Developing inclusive museums: the role of personalization.

A research on the impact of personalized educational products and services on museums' movement towards inclusion

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ABSTRACT

The mandate of a more inclusive museum able to respond to its diverse public constitutes the cornerstone of this research. At a time when expectations on service quality are rising, museums are being challenged to redesign their experiences and reposition their audiences' expectations and needs at the center of their operational actions. Throughout this century, museums have made thoughtful efforts to become inclusive organizations in response to their social mission as public funding institutions, although there is still way ahead. The creation of inclusive educational programs can be seen as the opportunity to museums' movement towards inclusion. In this context, this paper proposes that a personalized approach around their educational products can contribute to this goal.

The research aims to act as an explanatory study on how museums can exploit the creation of personalized educational products and services through digital means to meet the growing needs of their diverse audience and become more inclusive institutions. For the sake of this research, eleven experts in the museum field were selected and then interviewed. The data analysis was based on the conceptual framework that was formulated according to the literature on the field of inclusivity and personalization. The analyses of the expert interviews revealed that experts are interested for the creation of personalized educational products as an opportunity to make the museum experience more personal and accessible to the diverse audience.

KEYWORDS: inclusion, museums, personalization, educational products and services, diversity, social value proposition

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1. Introduction

"In the museum of the near future, it will be primarily the public, and not those inside the museum, who will make … decisions" proclaimed Stephen Weill in 1997, highlighting the value of the visitors as agents of the new changes that museums were about to face. Since then, the museum is in a constant process of transformation in the need of becoming an inclusive organization that provides services "for all audiences" (Shepherd, 2009). The recognition of the visitor as an active participant and co-creator of museums' functions and value is seen as one pathway because only the public can direct what is valuable for it.

Modern museums have altered from being strict and elitist institutions to active, innovative with participatory approach organizations (Economou, 2003). The target is no longer to focus on the traditional museum visitor but to cater for a heterogeneous public (Wyman, et al., 2011). The aim is no longer only the visit, but the repeated and constant visit, transforming the visitor from a guest to a user (Brida, Disegna&Scuderi, 2014). However, regardless museums' intention to motivate the general public interest in finding different ways to interpret this world museums' inability to respond to a diverse audience' needs and to reframe its expectations is still a missing fact. The declining participation of visitors (American Association of Museums, 2010) and the perception of museums as a onetime experience are indicators that affirm this condition. Unfortunately, the "one-size-fits-all" approach of the audience still dominates in the conceptualization of the museum visitor experience, underestimating "how deeply personal museum visits are" (Falk, 2006, p.111). Museums are struggling to appreciate visitors' particularities (Lykourentzou et al., 2013) and recognize the significance of supporting and investing on their personal identity (Falk, 2006). In this context, they are constantly trying to commit their social responsibility as cultural organizations, although they make slow and short steps.

In addition to the changes that have taken place within the museum field as a whole, the significant factor of learning is also facing a wide range of new challenges. Museums' huge amounts of provided information fragment the visitors' and potentially learners' access to explore all the available content. From a large amount of available information and the navigation among a vast array of learning options to the traditional taxonomies such chronology to arrange the cultural heritage, museum lack of a user-centered design that enables a personalized learning process (Lykourentzou et al., 2013). Additionally, the diversity of the visitors requires that museums can develop paths able to cater the personal knowledge of every individual taking into account the learning styles, interests or difficulties. In the realm of their educational value, museums are in a phase of discovering new learning opportunities.

The demand of remaining responsible and open learning environments reflects the need for the creation of inclusive educational programs. Following the imperative policies on inclusive education,

museums should change their perception around learning as a simple dissemination of information about collections (NEMO, 2015). As institutions with educational value, they have to offer opportunities for formal and informal learning to people of all profiles and backgrounds in order to become more critical, involved and responsible to the world in which they operate in.

A movement towards inclusive practices is a topic of discussion for years. Although museums have tried to adopt a more inclusive approach they are still struggling to find a solution on how to employ inclusive practices in their environment (Moore, 2016). The majority of prior research on inclusion was partially focused on inclusive practices related to accessibility for people with disabilities and the removal of inappropriate exhibition content or physical barriers (Tokar, 2004; Lisney et al., 2013). However, the findings even on accessibility issue are still disappointing. The academic research has remained mainly theoretical than setting practical norms that would allow museums combat exclusion. Due to financial barriers or operational limitations, museums are still missing an institutional change in practices that would allow them to empower people of diverse backgrounds connecting them with art and fulfill their educational mission based on inclusivity.

