Table 2, for their distribution across the Netherlands see Figure 1 (right). I used an exploratory sample, since this can be used as a way of probing unexplored topics and discover new ideas. Since the content matters more than the sample size a representative sample was not needed (Denscombe, 2010, p.24).

I also had a semi-structured interview with a representative from VSC. The goal of this interview was to gather additional information on the inclusion policies of science museums, which the representatives did not mention in the interview and to check whether I got the same information from my interviews as what VSC heard from their members.

The semi-structured interviews

The goal of the semi-structured interviews was to explore what definitions of inclusion the respondents had, which audiences they are reaching and missing, what they are currently doing to reach inclusive audiences and which problems and difficulties they encounter regarding reaching inclusive audiences. The questions were based on literature from previous review articles about inclusivity in ISE (Dawson, 2014a; Dawson, 2014b), the topics the Hypatia Project describes (Achiam & Holmegaard, 2015a; Achiam & Holmegaard, 2015b; Achiam & Holmegaard, 2016), the topics described by Booth and Ainscow (2002) and some suggestions made by my supervisor for prompts. Furthermore, the interview scheme (see Appendix A) was checked according to the checklist described in Denscombe (2010) on page 195. The interviews explored four themes, which were in line with my research questions. The introducing theme was the current visitor and the target audience of the museum, the second theme was the conceptualization of inclusivity, the third theme was inclusive programs, activities and exhibitions and lastly the problems, difficulties and success stories of the museum. The questions were all divided per theme, as can be seen in Appendix A. Examples of some questions were 'Is there an aim to reach a diverse audience? If so, what do you mean by diversity or inclusiveness?', 'Which programs that the museum offers would you describe as an inclusive program?', 'Which difficulties and problems does the museum encounter regarding trying to reach an inclusive audience?'. The interviews were in Dutch and these examples are loosely translated. For the complete Dutch interview scheme see Appendix A. Each interview lasted for about half an hour to 45 minutes and took place either in the museum itself or over the phone. The interviews were recorded with either a mobile device or recorder and safely stored afterwards on a password protected mobile device. These recordings were transcribed using Transcriptase. The transcripts can be made available upon request.

The documents

I also looked into public documents provided by the participating museums to get a more versatile image of their inclusion policies, actions and definitions. I choose to look into annual reports from 2017 or 2018, since these were available at the time of this research and these reports mention the activities museums provided that year, their mission statement and problems and difficulties the museums might have encountered.

Museum voor Anatomie en Pathologie did not have an annual report accessible on their website, but did have an activities document from 2018, which was used for more information next to the interview. Science Centre Delft did not have any public documents such as a policy plan or annual report. Eise Eisinga Planetarium did not yet have their annual

report from 2018 online, thus I looked into their annual report from 2017 and from Museon and Teylers Museum I managed to also have a look into more documents than just their annual reports. For a complete overview of the public accessible data provided by each museum see Table 2. Lastly, I also analyzed the annual report of 2018 provided by VSC for data triangulation.

Table 2: Information on the participating science museums

Respondent Number	Museum	Location	Theme of the museum	Annual visitor number	Documents
R1	Museum voor Anatomie en Pathologie	Nijmegen (Gelderland)	Anatomy and pathology of the human body	15.000 (Museum voor Anatomie en Pathologie, n.d.)	Activity document of 2018 (Berrevoets, 2019)
R2	NEMO	Amsterdam (Noord-Holland)	The basics of science and technology such as electricity, light, sound and gravity	650.505 (Benning & Verkade, n.d.)	Annual report of 2018 (NEMO, 2019)
R3	Teylers Museum	Haarlem (Noord-Holland)	Art, natural history and science	175.000 (Benning & Verkade, n.d.)	Annual report of 2018 (Teylers Museum, 2019) Activity plan of 2017-2020 (Teylers Museum, n.d.)
R4	Museon	Den-Haag (Zuid-Holland)	Culture and science	180.000 (Benning & Verkade, n.d.)	Annual report of 2018 (Museon, 2019) Business plan of 2020-2024 (Stichting Museon, n.d.) Grand application of 2017-2020 (Museon, 2015)
R5	Space Expo	Noordwijk (Zuid-Holland)	Space travel	102.657 (Benning & Verkade, n.d.)	Public benefit institution statement of 2018 (Stichting Noordwijk Space Expo, 2018)
R6	Eise Eisinga Planetarium	Franeker (Friesland)	The oldest, still working planetarium and the solar system	64.000 (Interview)	Annual report of 2017 (Stichting Koninklijke Eise Eisinga Planetarium, 2018)
R7	Science Centre Delft	Delft (Zuid-Holland)	Science and technology	60.285 (Benning & Verkade, n.d.)	

Analysis

A combination of the deductive coding methods as described by Denscombe (2010), Stuckey (2015) and Elo and Kyngäs (2008) and the coding system as described by Erlingsson and Brysiewicz (2017) are used. A priori codes were derived from literature on inclusivity in ISE institutions by Dawson (2014a) and Feinstein and Meshoulam (2014) and criteria provided by

The Hypatia Project (Achiam & Holmegaard, 2015a; Achiam & Holmegaard, 2015b; Achiam & Holmegaard, 2016) and The Index for Inclusion (Booth & Ainscow, 2002). The criteria provided were adjusted in such a manner that these would fit better within science museums policies, activities, exhibitions, etc. For example, from Achiam and Holmegaard (2015a) the code 'taking prior knowledge in account' was derived, which entails that the museum takes in account that different visitors have different kinds of prior knowledge which can be relevant. The museums can do this for example by having different programs for different groups/ ages or guided tours which connect to the target audience. Booth and Ainscow (2002) described in their index for inclusion that reviewing whether the view on inclusion within the school is still up-to-date and enforced by all staff is an action point which a school can undertake. I adjusted this action point towards: 'The museum reviews whether their view on inclusion, gender roles and minimizing exclusion is still up-to-date and enforced by all staff'. This can for example be done by staff meetings where it is discussed whether exhibitions and/ or programs are still meeting the current inclusion criteria or that the museum or takes part in research about gender/ ethnic inclusion and incorporates findings in their new exhibitions/ programs. From this adjustment the a priori code 'review' was derived.

After making the a priori codes the transcripts were read and meaningful parts were highlighted. These fragments were the so-called meaning units (Erlingsson & Brysiewicz, 2017) and transferred into excel. These meaning units were condensed into condensations and given a code. Meaning units could entail examples of activities or exhibitions the museum organized regarding inclusivity, statements about problems and difficulties the museum encounters while trying to be inclusive, statements about the audiences and visitors or statements and examples of what the museum tries to do in order to be inclusive. For example, a meaning unit derived from the transcript of the interview with R2 is: "If you work with photographs, it is important that you show society in them." [translated]. This meaning unit was coded with 'representation on the floor', which entails that the museum ensures that the employees represent a variety of personalities and that almost everyone in society can recognize themselves. For meaning units which could not be coded with an a priori code an emergent code was formulated. For example, when it was stated by a representative that the museum did not have enough money in order to finance new, inclusive ideas, the emergent code 'Money' was given. All codes were thereafter divided into one of the four emergent categories 'Audiences', 'Problems and Difficulties', 'Organizationally Focused', and 'Focused on Visitors'. For the complete coding scheme, see Appendix B. The coded data in excel was categorized and colored by respondent number in order to see clearly which museum stated what and which categories and codes were most prominent.

For the analysis of the documents and the interview with VSC a likewise process was used. Meaningful units in the documents and transcript were marked, transported to excel and coded with the same codes used for the interviews. All excel files can be made accessible upon request.