Beyond any doubt, the integration of technology within museums enhance museums' functional dynamic and stimulate new ways to pursue their cultural purposes (Bakhshi& Throsby, 2012). Thanks to digitalization museums have become places of experience, beyond the traditional boundaries of time and physical space, enabling access to a wider audience that has been either excluded or depreciated by the museum operational efficiency as a whole (Warger, 2009). Driven by the demand to become more accessible and relevant institutions for the wider public they have proceeded with the creation of exhibitions using multimedia (Ross, 2004) and information technology. In this context, technologies generated opportunities for museums to establish a more personal relationship with the visitors. The particular aspect of personalization enabled by digitalization is one of those new possibilities.

Personalization techniques are used in a diverse range of different sectors. In the past few years, personalization through information technology has become "an increasingly significant trend in the museum world" (Filippini-Fantoni & Bowen, 2004), providing differentiated access to information and services according to the visitors' profile. Museums and cultural institutions are already using an increasing number of adaptive applications to meet the expectations of different target groups (Walzak&Cellary, 2006) ;Terrenghi&Zimmermann, 2004). Hence, personalized educational products and services can act as valuable tools for the organization and the redesign of the multicultural and multidimensional museums' purposes towards a heterogeneous audience (Wakkary&Hatala, 2006; Ritrovato& Gaeta, 2007).

In summary, the main challenge for museums in the 21st century is to become more inclusive institutions, providing immersive experiences that make cultural heritage relevant and accessible for a

diverse audience, meeting first of all its expectations and particularities and potentially its needs for participation and interaction (Hooper-Greenhill, 2000; Falk, & Dierking, 2013; Chang, 2015).

This master thesis focuses on personalization and argues that the creation of personalized educational products and services through digital means can be used to develop museums as inclusive learning environments. With reference to the wider perspective of personalization in other areas, where the associated techniques are already used in a relatively advanced manner, lessons could be learned by museums. This paper suggested that personalized educational products and services through digital means have the implications to contribute and foster the transformation of a more inclusive museum.

Identifying how museums can exploit personalization in regard to the general need of serving the individual requirements of a diverse audience and becoming accessible to the general public, this paper attempts to act as a source for museums' movement toward inclusion. The conceptual model of this study will first examine the mission of museums through an association with a detailed description of their social value proposition as public institutions; secondly, an analysis on the role of inclusivity within museum educational value will be provided while the theory of personalization and its degrees of implementation will be elaborated on. Lastly, the results from expert interviews on the contexts and the processes that facilitate and sustain a change towards more inclusive educational practices in museums through personalized educational products and services will be presented.

This research purpose is to investigate how museums can become more inclusive institutions following the expansion of personalization in the market, by examining successful ways that museums are using or planning to use personalized educational products and services through digital means. Accordingly, the leading research question and sub-questions for this research were formulated as follows:

1. How can museums make use of personalized educational products and services through digital means to become more inclusive institutions?

Sub-questions

2. What are the goals of inclusion within museums?
3. What role do personalized educational products and services play within museums?
4. How can personalized educational products and services be implemented within museums?

2. Theoretical Framework

In this chapter, the theoretical framework of this research will be introduced. As briefly mentioned this paper will examine how personalized educational products or services through digital can be used from museums to become more inclusive institutions.

The two fundamental pillars of the literature review are built upon: inclusiveness as a social value proposition and personalization. In this context, the related theory will examine the value of museums as cultural institutions with educational mission, specifying and perceiving the idea of inclusivity as a central part of their educational tasks.

Following, the personalization theory will be outlined attempting to present its contribution to museums' value of inclusivity. In this context, the implementation of personalization will be provided to build up a basic and practical approach on the degrees which can be implemented within museums' educational products and services through digital means.

This research assumes that personalized products stimulate learning, enhance the accessibility and usability of the museum environment while is able to cater the diverse museum audience and its particularities. All these aspects will be academically approved, approving that personalization and the way it is implemented can contribute to museums' movement towards inclusivity.