Peer review

In order to verify my methodology, I used peer review. According to Kostoff (1997) important factors for quality peer review are motivation, independence and competence. Therefore, I asked a fellow student from the Science Education and Communication master to review my methodology, coding schemes and interpretation of the data. This person recognized they had motivation, since the topic was of interest, was independent of my study and had competence in qualitative research. Before reviewing my methodology and 20% of my data I first

introduced this fellow student to my topic, theoretical background and the aim of my study (Barber & Walczak, 2009). We then discussed my methodological process, why I chose to use interviews and how I coded, categorized and interpreted my data and results, which proved to be trackable. My fellow students and I discussed how I set-up my definitive coding scheme, how I decided to redistribute certain codes under already existing codes and whether I checked if I had overlapping codes. Furthermore, we discussed how I set-up my categories for the coding scheme and how I placed the codes within the categories and why I chose these categories. My methodology proved to be solid and understandable while discussing my dataset and the use of data triangulation through using the documents next to my interviews and interviewing a representative from VSC. I did not make any alterations to my dataset or coding scheme after the peer review.

Results

To answer my research questions, I divided my results into the current visitor profile the participating science museums currently have, which actions they are undertaking to reach an inclusive audience and which problems and difficulties they encounter. These results are a combination of the semi-structured interviews with representatives from the museums, which will be called 'respondents', the analysis of their annual reports, business plans, etc. which will be referred to as 'documents' and the information gathered from the interview and annual report from VSC. I will discuss the actions that the science museums undertake into the following topics: 'engaging non-visitors', 'inside the museum', 'visitor participation' and 'inside the organization', since these were the most prominent emerging categories from the data. The topic 'engaging non-visitors' entails actions the museums undertake in order to attract non-visitors to their museum or engage them through other platforms. This differs from the topic 'visitor participation' which entails actions regarding involving their visitors in the decision-making processes when setting up a new exhibition, program or activity. The topic 'inside the museum' involves actions that museums undertake inside the physical museum itself or round the museum. 'Inside the organization' entails actions that the museums undertake within the organization of the museum, thus within the management of the museums.

The current visitor

Nemo, Teylers Museum and Museon all state in their documents that they have a broad audience. Teylers Museum describes in their annual report and activity plan the diversity in their audience by age, whether or not they are from Haarlem and whether or not they are tourists (Teylers Museum, 2019; Teylers Museum, n.d.). Museon describes in their annual report and their business plan the diversity in their audience with terms like families, students, expats and tourists (Museon, 2019; Stichting Museon, n.d.).

When I asked the respondents how they would describe the visitors that actually come into their museum, most of them mentioned that families with their kids are the most common visitor in their museum. These most common visitors will be categorized as the dominant group of that museum. The respondent from Nemo mentioned that children between the age of six to twelve are the most common age group that comes in with their family. The respondents from Teylers Museum, Space Expo, Museum voor Anatomie en Pathologie and Eise Eisinga Planetarium said that elders (50+) are a big part of their audience as well. Museon mentioned that the families that visit their museum are the predictable

higher educated, with a higher income family from a good neighborhood. This was similar to what the respondent from Science Centre Delft said, when I asked what the average visitor looks like that comes to their museum: “When we look at the individual visitor, and those come mainly, just like in every museum, in the weekends and holidays, those are the peak days, then you have your more known white audience.” [translated]. The respondent from Space Expo and Eise Eisinga Planetarium mentioned that they receive a lot of tourists in their museum. The respondent from Space Expo mentioned as well that they attract boys and girls from all ages to their museum.

Thus, what these results show is that for Nemo the dominant group, regarding the individual visitor, is families with children between the ages of six to twelve. For Teylers Museum the dominant group is elders. The dominant group in Museon can be categorized as families from a good neighborhood, which are higher educated and have a higher income. For Museum voor Anatomie & Pathologie the dominant group can be categorized as families and elders. The dominant groups for Space Expo and Eise Eisinga Planetarium are likewise, namely elders, families and tourists. And the dominant group in Science Centre Delft can be categorized as families with white European backgrounds. These dominant groups are in line with the dominant groups described in previous literature by Dawson (2014a), Dawson, (2014b) and National Research Council (2009).

The current visitor does not only consist of the individual visitors, but Museum voor Anatomie en Pathologie, Nemo, Teylers Museum, Museon, Eise Eisinga Planetarium and Science Centre Delft also attract audiences through school visits. The respondent from Museum voor Anatomie en Pathologie said that they have visitors from all social layers through school visits. Nemo states in their annual report that through educational programs they reach 3200 children and their teachers and 90.000 students and their teachers inside the museum through school visits (NEMO, 2019). Teylers Museum stated in their activity plan that they are the only Dutch museum which has entered into a covenant with seven large VMBO schools for the WOW-factor program, which is an educational program for children with a technique profile. Furthermore, it is stated that they invest in school visits in order to involve children with a different cultural or social background at a young age (Teylers Museum, n.d.). In their business plan Museon mentions that almost all school children in The Hague visit the museum through school visits (Stichting Museon, n.d.). Eise Eisinga Planetarium attracts primary school children from the nearby area through school visits. The respondent from Science Centre Delft mentioned that they attract boys, girls and children from a migration background through school visits.

What these results show is that Museum voor Anatomie en Pathologie, Nemo, Teylers Museum, Museon, Eise Eisinga Planetarium and Science Centre Delft attract visitors through school visits that do not fall within their dominant group.

Summary

The interviews and documents imply that the dominant group regarding the individual visitor for the participating museum consist of families from white European backgrounds, elders and tourists. Through school visits the museums attract people from a migration background and lower educated people. Teylers Museum stood out regarding school visits, since it is the only Dutch museum that has a special educational program for seven large VMBO schools. This implies that they are actively reaching out to another audience than their dominant group.

The general view on inclusion

When I asked if the museum has a specific target audience which they focus on, or how they take being inclusive in account, the respondents from Museum voor Anatomie en Pathologie, Nemo, Eise Eisinga Planetarium, Space Expo and Science Centre Delft mentioned that their museum is for everyone in the Netherlands and that everyone is welcome. Furthermore, in none of the analyzed documents a definition of inclusivity and diversity was explicitly described. The mission statements were more focused on inspiring their visitors or reaching a 'wide audience'. For example, Museon describes their mission, in their annual report, as follows: "The mission of the Museon is to inspire visitors to discover and develop the world. We especially motivate young visitors to treat our planet with respect and improve it." (Museon, 2019, p. 3) [translated] and in their business plan Museon describes that their mission is to engage visitors from all parts of society (Stichting Museon, n.d.). The mission statement by Space Expo is: "To communicate about space travel in general and European space travel in particular through exhibitions, educational programs and presentations." (Stichting Noordwijk Space Expo, 2018, p.2) [translated] and their goal is described as: "Showing the relationship between space travel on the one hand and people, society, technology and nature on the other to a wide audience of various ages, backgrounds and knowledge." (Stichting Noordwijk Space Expo, 2018, p.2) [translated]. These various ages, backgrounds and knowledge are not further specified. When I asked the respondent from Space Expo about their view on diversity, they said that diversity is about age and gender. Furthermore, the respondent from Nemo said that it is important that different cultures and people with a disability should be represented in their museum. The respondent from Teylers Museum said, when I asked if being inclusive was a priority: "What I mean is, inclusivity is more than just skin color." [translated]. In their activity plan it is stated that their main target audiences are youngsters until the age of 18, the elder, experienced museum visitor, tourists and that refugees are a new target audience (Teylers Museum, n.d.). This implies that Teylers Museum sees being inclusive broader than on the basis of ethnicity alone. The respondent from Eise Eisinga Planetarium said: "Diversity is of course all ages and that everyone is just welcome." [translated].

What the documents and interviews imply is that most museums see aiming for a broad audience as being inclusive and that they specify these audiences by age, gender, cultural and ethnical background, experience and knowledge level. These specifications differ per museum. Space Expo specifies diversity by gender, background, knowledge level and age. Eise Eisinga Planetarium specifies diversity on age. Nemo specifies inclusion by differences in cultures and abilities. Teylers Museum specifies their target audiences by age, experience and ethnical background. Furthermore, what the interviews and documents show, none of the museums have a definition for inclusion in their documents.

When I asked the respondent from VSC about their experience regarding working with museums on inclusion and diversity, they said that everyone is very benevolent so far, that they see the importance of inclusion, but that it is not yet been introduced very much in practice and not in their goals and policies. Furthermore, the respondent from VSC said that the interest in inclusivity and diversity has been growing. The respondent gave as an example that the theme of their organized Member's Day was inclusion and diversity, that 60 people had visited, which was almost double from their visitor count last year. This growing awareness regarding inclusion was also mentioned by Nemo and Museon. For example, when I asked about how Nemo tries to take away certain barriers for target groups they said: "...we became aware that it is important to represent everyone and that we are making efforts now."

[translated]. The concrete steps Nemo will undertake were not yet known at the time of the interview. Museon said, when I asked if they tried to attract specific target audiences, that they want to build a sustainable relationship with new target audiences, so that they can bind those audiences to the museum. They do this by organizing activities specifically for the new target audience they want to bind to their museum. This is in accordance with their Business Plan 2020-2024 (Stichting Museon, n.d.).

Summary

The documents and interviews imply that museums do not yet have inclusion introduced in their policies and goals and that they do not have a clear-cut definition for the term inclusion, but the awareness regarding inclusion is growing. The overall current view on taking inclusion in account is by aiming to attract a broad audience, which is specified by diversity in age, gender, cultural or ethnical background, knowledge level and experience.

Actions undertaken by museums

Engaging non-visitors

I asked the respondents what their visitors looked like and whether they are missing certain audiences in their museum. These missing audiences will be categorized as their nondominant group. The interview implied that the nondominant group for Museum voor Anatomie en Pathologie is the younger students (18-30-ish) and teenagers. The respondent from Nemo said that they undoubtedly miss certain audiences from their museum and that this could be regarding different cultures and gave as an example that they could also miss autistic people. The interview implied that the nondominant group for Teylers Museum was younger students (18-30-ish) and teenagers. For Museon the nondominant group is as well the younger students and teenagers and the respondent mentioned in the interview that they miss diversity in their audience regarding different cultural backgrounds. The interview with Eise Eisinga Planetarium implied that the nondominant group is younger students, teenagers and children from poor families. Those children would not visit the museum, unless it is through a school trip. Space Expo described their nondominant group as adolescents. The nondominant group for Science Centre Delft was described in the interview as people from a migration background, younger students and teenagers. Thus, what the interviews imply is that the nondominant groups are teenagers, younger students, people from migration backgrounds and children from poor families. Gender was not mentioned by the respondents regarding missing audiences, which could mean that the current focus is more general on the age and background of their audiences than on the gender distribution of their audience.

The respondents gave numerous examples of activities and programs with which they try to engage non-visitors. Most examples were focused on engaging their nondominant groups through formal education. Museum voor Anatomie en Pathologie organizes compulsory practical's in their museum in order to get students in. Teylers Museum mentioned that they also reach out to schools in Schalkwijk, which are more outside of the city center, and find it important to get these children in their museum. Furthermore, they have contact with different schools in order to do projects together with them. Museon mentioned as well that they reach out to schools in order to work together with them on projects. They especially reach out to schools in disadvantaged areas to develop lesson materials together. Science Centre Delft said that they provide lesson boxes about science and technology for schools and that they could make these cheaper or lend them for a longer time to schools in disadvantaged areas. Thus, by reaching out to schools in disadvantaged areas,

providing lesson boxes and setting up projects they try to engage children from the nondominant group in their museum.

Furthermore, the interviews and documents implied that another common way to engage nondominant groups was by being free of admission, one-time events or organizing (free) activities and special programs. The respondent from Teylers Museum gave as an example in order to reach their nondominant group that they do a project in which they supply art supplies for schools and that the children can make drawings which are inspired by the current exhibition in the museum. They pick up these drawings and showcase these in their museum. The children which made a drawing, and their parents, can come to the museum for free for one day. The respondent said as well that they once had an exhibition about discrimination and that they saw that this attracted different visitors, for example a social studies class from the Bijlmer (a disadvantaged area in Amsterdam). Furthermore, Teylers Museum was free of charge during the weekend of 8 and 9 September, when the Haarlem cultural season was opened, and offered tours, workshops for children and various activities around Leonardo da Vinci (Teylers Museum, 2019). Nemo described in their annual report a free CodeStarter event, a science weekend where their depot was accessible for the public for free and a collaboration with Albert Heijn where children could collect cards, which were handed out at a certain amount of grocery shopping. These cards provided information linked to science and technology (NEMO, 2019). When I asked about a successful story from the past couple of years, the respondent from Museon said: "At the end of 2016, we organized a festival. Then it [the museum] was free for two days. Then you really see that other target groups find their way to the museum more easily." [translated]. These other target audiences were not further specified. Furthermore, the respondent from Museon mentioned their event Caribbean Ties. With this event they tried to reach the Caribbean community in The Hague. This exhibition was opened with a festival and will be in the museum for over a year with multiple activities throughout the year (Museon, n.d.). The respondent from Science Centre Delft mentioned they organized the 'Wetenschapsdag', where the museum is free of admission. The respondent from Science Centre Delft said as well that even if the museum is free of admission, people from a migration background would still not visit. Museum voor Anatomie en Pathologie is the only museum, which is always free of admission, but they do not have a different dominant or nondominant group than the other participating museums. Therefore, only being free of admission might increase the general visitor number but does not necessarily mean that nondominant groups are engaged.

The respondents of Nemo and Science Centre Delft both mentioned that they are working on, or have, online platforms for people which cannot come to their museum. When I asked if Science Centre Delft made a distinction in their form of communication in order to bring people in, or when they organize extracurricular activities they said: "I have no hard figures about this, but well-educated young people with a migration background have a hesitation about taking part in activities at the university, for example, going to the information day. What we do notice is that they do orient themselves online." [translated]. They notice this by different names on the registration lists. Thus, in order to increase participation, they set up an online pre-university program. What Nemo and Museon mentioned as well in order to reach people who cannot come to the museum were several examples that they go to their nondominant groups. For example, Nemo mentioned that they are currently setting up an after-school club, especially for children who cannot come to Nemo themselves. Museon mentioned that they sometimes make a small exhibition in a classroom with some objects from the museum in order to make the museum more accessible.

Summary

The results show that the participating science museums are able to specify that they miss certain visitors in their museums, in other words their nondominant group, and in doing so they focus on age range, cultural background and socio-economic status, but gender is not mentioned. The interviews and documents imply that the most common manner to engage nondominant groups is through formal education. Other common ways in which the museums try to engage their nondominant groups were by one-time events, organizing (free) activities and programs or by being free of admission. Museum voor Anatomie en Pathologie is the only museum which is always free of admission but does not have different dominant and nondominant groups than the other museums. The interview with Science Centre Delft implied that even when the museum is free of admission people from a migration background would still not visit. This might imply that only being free of admission does not necessarily engage the nondominant group.