2.1. Social value proposition

Value proposition is defined as the value added to a company's services and activities in order to address the needs of a customer segment in a relative price (Porter, 2001). The needs could be framed as products, features or services that could offer value able to accomplish end users' expectations. The notion of value propositions in businesses is essential in order ventures to sustain their competitive advantage as a competing way "that delivers unique value in a particular set of uses or for a particular set of customers" (Porter, 2001). In the same context, Osterwalder and Pigneur (2010) support that value proposition is built upon products and services, the benefits of them as gain creators and the ability to respond to customers' needs and problems as pain relievers, with the ultimate goal to create value for the customers.

In social entrepreneurship, value propositions are social outcomes. The purpose of any social enterprise is value creation that is constituted by multiple social benefits and the cost of delivering them (Porter, 2008). Accordingly, the mission of social ventures is to create and sustain social value for the broad community rather than personal profit (Austin, Stevenson & Wei-Skillern, 2006). As Austin, Stevenson and Wei-Skillern (2006) define social entrepreneurship is an "innovative, social value creating an activity that can occur within or across the non-profit, business or government sectors" (p. 2).

Therefore, social ventures for businesses could be seen as a value proposition shift where an organization or a company contributes to the community and social well-being through new products and services that meet the unsatisfied needs of the society.

2.1.1. Social value proposition for museums

The most widely established definition of museums internationally has been given by the International Council of Museums (ICOM, 2007). According to ICOM:

"A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment". Considering this broad definition, the concept of the museum is no longer determined in accordance particularly with its collections, but its functions. The museum is not perceived as a simple depository of exhibitions, but as an institution with scientific, educational, social and development role.

According to Scott (2009), the value proposition for museums positioning in the competitive cultural sector relies upon four dimensions: intrinsic value, instrumental value, institutional value. In the context of instrumental value, she identifies the community capacity, social cohesion and economy. Within the community capacity, she relates museums with their educational role, while social cohesion is recognized in museums' opportunities for engagement, programs for social interaction and contribution for social inclusion through building audience diversity.

Since the 1980s, the museum field was struggling to serve its audiences and extend its access to new groups. For years and due to limited public funds museums had adopted a one size fits all approach as a way to serve the public. Any efforts to target groups were defined by segmentation related to demographic attributes, the frequency of the visitors or geography orientation (Falk& Kotler, 2006). Regardless that this audience segmentation seems valid, it is doubtful if museums' division actually provides their value-directed services of education and social inclusion.

The policy reformation by the Secretary of State for Culture Media and Sport, Hon Chris Smith in 2000, in which the issue of social inclusion for the creation of an inclusive and equitable society set museums in front of a change.

"But the evidence is that museums, galleries and archives can do more than this, and act as agents of social change in the community, improving the quality of people's lives through their outreach activities. This policy aims to stimulate and direct that role … to encourage museums, galleries and archives to adopt a strategic approach to social inclusion (DCMS 2000)"

In the need that "public money is being used appropriately to meet public objectives (DCMS, 1998), museums' contribution in the combat of social exclusion was seen as the priority. The significance of their educational value brings the opportunity of a strategic change towards inclusive policies and practices to justify that public funding should be effectively spent, providing social benefits.

During the years, inclusiveness has grown in scope and ambition within the general museum environment, although there is still way ahead (Maleuvre, 2012). Museums have already started to realize their role in promoting social equality and foster human rights by creating products that support the general public including marginalized or excluded audiences in their learning activities (Golden & Walsh, 2013). Under the mandate of dignifying visitors' particularities, recognizing diverse cultures, thus diverse audiences, a strategic move towards inclusion around their educational tasks will pervasively benefit their social value proposition.

To investigate the need for the creation of inclusive practices within museums, the notion of public value is also useful. The complex notion of public value has been discussed by plenty of researchers within museums' social value proposition. Most of them have characterized public value as a distinctive value that is constituted by public funding with mission to make a positive impact on the individual and the community of the citizens (Moore, 1995; Kelly, Mulgan & Muers, 2002); Horner, Lekh & Blaug, 2006). According to Scott (2006), the public value for cultural institutions such as museums relies upon understanding and responding to citizens' preferences.

Scott (2010) highlights that public value orientation within museums planning is highly influenced by the public. In this context, she recognizes its contribution in three critical roles: (1) as recipients of the value created by political and organizational environments; (2) as informants that provide the required information to the political and organizational environments in order to be aligned with changes, trends, policies and plans and; (3) as authorizers of public value through their engagement in the value identification, setting and evaluation.