Inside the museum

The interviews and documents implied that Museum voor Anatomie en Pathologie, Nemo, Museon and Science Centre Delft take representation on the floor in account. This means that the employees represent a variety that almost everyone in society can recognize themselves in. Museum voor Anatomie en Pathologie does this by taking in account that their pool of student guides consists of an even distribution of men and women. The respondent from Science Centre Delft said that their pool consists of more women than men, but that they miss students with a migration background. When I asked about problems they might encounter while setting up a new exhibition the respondent from Science Centre Delft said: "What I do notice of course is that all issues related to mobility or cars, speed, mopeds and the technology in them or machines are naturally more appealing to a male audience or that they are more dealing with those and that women are less attracted to them, so you have to keep an eye on that" [translated]. Furthermore, they mentioned that they do not believe that science and technology have an ethnical background or is masculine or feminine. Nemo mentioned that they increased their diversity in their guide pool by representing different cultures and also people with a disability. Another form of representation that Nemo carries out is by making exhibitions inclusive. When they work with a photo exhibition, they take in account that they represent all of society in them. When I asked if they take into account the differences in different target audiences, they said: "You want everyone to feel addressed, and that is so important to us, that everyone can get out of such a program 'oh this is also for me'." [translated]. Nemo furthermore provides in their annual report information about 'The Hypatia Project' which they were involved in (NEMO, 2019). The respondent said that they learned from this project that diversity within the target audience 'girls' is so versatile, that they can't be seen as one big target audience. The respondent from Museon mentioned that they have an exhibition with portrait photo's, which shows the nuance in skin color. When I asked about inclusive exhibitions in the museum, they mentioned one of their main exhibitions called 'One Planet', which is about the Sustainable Development Goals. They said that this exhibition is about equal chances for all and that they pay much attention to this topic. This corresponds to their mission statement in their annual report and to their Business Plan 2020-2024 in which they state that they want to make Museon a place where everyone should feel welcome and respected, despite their cultural heritage or societal status (Museon, 2019; Stichting Museon, n.d.). When I asked if the museum takes in account differences

between gender, the respondent from Museon mentioned that they find it important to put girls in the spotlight. They gave as an example that they have been doing 'Girls Say' for multiple years in a row and that they are looking into a new exhibition which is specifically about girl power. What these results imply is that the museums take the equal representation of both genders in account and are actively making efforts to represent everyone in society inside their museum.

The documents and interviews show that all participating science museums take in account that their visitors have different ways of learning and knowledge levels. Museum voor Anatomie en Pathologie does this by animation videos which explain the basic principles of pathology, making treasure hunts throughout the museum for younger children and they take in account that some groups of students can better be guided by men than women, or vice versa. They also tailor the guided tours to the knowledge level of the audience. Nemo offers lots of different programs, activities and exhibitions for their visitors. For example, in their annual report they mention yoga lessons, film screenings, and music events (NEMO, 2019). The respondent said they have night programs, symposia or debates for grown-ups. Furthermore, they provide programs for different ages, curriculum or group level in their museum. The respondent from Teylers Museum mentioned they started with theatrical tours, provided by actors, about the life of Lorentz, as a new way of knowledge transfer. In their annual report Teylers Museum mentions drawing workshops, treasure hunts and symposia in order to attract a broad audience. They also provide programs adapted to different ages, curriculum and group level and guided tours in their museum. Museon provides a combination of exhibitions and interactivity in their museum by having for example a knowledge quiz, a working place for families and lectures for older audiences. The respondent from Space Expo mentioned that they also try to make their exhibitions interactive and that they take into account that one person might like authentic objects, while the other might like interactive exhibitions, so they try to offer both. They also provide hyperlinks on screens for people who want deeper information on a certain subject. Furthermore, they provide lessons and symposia for more specific audiences. For example, they provide symposia for students at college or lesson materials for primary schools to seniors in high school. Eise Eisinga Planetarium provides treasure hunts for younger children and the respondent mentioned that they are working on activities for the youngest children that visit their museum. They also provide tours in which the visitor can ask right away when they do not understand something, and the tour guide is instructed to tailor their explanation according to the knowledge level of the audience. Science Centre Delft provides different activities and tours in order to offer something for everyone. When I asked the respondent from Science Centre Delft about their successful activities in the museum, they gave as an example that they do a workshop to make technical Sinterklaas surprises in order to get visitors to their museum. What these results imply is that most examples mentioned regarding taking in account differences in ways of learning are focused on differences in age. Most activities are focused on also providing something for grown-ups or especially for children. Making Sinterklaas surprises, for example, is more focused on providing something for a different age group, than providing something for children from a migration background, since Blackface (the assistant of Sinterklaas) has been labelled as racist and discriminating.

Lastly, the documents and interviews show that all museums take language in account in their museum. Museum voor Anatomie en Pathologie has tours in English, Dutch and German, but the texts and videos in their museum is in Dutch only. When I asked which role, language had in their museum the respondent from Nemo said that all their texts are B1 level,

so that it is understandable for a broad audience, even when Dutch is not the visitors' first language. They are furthermore examining the influence of using a translator which walks with tours through their museum and that they have booklets with the top requested languages of their visitors. The respondent from Teylers Museum mentioned that their use of multiple languages is focused on tourists and that they provide audio tours and leaflets in English, German, Italian, French and Spanish. Furthermore, they are going to translate all c-texts in their exhibitions in English as well. In their Activity Plan 2017-2020 it is also stated that their audio tours and visitor guides will be expanded from three languages to five languages (Teylers Museum, n.d.). The respondent from Museon mentioned that they always try to use correct annotations, keep in mind the community which may visit the exhibitions and take the sensitivity of certain terminology into account. In their museum they provide German, Dutch and English, since those are the most requested languages for their museum. Space Expo provides Dutch and English in their museum. Moreover, the respondent from Space Expo mentioned that they try to use keywords which people can Google if they want to know more about something. When I asked about an example on how they try to make everyone feel at home in the museum, they said: "So if someone is looking at an object in the museum, then I don't want anyone to leave and scratch his head like 'I actually have no idea what I'm looking at'." [translated]. So, they try not to use difficult texts in their museum. This was mentioned by the respondent from Eise Eisinga Planetarium as well. Furthermore, Eise Eisinga Planetarium provided most multiple languages. They have guided tours in Dutch, English and French. A video which is available in Dutch, German, English and Frisian and they have maps in French, Italian, Portuguese, Spanish, Russian and Arabic. The respondent from Science Centre Delft mentioned they mainly use Dutch in their museum. What these results show is that the museums are mostly focused on making the texts in their museum understandable, by eliminating difficult language from their texts. Nemo and Museon explicitly take in account their nondominant groups regarding the use of language in their museum. Nemo does this by recognizing that Dutch might not be the primary language of a visitor. Museon is aware that certain terminology might be sensitive for visitors from their nondominant group.

Summary

The documents and interviews imply that equal representation of both genders is taken in account by creating an equally distributed student guide pool and have activities which put girls in the forefront. Active efforts to represent everyone in society inside the museums are made by creating a diverse guiders pool and making exhibitions in which everyone feels addressed. Furthermore, the documents and interviews show that most activities, exhibitions and programs inside the museum are focused on attracting a broad audience regarding differences in age and knowledge level. The focus is on providing a lot of different activities and forms of knowledge transfer, yet there is not an explicit focus within these different activities on the nondominant groups of the museums. Lastly, these results show that language is taken in account in both providing suitable language in the museum and multiple languages. Thus, making texts understandable for the visitors and providing the texts in more languages than Dutch. The multiple languages were mostly focused on the most common languages spoken by tourists which visit the museum.