Among the factors that increased the visitors' participation and contribution in this process are museums' cultural and educational role itself (Scott, 2010). As Kelly et al. support the engagement with the public and their involvement in the decision-making is what constitutes public value because only the public itself is able to provide its preferences, attitudes and expectations in a clear way. Weil (2002) confirms that museums have turned their attention on the visitor from the collection oriented approach as the direct recipient of its goals. For this reason, they have focused on access, interaction with the content or programs that encourage their visitation and engagement. Simultaneously, they start conducting audience research and evaluation to drag audience behaviors and changes in programs development serve them as informants in the public value constructive process (Scott, 2010). This participatory and co-production perspective in program "decision-making" could be also seen in museums' educational

programs, that is based on the idea of "who are affected by a service are best placed to help design it" (p.39).

As can be deduced, museums are challenged to cooperate with the public in order to offer value in a relevant to the society way. Under the ongoing process of providing social value, they are being challenged to evaluate their actions and going through self-review and self-improvement processes, using the visitors' particularities, expectations, and voices as a stimulus for their own development and viability (Falk & Dierking, 2013).

All things considered, it is needed for museums to focus on its social value proposition. They are challenged to create a collective conversation with the public for their value identification and creation. Engaging with the public in a participative way, museums will be able to fulfill their role in social inclusion. As learning in museums contributes to community cohesion and social inclusion, an increased emphasis on museums' educational tasks could be seen as the promising approach for implementing the museums' social mission in practice.

2.2. Defining inclusion

Inclusiveness describes the logic of a never-ending process to find better ways for museums to serve their public value. The movement towards inclusion is not simply a technical or organizational change but also a movement with a clear philosophy (UNESCO, 2005) that is founded on the idea of human rights (Shepherd, 2009). From its origins, the concept of inclusion has arisen in response to individuals with special educational needs that have been excluded traditionally from society (Shepherd, 2009). The idea of inclusive education was mainly endorsed by the Salamanca World Conference on Special Needs Education endorsed in 1994: *"Moving towards inclusion, schools should focus on increasing the capacity and support the participation and learning of an increasingly diverse range of learners".* In a basic sense, inclusion is referred to the development of practices that support the diversity of pupils' educational needs (Ainscow, 2005). Within any educational environment, it is reflected in the means of assessment and the recognition of pupil's achievements (Rose & Howley, 2003), as well as the way of grouping individuals based on their needs and the objectives of inclusion (Wedell, 2005).

According to UNESCO's conceptualization (2005), the mission of inclusiveness is to respond to a diverse audience needs, anticipating its particularities and aiming to its presence, participation, and achievement. It attempts to overcome and remove barriers by collecting, collating and evaluating information from a variety of sources in order to improve policies and practices. Lastly, it particularly emphasizes on groups who are "at risk of marginalization, exclusion or underachievement".

In Europe and around the world, education policy and practice are moving towards increasing inclusion (European Agency for special needs and inclusive education, 2013). Over time, the movement has provided opportunities to develop more effective methods –such as multi-level activities- for teaching students with diverse learning needs (UNESCO, 2004), while it requires educators who are looking for means that could be helpful for all students in a classroom. In other words, it is indicated that school reformers need to consider changes to the curriculum and the methods for assessing the learning impact, but respectively on teachers' fundamental beliefs and knowledge (Ainscow, 2005). For responsive societal institutions of learning such as museums - where learners can choose how they learn, what they learn, and with whom they learn (Falk & Dierking, 2000) – inclusiveness has been an issue since the day of their invention.

Over the past decade, museum investigators recognized that two of the most important museum educational tasks is the facilitation of learning and the accessibility for and use by diverse audiences (Hooper-Greenhill, 1994; Weil, 1997; Hooper-Greenhill, 1999; Falk and Dierking, 2000). In this context, learning has being grouped in categories such as "knowledge" and "understanding", "skills", "trends" and "values", "fun", "inspiration" and "creativity "and" action "," behavior "and" progress " (Dodd & Jones 2009), indicating that education within museums is currently related with "edutainment" where education and enjoyment are the main goals (Stead, 2002).

Recognizing the complex nature of the learning experience, which is shaped by the natural environment of an exhibition, the personal needs of the visitor and the social component of the visit (Falk & Dierking, 2000), learning within museums is no longer be identified as an information transfer process from one to another. On the contrary, it is a bidirectional process of knowledge construction between the museum and the visitors, that is based on the guests' (1) motivation to learn and gain knowledge during the visit process (Falk, Moussouri& Coulson 1998; Falk, 2006) and their interest in the learning object (Schraw & Lehman 2001); (2) the meaning they seek for (Mayer, 2007); (3) their desire for particular exhibits or themes (Sweller, van Merrienboer&Paas 1998); and (4) museums' strategies to select, organize and develop educational activities that are linked with previous knowledge (Filippini-Fantoni,2003).

As can be seen, the need of inclusivity within museums is closely connected to their educational value. Museums are required to leverage their programs, products, and services to establish their institutional purpose. Therefore, this paper will propose and attempt to analyze how the value of inclusivity and its two main pillars of diversity and accessibility can be ensured with the assistance of personalized educational products and services through digital means to affirm museums' movement towards inclusivity.

2.3. Personalization

The ultimate form of inclusiveness is personalized educational offerings. The relative importance of personalization in educational environments with heterogeneous audiences such as museums is based upon their role as information providers in their service of society (Macdonald & Alsford, 2009). Museums are required to motivate the diverse public interest in interpreting museums' objects trying to create "realistic worlds" where visitors can find different and personal ways to interpret them (Mouliou, 2005). Striving to respect and support the values, the unique attributes, characteristics and perspectives of each individual visitor, personalized educational products can be seen as the mean to achieve inclusion.

Introduced in the 1990s, adaptive or personalized systems have been used in a diverse range of different sectors such as commerce, finance, health, tourism, and education. Personalization was emerged in several areas of interactive multimedia starting on desktop systems before being applied to mobile services and then to a company's products or services. The main pillars of personalized techniques are the collection of a customer's data before the matching and categorization of relevant content based on its individual requirements.

The purpose of personalization within cultural institutions such as museums relies upon the need for museums to respond to various and different needs (Filipini-Fantoni, 2003). Adomavicius and Tuzhilin (2005) define personalization in cultural contexts as an interactive process included three stages. The first phase relies upon the fact of understanding who is the user and what kind of content is of his or her interest, through a user modeling process that often consists of some relevant data collections, its analysis and the transformation to actionable knowledge; the second step contains the delivery of the personalized content; and the third one the measurement and evaluation personalization on the visitor's satisfaction. Far away from the traditional resources, the creation of personalized access for cultural content establishes the promotion of art in a new manner.

Numerous contrasting and conflicting definitions of personalization have been proposed by academics in various different fields. Ardissono, Console and Torre (2010) argue that the goals of personalization are the improvement of the information access based on different users' interests and contexts, the facilitation of the navigation of a large amount of information and the enrichment of communication considering media platforms. Thurman (2011) approached personalization as an element of digital networked media, while Fan and Poole (2006) relate personalization with different things to different people in different contexts. Since the dimensions of personalization vary on the concept of personalization and the scope, there are different levels and aspects of how personalization can be achieved through the ability of a computer system to adapt to the requirements of its environment or the needs of the users (Lykourentzou et.al., 2013).

2.3.1. The implementation of personalization

According to Fan & Poole (2006), the key choices in the implementation of personalization systems is built upon three main dimensions: "the aspect of the information system that is manipulated to provide personalization, the target of personalization and the who does the personalization" (Fan&Poole, 2006, p. 185).

As mentioned before, personalization can be implemented in different degrees and ways. The framework of personalization is structured by factors such as the type of the personalized service, the control the user has over the system and the degree of adaptation to each user. In a smaller or full a scale the way that a product or a service is personalized differs in terms of the context, the people and the goal (Fan & Poole, 2006). Similarly, in the museum environment where inclusion is the goal, the degree that personalized educational products and services through digital means are implemented and their target to whom they are addressed are what could make the change.

2.3.1.1. What is personalized?

The first dimension of personalization is related to the basic elements of an information system that it is needed to be adapted in a personalization system in order to deliver personalization to the user. Fan & Poole (2006) distinguish four aspects that can be adapted in a personalization system making it more relevant to each individual user: the information itself (content), how the information is presented (user interface), the media through which information is delivered (channel/information access), and what users can do with the system (functionality).

2.3.1.2. Who does the personalization?

In order to implement personalization, understanding the visitor needs is required. This is achieved by collecting the appropriate data which include the interests, preferences and needs of each user. Based on this data, the system is able to create user profiles and personalize the content in a way that is likely to be of real interest to the user (Kobsa, 2001). The most important and most frequently used features of a user are: interests and preferences, knowledge, individual features, demographics, goals and tasks, working environment (Botis & Darzentas, 2010).