Visitor participation

The museums are trying to reach an inclusive audience through involving their visitors in the decision-making processes when setting up a new exhibition, program or activity. This

involvement differs from reaching out to schools and working together to make an educational program, since this involvement was more focused on the individual museum visitor. Museum voor Anatomie en Pathologie made a place in their museum where people could anonymously leave feedback behind about their exhibitions and said that if they would get negative feedback that they would most certainly do something about that. The respondent from Nemo mentioned that they involve their visitors in the development of new exhibitions by letting them test out new ideas in their 'makerspace'. They observe what the test group does with the provided materials and alters their program according to these observations. They test their ideas with their public, they invite groups to walk through their museum and ask for feedback and they involve advising committees and focus groups to test their programs. The respondent from Nemo did not specify particular nondominant groups but mentioned that they invite the target audiences for which they make the exhibitions or programs. Furthermore, they mentioned that they are working on a route for families through the museum and that they try to involve as many different families as possible in their feedback and decision-making process. The respondent from Teylers Museum mentioned that they always review visitor feedback, because they want to know if people appreciate their museum. When I asked the respondent from Museon if they made a distinction in communication to different target groups they said: "How to ensure to bind people to the museum? That is with participation. [...] We also looked very purposefully, how can we do something in collaboration with that group. And also searched for guest staff, guest curators, who come from that target group and are connected with us too." [translated]. The respondent did not explicitly mention what these target groups were which they want to collaborate with and which target audiences they want to connect to the museum. This could still be the dominant group, but this could also mean that when they want to create something for the nondominant group, they actively reach out to that group in order to cocreate and receive their feedback. This is what they for example did for their event Caribbean Ties. The respondents from Space Expo and Eise Eisinga Planetarium both mentioned that they listen to what the visitors say and in the Eise Eisinga Planetarium the visitors can provide feedback at the entrance when they are leaving. The respondent from Science Centre Delft said they ask their visitors what their opinion is about the activity or exhibition in order to know if their visitors appreciate it.

Summary

The results imply that museums work together with new target audiences by involving them in the development process of new activities, exhibitions, etc. They do this through 'makerspaces' and inviting them to walk through the museum and give feedback. Generally asking for feedback or giving the opportunity inside the museum itself to provide feedback are also forms of visitor participation, but these are more focused on the dominant group instead of engaging the nondominant group, since this provides feedback only from people that have already come into the museum.

Inside the organization

Previous examples on how museums try to reach an inclusive audience were focused on the visitors or engaging non-visitors, but not yet on the organization of the museum itself, thus what is done on the level of the management, directors, etc. What the interview with VSC illustrated is that most actions undertaken by museums to reach an inclusive audience were focused on their visitors or engaging their nondominant group. When I asked the respondent

from VSC what kind of examples they hear from museums regarding inclusion and reaching a diverse public they said that they mostly hear examples about projects in disadvantaged areas or one-time events. The interview with VSC also implied that the awareness, regarding to become inclusive and reach a broader audience, the organization itself should also be inclusive, is now growing, but that it may take some time before this is the case. The respondent from Nemo mentioned this as well. They first focused on their programs and are now looking into their organization as well. They did not further specify how they are looking into their organization in order to become more inclusive. Another example was given by the respondent from Museon, when I asked if they had problems while organizing an event such as Caribbean Ties and trying to be inclusive, they said: "So, if you want to be inclusive, that means you have to constantly put in the work. This also entails for cultural diversity in your governance." [translated]. Furthermore, Museon stated in their annual report "We also strive to ensure that the composition of the staff reflects the various target groups of the museum, as well in the supervisory board. The Museon thus endorses the Cultural Diversity Code." (Museon, 2019, p.8) [translated]. Museon was the only museum from which I could find in their documents that they are actively working on expanding the diversity within their organization in the upcoming years. In their Business Plan 2020-2024 they state for example: "A larger diversity of the organization is the starting point when filling any vacancies." (Stichting Museon, n.d.). When I asked the respondent from Teylers Museum whether being inclusive was a priority for them they said that in their upcoming annual activity plan they want to take inclusivity more into account. That they will look into their workforce, their visitors and how to reach visitors and what they mean by inclusivity.

Summary

What the interviews and documents illustrate is that diversity and inclusion within the organization of the participating museums themselves is not yet a concrete action point and that inclusive policies are for now mainly focused on engaging new target groups or the visitors themselves. The museums are aware that their organization itself should be inclusive, but concrete examples on how they will achieve an inclusive organization were not yet given. They still need to define what their organization means by inclusivity; thus, they are still at the beginning of the process of increasing inclusivity and diversity within their organization. One concrete example on how to make the organization more inclusive was given by Museon in their business plan, namely filling in vacancies with the goal to enlarge the diversity of their team.

Problems and difficulties museums encounter

The documents and interviews illustrated that museums encounter problems and difficulties regarding trying to reach an inclusive audience. These problems could be regarding communication with their nondominant groups, having a knowledge gap regarding the visitor profile, not being able to have a diverse guides pool or management or having to focus on money in order to keep the museum running. The respondent from Museum voor Anatomie en Pathologie mentioned that their museum has always been managed by men and is now again managed by a man but was not certain if that had an effect on the collection which they show. Furthermore, the respondent mentioned that they actually don't know their visitor profile that well. The respondent from Teylers Museum mentioned that having a diverse guides pool is difficult, since the people that apply are mostly elders from the direct area. When I asked if in the future there would be exhibitions which are focused on attracting a

more inclusive audiences, the respondent from Teylers Museum mentioned that they mainly look at getting in as many visitors as possible, because of economic reasons. They said as well that it was not efficient for them to focus on getting in small groups of people. The respondent from Museon mentioned this as well, saying that it is not viable for them to bind new target audiences to their museum and that a small new audience is often a niche. Other problems they encounter are that they struggle with the communication with non-visitors and that the biggest problem they encounter is continuity of engaging the nondominant group and that their management consists of men. The respondent from Eise Eisinga Planetarium said that they consist of a small team (10 employees), where the youngest is 49 and that they do not work with volunteers. Moreover, money was also a limiting factor for them regarding trying to reach an inclusive audience. The respondent from Space Expo mentioned as well that they do not have the money to focus on very specific target audiences. When I asked the respondent from Science Centre Delft if reaching a diverse audience was a priority, they said that they do not have the money to really reach a broad audience and make specific programs in order to become more inclusive. The respondent from Science Centre Delft mentioned as well that it was problematic to attract people from the lower economical class and people with a migration background. The interview with VSC illustrated that they also get back these problems from the museums. What the respondent from VSC said is that museums do not often have vacancies and when they do, that the people who react to them are mostly higher educated, white people. Therefore, it is difficult for the organization itself to become more inclusive, since they simply cannot choose from a diverse pool.

Summary

The results show that the problems encountered are regarding not having a diverse management and/ or guide pool, not having enough money in order to invest in inclusivity and having difficulties regarding the communication with nondominant groups. Another problem is that museums do not have the option to choose from a diverse pool of potential employees when they have a vacancy. This can be a reason why they do not have a diverse management of guiders pool. Furthermore, what these results show is that since money is a limiting factor museum focus more on attracting enough visitors to keep the museum running, instead of binding new audiences to their museum and reaching out to nondominant groups.

Discussion

The aim of this research was to explore what Dutch science museums are currently doing to reach an inclusive audience, which audiences they are currently reaching and missing and which problems and difficulties they might encounter while trying to be inclusive. Furthermore, I wanted to know what the current, general view is on inclusion in Dutch science museums. The results imply that the museums are focusing on attracting a broad audience which they specify by age, gender, cultural and ethnical background, experience and knowledge level. The focus on attracting a broad audience is reflected in the documents as well through their mission statements. These mission statements are mostly focused on inspiring the visitors, reaching a broad audience and being welcoming to all. The awareness regarding inclusion and its importance is growing in the science museums, but the documents and interviews imply that the museums do not have a definition yet. This was described as well by Dawson (2011), namely that science museums tried to be more inclusive, but that they do not yet know how to define, formulate and undertake action regarding increasing inclusion.

Thus, what the results imply is that current view on inclusion is being welcoming to all, but that the museums do not yet have the experience and knowledge to formulate and define how to be accessible to all.

The documents and interviews show that the dominant groups of individual visitors for the participating science museums consists of families from white Western European, higher educated, higher income backgrounds, elders, experienced museum visitors and tourists. The general nondominant groups are teenagers, younger students (age 18-30), people from migration backgrounds and lower socio-economic status. Gender was not mentioned when I asked about whether or not the museum misses certain audiences. This could mean that they focus is more on age range and background of the visitors, than on the distribution of gender of the visitors. Furthermore, what these results imply is that the situation in the Netherlands is in line with the described dominant audiences in the UK and USA. In the UK and USA, the dominant audiences are as well people from a white Western European background. The nondominant audiences for the UK and USA are described as people from minority ethnic backgrounds, socio-economically disadvantaged backgrounds, women and disabled people (Dawson, 2014a; Dawson, 2014b; Dawson, 2018; National Research Council, 2009). The results imply that these groups are part of the nondominant group in the Netherlands as well and teenagers and younger students are also mentioned as nondominant groups in Dutch science museums.

In order to reach the nondominant groups, the museums focus mostly on reaching them through formal education such as school visits to the museum. For example, Teylers Museum stated that they invest in school visits in order to involve children with a different cultural and social background and they entered a covenant with seven VMBO schools to provide an educational program. The results show as well that museums reach out to school in disadvantaged areas to do projects together, develop lesson materials together, or incorporate drawings by children from these schools in the exhibition in the museum. By being part of the exhibition or co-creating materials together the children and teachers from these schools become co-owners of the materials and lessons. These examples are similar to what Thinkthank did and are according to Dawson (2011) good practices, since it makes these nondominant groups co-owners of the materials and lessons. This co-ownership is needed in order to bind new audiences to the museum in a long-lasting relationship (Dawson, 2011).

Furthermore, the interviews and document imply that the museums try to reach their nondominant groups through being free of admission, one-time events or organizing (free) activities, special programs or by providing online platforms. These actions are in line with actions that museums in the USA undertake in order to reach an inclusive (National Research Council, 2009). The result show that such actions are seen as successful when other audiences, than the dominant groups, are attracted to them. The respondent from Museon mentioned that they saw different audiences when they organized a free festival in 2016 and the respondent from Science Centre Delft mentioned that they saw people from a migration background orient themselves online through their online platform. At the same time, the respondent from Science Centre Delft mentioned that even when the museum is free of admission people from a migration background would not visit and Museum voor Anatomie en Pathologie is always free of admission but has the same nondominant groups as the other museums. This implies that in order to reach people from a migration background only being free of admission might not be enough and more specific programs or exhibitions should be organized. This is what Museon did with their event Caribbean Ties, which was made together

with the Caribbean community and made into an exhibition, instead of being only a one-time event.

The results show as well that most actions undertaken by the museums are on the interactional and individual level as described by the Hypatia Project (Achiam & Holmegaard, 2015a). On the individual level Dutch science museums take in account the prior knowledge of their visitors and the differences in learning by providing guided tours, programs for different ages, curriculum or group level and interactive activities next to their exhibitions. The interviews and documents implied that most of these actions were focused on attracting diverse audiences regarding differences in age to the museum. For example, Museon provides a working place for families and lectures for older audience in their museum. The respondent from Science Centre Delft mentioned that making technical Sinterklaas surprises was a successful activity, but since Sinterklaas is associated with Blackface and discrimination in the last couple of years, this implies that the focus is on engaging children in general and not specifically children from a migration background. Furthermore, the results show that the museums are aware that interactions between learners and staff can create inequalities and that they try to minimize this. The museums take the equal representation of both genders in account by having diverse guiders pools and are actively making efforts to represent everyone in society inside their museum by providing inclusive exhibitions. The museums also provide multiple languages and try to include suitable language in their exhibitions by taking in account to use correct annotations, keeping in mind the sensitivity of certain terminology and eliminating difficult language from their texts. These are good examples of actions undertaken on the interactional level (Achiam & Holmegaard, 2015a).

Least action points are undertaken within the institutional level and the societal/cultural level. The results show that mission statements of the museums are focused on reaching a broad audience and inspiring their audiences, but concrete action points on how the museums can optimize their approach towards becoming an inclusive organization themselves were not yet mentioned. Museon provides the only concrete action point on how to create a more inclusive organization, namely by filling in vacancies with the goal to enlarge the diversity of their team. The results show that most problems and difficulties were encountered on the societal/cultural and institutional levels. The museums are aware that they do not have diverse managements and that they should have more diversity in their management in order to become more inclusive. Nevertheless, diversity in their managements is difficult to achieve since they do not often have vacancies and when they do higher educated people, from successful socio-economic backgrounds reply to them. Another problem that was mentioned by most museums is that they do not have enough money to bind new audiences to their museum. It would not be feasible from them to invest in specific, smaller target audiences from their nondominant groups, since they have to attract enough visitors in general to keep the museum running. Furthermore, the interviews and documents implied that a problem on the interactional level is that museums have difficulties with communicating with new target audiences from lower socio-economic and/ or immigration backgrounds.

Thus, what this study and the results implicate is that inclusion in Dutch science museums is at the beginning stage. The museums are gaining awareness regarding attracting inclusive audiences and becoming an inclusive institution, but they do not yet know how to define and formulate inclusion. This could be the reason that most current actions are on the individual and interactional level, since they do not yet have the knowledge and experience on how to implement inclusion on the institutional level. Furthermore, changes should be

made on the societal/cultural level in order to solve the problem of not having a diverse potential employee pool to choose from. Further research could investigate what has to change on the societal/cultural level in order for museums to have a diverse potential employee pool to choose from.

It is to keep in mind that these results are based on an explorative sample and qualitative methods and therefore cannot be generalized to every science museum in the Netherlands but give insight into what I found that the participating science museums are currently doing to reach an inclusive audience. In order to map and generalize the situation all across the Netherlands, further research with a representative sample size would be needed. This study was conducted in order to explore the current visitor profile, missing audiences, problems and difficulties and actions undertaken, in order that further research can dive deeper into these topics and look into solutions on how to engage the nondominant groups in science museums. This research does show some successful examples of actions Dutch science museums are already undertaking in order to create equal chances to visit science museums. Lowering admission fees or being free of admission, organizing free events and programs and reaching out to schools in disadvantaged areas take away the financial barrier people may come across when they want to visit science museums. Such actions might not be enough to fully equalize the visitor's numbers of people from the current dominant and nondominant groups, but they are a great first effort in making science accessible to all.

Conclusion

Inclusivity in Dutch science museums can be described as that the science museums are welcoming to all, but that they do not yet have the experience and knowledge how to be accessible to all. The dominant individual visitor groups are families from white Western European, higher educated, higher income backgrounds, elders, experienced museum visitors and tourists. The nondominant groups are teenagers, younger students (age 18-30), people from migration backgrounds and/or lower socio-economic status. In order to reach their nondominant groups museums mostly focus on attracting them through formal education, being free of admission, one-time events or organizing (free) activities, special programs or by providing online platforms. Least actions are undertaken on the institutional and societal/cultural level and most problems and difficulties are encountered within these levels. It would be valuable if further research would investigate what changes should be made on the societal/cultural level in order to create a diverse potential employee pool for museums. I suggest that museums learn from each other's successes in order to understand what good practices are to become more accessible to all, that they make their nondominant audiences' co-owners of the museum through working together with them and listen to their needs, and clearly define plus formulate what inclusion means in their museum and organization. Lastly, I hope that this thesis stimulates further research on how to further improve inclusivity in Dutch science museums.

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Appendix

Appendix A: Interview scheme used for semi-structured interviews

Multiple questions are color coded. Blue questions are derived from Dawson (2014b), yellow marked questions are derived from Achiam and Holmegaard (2015b), green marked questions are derived from Booth and Ainscow (2002) and the purple marked questions are focused on language.

Vragen	Prompts
Introductie: Om het gesprek op gang te laten komen	
<ol style="list-style-type: none"> Hoe lang werkt u hier en wat doet u dagelijks? Wat proberen jullie uit te stralen met jullie museum? 	<ul style="list-style-type: none"> Hoe ziet die uitstraling er in de praktijk uit?
<ol style="list-style-type: none"> Op welke doelgroep(en) richten jullie je? Hoe ziet de gemiddelde bezoeker eruit? Maken jullie onderscheid tussen werving/ reclame/communicatie voor het wetenschapsmuseum (voordat de bezoeker binnen is) en de exhibities/ tentoonstellingen/ vaste opstellingen (wanneer het publiek eenmaal binnen is, en eventueel nog activiteiten die ze ondernemen daarna? 	<ul style="list-style-type: none"> Wat zijn de karakteristieken? Hoe proberen jullie je doelgroepen te bereiken? Willen jullie een landelijk publiek bereiken of meer regionaal? Richten jullie je op een bepaalde leeftijd, of zo breed mogelijk? Welke doelgroepen komen er in de praktijk? Wie komen er niet die je wel zou willen bereiken? Hebben jullie een verklaring voor een eventuele discrepantie tussen theorie en praktijk?
Deel I: Organisaties conceptualisatie van inclusiviteit	
<ol style="list-style-type: none"> Is er een streven om een divers publiek te bereiken? Zo ja, wat verstaan jullie onder diversiteit of inclusiviteit? 	<ul style="list-style-type: none"> Kijken jullie ook naar etniciteit? → Houden jullie rekening met bepaalde karakteristieken? Kijken jullie ook naar gender? Houden jullie rekening met het gebruik van verschillende talen? Waarin zien jullie concreet dat publiek of bezoekers verschillen?
<ol style="list-style-type: none"> Zien jullie jezelf als inclusieve instelling? 	<ul style="list-style-type: none"> Waarin is dit terug te zien? Is dit te zien in werving en reclame of meer in de exposities, tentoonstellingen en activiteiten? Heeft u voorbeelden van externe reacties hierover? Nemen jullie eventuele barrières mee waar bezoekers tegenaan zouden kunnen lopen in het museum?

<p>3. Is inclusief zijn een prioriteit?</p>	<ul style="list-style-type: none"> - Waar uit dit zich in? - Wat bedoelt u met thuis voelen? - Welke verschillende talen zijn er zichtbaar in het museum? - Zijn jullie actief bezig met het verminderen van barrières waar bezoekers tegenaan zouden kunnen lopen? Hebben jullie hier voorbeelden van? - Richten jullie bijvoorbeeld op specifieke groepen en bereiken jullie deze groepen?
<p>4. Welke rol speelt taal voor jullie bij inclusiviteit?</p>	<ul style="list-style-type: none"> - Wat zien jullie als inclusief taalgebruik? - Wordt daar ook rekening mee gehouden? - Bieden jullie naast Engels en Nederlands ook andere talen aan? - Houden jullie rekening met eventuele taalbarrières? - Heeft u een voorbeeld uit de praktijk van de rol van taal in jullie museum?
<p>Deel II: Inclusieve programma's/ activiteiten bespreken</p>	
<p>1. Welke programma's/ activiteiten die het museum aanbiedt zouden jullie als inclusief programma of inclusieve activiteit beschouwen?</p>	<ul style="list-style-type: none"> - Waarom zien jullie die als inclusief programma of inclusieve activiteit? → Vragen naar laatste activiteiten - Zijn deze activiteiten inclusief op het gebied van etniciteit - Zijn deze activiteiten inclusief op het gebied van gender? - Kunt u aspecten noemen? - Wat bepaalt dat succes? - Wat heeft u het afgelopen jaar aangeboden?
<p>2. Zijn er toekomstplannen deze programma's uit te breiden of nieuwe programma's op te zetten?</p>	<ul style="list-style-type: none"> - Aankomend jaar? - In de verdere toekomst? - Zien jullie mogelijkheden buiten Nederlands en Engels ook programma's aan te bieden in meerdere talen? - Houden jullie bij de nieuwe programma's rekening met verschillen in doelgroepen?
<p>3. Houden jullie in jullie taalgebruik rekening met inclusiviteit van de programma's/ activiteiten?</p>	<ul style="list-style-type: none"> - Hoe doen jullie dit? - Welke keuzes liggen hieraan ten grondslag?
<p>Deel III: Succesverhalen en problematiek rondom inclusieve activiteiten/ programma's</p>	

<p>1. Welke activiteiten/ programma's waren een succes?</p>	<ul style="list-style-type: none"> - Waarom ziet u deze als succesvol? - Wat bepaalde dat succes? - Hoe is dat succes bepaald of geëvalueerd? - Is er rekening gehouden met meertaligheid bij deze succesvolle programma's? - Zien jullie verschillen in doelgroepen als mogelijkheid om nieuwe programma's te ontwikkelen?
<p>2. Zijn er problemen waar jullie tegenaan zijn gelopen bij deze activiteiten/ programma's?</p>	<ul style="list-style-type: none"> - Zijn deze problemen opgelost? - Hoe zijn deze problemen opgelost? - Heeft u hier voorbeelden van? - Is er gekeken naar mogelijkheden met meertaligheid om de problemen op te lossen? - Zijn er problemen op het gebied van taal waar jullie tegenaan zijn gelopen? Voorbeelden? - Zien jullie verschillen in doelgroepen als moeilijkheid bij het ontwikkelen van een programma? Voorbeelden? - Ervaart het museum een spanning tussen enerzijds inclusief willen zijn en anderzijds specifiek geïnteresseerde bezoekers willen bedienen? - Waaruit blijkt zo een spanning? Voorbeelden? - Hoe probeert het museum daarmee om te gaan?

Appendix B: Coding scheme

The coding scheme used to code the transcripts. Each headline represents the category in which the codes were divided.

Audiences

Code	Description	Example	Source
Actual Visitors	An example or statement about the visitors that individually and actually come to the museum	The interviewee gives examples of the actual visitors that they see in the museum, for example they state that "Most people are Dutch" or "Many different people with different backgrounds come here"	Emergent Code
Missing Audience	A statement or examples about the audiences that are not visiting the institution	The interviewee states for example that they are missing teenagers in their actual visitor group or that even if the entrance is free that certain groups are still not visiting	Emergent Code
School Audience	An example or statement about school visits that come to the museum	The interviewee for example states that school visits bring other audiences to their museum than the individual visitors or that boys, girls and all backgrounds come to their museum through school visits	Emergent Code

Problems and Difficulties

Code	Description	Example	Source
Money	The museum does not have enough money in order to enforce inclusive policies and/or ideas	The museum has already multiple ideas to enforce inclusion, such as new texts in the exhibition of supplying multiple languages in their exhibition, but does not have enough money to incorporate the ideas	Emergent Code
Set-up	The museum is set-up in a particular way or	The museum has only a permanent	Emergent Code

	with a particular theme which cannot be changed and conflicts with current views on inclusion	exhibition and cannot renew this very often and thus is limited in enforcing new insights regarding inclusion/exclusion or has not enough staff in order to enforce inclusive policies etc.	
Knowledge gap	The museum staff has not enough knowledge about inclusion or how to enforce inclusion in their own museum	The staff does not know they are being exclusive to some groups or enforces gender inequality in their guided tours	Emergent Code
Other priorities	The museum struggles with other problem which they have to tackle first before they can focus on other topics, such as inclusion or a statement or example in which it is explained that there is not enough time to take inclusivity factors into account	The museum has to hit a target visitor number imposed by for example the government and cannot risk dropping visitor numbers by making a very specific program or exhibition or states that it is inefficient to put too much energy in small audiences or the interviewee for example states that there is not enough time to make an exhibition or activity where inclusivity factors are taken into account or that there is not enough time to invest in reaching a missing audience	Emergent Code

Organizationally Focused

Code	Description	Example	Source
Representation on the floor	The museum ensures that the employees represent a variety of personalities and that almost everyone in society can recognize themselves	A museum has for example an even distribution of men and women who give tours in the museum of the museum makes sure that the employees who are visible for the visitors	Achiam, M., & Holmegaard, H. T. (2015a). Criteria for gender inclusion. <i>Hypatia Deliverable, 2</i> , 1-28

		are a variety of men, women, old, young, colored and white	
Review	The museum reviews whether their view on inclusion, gender roles and minimizing exclusion is still up-to-date and enforced by all staff	The staff comes together to discuss whether exhibitions and/ or programs are still meeting the current inclusion criteria or takes part in research about gender/ ethnic inclusion and incorporates findings in their new exhibitions/ programs	Booth, T., & Ainscow, M. (2002). <i>Index for Inclusion: Developing Learning and Participation in Schools</i> . Bristol, UK: Centre for Studies on Inclusive Education
Mission statement	The museum states their mission which makes sure that inclusion policies encourage the participation of visitors and staff in minimalizing exclusionary pressures and has strategies for these policies	In the annual report, or another document, the museum states their mission such as 'The main objective is to position the museum as the nicest and most educational family destination in the Netherlands.'	Booth, T., & Ainscow, M. (2002). <i>Index for Inclusion: Developing Learning and Participation in Schools</i> . Bristol, UK: Centre for Studies on Inclusive Education
Vision statement	The museum states their vision makes sure that inclusion policies encourage the participation of visitors and staff in minimalizing exclusionary pressures and has strategies for these policies	In the annual report, or another document, the museum states their vision such as 'We see it as our task to inspire visitors to an active attitude as global citizens.'	Booth, T., & Ainscow, M. (2002). <i>Index for Inclusion: Developing Learning and Participation in Schools</i> . Bristol, UK: Centre for Studies on Inclusive Education
In line with aims	The museum makes sure that their aims on inclusion stated in their written documents are in line with the practical execution in the museum	In the annual report one can find statements about inclusion or reducing exclusion with examples of activities that happened last year	Achiam, M., & Holmegaard, H. T. (2015a). Criteria for gender inclusion. <i>Hypatia Deliverable, 2</i> , 1-28
Organizational Focus	The museum makes sure that not only their programs are inclusive, but tries to make their organization itself inclusive as well	The interviewee gives an example of how they implement host Manship or states that they are working on more inclusive	Emergent Code

		governances in their institution	
Success Determination	A statement on how the institution determines whether a program, exhibition or activity was a success	The interviewee for example states that an activity was a success because their visitor number had increased or because they received positive responses on an activity from visitors	Emergent Code
Communication	A statement or example about the different forms of communication that the museum uses to reach their audience	The interviewee for example states that they promote their activities through different forms of media to reach a wider audience or that they gained the knowledge that mothers choose the museums that the family will visit	Emergent Code
Awareness	The museum becomes more aware of the importance of being inclusive	The interviewee for example states that they are aware that they need to bind new audiences or that they are aware that they were not accessible for all audiences or that the appearance of the museum could be more welcoming	Emergent Code

Focused on Visitors

Code	Description	Example	Source
Taking prior knowledge in account	The museum takes in account that different visitors have different kinds of prior knowledge which can be relevant	The museum has different programs for different groups/ ages or gives guided tours which connect to the target audience	Achiam, M., & Holmegaard, H. T. (2015a). Criteria for gender inclusion. <i>Hypatia Deliverable, 2, 1-28</i>
Taking different forms of learning in account	The museum takes in account that visitors have different preferences when it comes to acquiring new knowledge.	The museum supplies different forms of information acquirements, such as written text, video's, listen assignments, experiments, interactive exhibitions, etc.	Achiam, M., & Holmegaard, H. T. (2015a). Criteria for gender inclusion. <i>Hypatia Deliverable, 2, 1-28</i>

Taking gender stereotypes in account	The museum takes into account that certain gender stereotypes could exist among the visitors and tries to challenge those	For example, the museum has advertisements with girls being interested in cars or space shuttles, or shows in their exhibitions an equal amount of gender representation regardless of the topics	Achiam, M., & Holmegaard, H. T. (2015a). Criteria for gender inclusion. <i>Hypatia Deliverable, 2</i> , 1-28
Reducing Matthew Effect	The museum makes sure they are not only serving those whom are already succeeding in school and society	The museum has for example a school program with which they go to schools who cannot come to the museum, or the museum organizes activities which are free of admissions	Feinstein, N. W., & Meshoulam, D. (2014). Science for what public? Addressing equity in American science museums and science centers. <i>Journal of Research in Science Teaching, 51</i> (3), 368-394.
Engaging non-patricians	The museum tries to reach the target audiences they are still missing from their audience by actively reaching out	The museum identifies which audiences they are still missing and contacts these audiences by advertising or makes exhibitions or online fora acuminated for that group	Dawson, E. (2014a). Equity in informal science education: developing an access and equity framework for science museums and science centres. <i>Studies in Science Education, 50</i> (2), 209-247
Supporting diversity	The museum develops activities that supports participation of all kinds of visitors	The museum supplies for example a scavenger hunt for the younger children, or has a program in which is focused on diversity and equal opportunities for all or live Q&A's where everyone can ask questions or has evening activities especially for older audiences	Booth, T., & Ainscow, M. (2002). <i>Index for Inclusion: Developing Learning and Participation in Schools</i> . Bristol, UK: Centre for Studies on Inclusive Education
Decision-making	The museum involves audiences in the decision-making processes regarding	The museum has for example focus groups from different target groups coming by and testing new activities,	Dawson, E. (2014a). Equity in informal science education: developing an access and equity framework

	programs, accessibility and exhibitions	programs, exhibitions and incorporates the feedback of the focus groups in their new programs or hands out anonymous surveys in which visitors can state their opinion of what is missing or could be done better	for science museums and science centres. <i>Studies in Science Education</i> , 50(2), 209-247
Reducing exclusion	The museum avoids thinking in stereotypes, detects potential barriers people can experience to come visit the museum and tries to minimize these barriers	The museum for example lowers their entrée fees for certain groups, organizes free activities or organizes specific activities where safety and anonymity can be promised, or creates more online content so people who are not able to visit the museum itself can still enjoy certain programs/ information or stimulates family-centered activities	Booth, T., & Ainscow, M. (2002). <i>Index for Inclusion: Developing Learning and Participation in Schools</i> . Bristol, UK: Centre for Studies on Inclusive Education
Suitable language	The museum makes sure the texts provided in the museum, on their website and in their booklets is not biased and understandable for every visitor	The museum makes sure the written text in the exhibitions is A- or B-level language, or the museum makes sure that in the given information both gender roles are equally present (not just using words like 'policemen')	Dawson, E. (2014b). "Not designed for us": How science museums and science centers socially exclude low-income, minority ethnic groups. <i>Science education</i> , 98(6), 981-1008
Multiple languages	The museum provides multiple languages for their public by for example texts, booklets, audio tours, etc.	The museum provides next to the native language also other languages like English, French, Spanish, German, Arabic, Mandarin, or other commonly used languages	Dawson, E. (2014b). "Not designed for us": How science museums and science centers socially exclude low-income, minority ethnic groups. <i>Science education</i> , 98(6), 981-1008
Reducing Fragmentation	The museum is aware that grouping certain people together and giving them the same	The museum does not give tours exclusively for men or women or people with the same	Booth, T., & Ainscow, M. (2002). <i>Index for Inclusion: Developing Learning and</i>

	label might lead to fragmentation of the audience and tries to prevent this fragmentation	cultural background, or the museum identifies prejudices about gender roles or people with a certain cultural background and tries to avoid these	<i>Participation in Schools</i> . Bristol, UK: Centre for Studies on Inclusive Education
Educational Focus	The museum finds it important that the visitor learns something from their programs and exhibitions, or focusses on school educational programs	A respondent for example states in the interview that they work through an educational vision or that they find education for schools important or about examples of school programs they have in the museum	Emergent Code
Welcome	When it is stated that everyone is welcome in the museum	A respondent states in the interview that everyone is welcome, for example: 'We focus on everybody' or 'Everyone is welcome'	Emergent Code