The collection of data can be done either directly by the user or automatically by the system, collecting data from his activity. The key choice of "who does the personalization" (Fan & Poole, 2006) varies technically. The first and basic categorization indicates the amount of control and participation the user has on the personalization process. Thus, he divides personalization into two basic blocks: customization and personalization.

Customization or adaptability is achieved when the user "can shape an interface and create a profile manually, adding and removing information in the profile"(Bonnet, 2002).As Fan and Poole (2006) defined it, this is the so-called explicit personalization. The user has direct control and he is actively involved in the process of personalization simply by making choices or providing information assisting the system to adapt. Among the advantages of explicit personalization are the reliability and the variety of collected information. However, its success is questioned as it is based on the users' willingness to provide the required information. Many users are not involved in such processes finding them time consuming and risky for their data safety, supplementing sometimes either false or inaccurate information (Papanikolaou & Grigoriadou, 2005). Simultaneously, it is difficult to keep up-to-date user profiles as many of the features are changing over time. For that reason, the most frequent explicit process of personalization is related to demographics that remain stable over a long period of time.

On the other hand in personalization or adaptivity, the user is seen more passive, having less control (Bonnet, 2002). The system itself modifies the content or the structure of an information system automatically, based on user's stored information in the so-called user profile. This system is termed implicit personalization (Fan &Poole , 2006). There are several different ways of indirectly collecting information. The most popular are: browser cache, proxy servers, browser agents, weblogs, desktop agents, search logs. The four first techniques are designed to collect information about websites visited by the user. This information is very important and often indicative of a user's interests. According to Dalamagas et. al (2007), that information is collected either explicitly by the user in online registration forms, questionnaires, and profiles (static profiles), or in an implicit approach by cookies and Web server log files (dynamic profiles) based on the navigational behavior of the user. This classification is equally important on the techniques that museums can use to carry out personalization through their educational tools whereas visitors' participation and presence are related to inclusivity.

As it seems the choice between implicit and explicit personalization is an important issue regarding data collection in personalized systems. Research in this area has been conducted intensively over the last decade to evaluate which of the two methods is most effective. Some of these considered explicit feedback to be more effective, with little difference. For instance, research (Reeves & Nass, 1996) has shown that people react differently to a system if they know that they can control it -explicit personalization- than to one that adapts automatically without human input (implicit personalization). The "age of participation" (Schwartz, 2005) and the participatory approach of Web 2.0 (O'Reilly, 2007) indicate that users apart from consuming they also seek ways to act independently, get involved and create value by participating and producing. Indeed, the degree to which visitors are aware of being controlled or even the level that they can add or filter their information to a system is related to the quality of their experience. On the other hand, other researchers concluded that there were no distinct differences

(Quiroga& Mostafa, 2000; White et al., 2001; Waern, 2004) while recent research shows indirect feedback as the one that can lead to better results (Teevan et al., 2005).

As seen before, the concept of collaboration with the visitors within museums is vital for the planning and the way the institution will operate to serve its public value (Scott, 2010). In the same context, the creation of explicit personalized products and services allow the prospective of partnership with the public, encouraging its involvement and interest. The aspect of inclusivity in terms of participation focuses on the participation and achievement of the learner in every step of the learning process. Thus, the creation of explicit personalized educational products could revolute the valuable relationship between the visitor and the institution from the traditional form of communication to interactivity and collaboration, "recreating the human element" by listening and understanding the visitor (Bowen, 2005). In other words, museums should particularly depict the value of personalized techniques in a context where learners aren't perceived as less passive and deferential and where new curricula and technology can enhance collaboration and inclusive learning.

2.3.1.3. To whom to personalize?

Fan & Poole (2006) support that the target of personalization is another crucial aspect for the implementation of personalization. This dimension refers to the target of personalization that could be either categorized or individuated (Fan & Poole, 2006). According to research on social identity (Spears & Lea, 1994) people act differently as members of a social group or as individuals in a particular context. In the former circumstance, they are inclined to perceive group norms and standards, their motivations follow the group intentions while they approach stereotypically people outside of their group. On the contrary, the sense of an individuated personalization system drives them to focus on their particular individual needs being difficulty influenced by norms.

The theory of constructivism supports that knowledge and how it is obtained depends on the mind of the student (Hein, 1995), as an active process which removes the visitor from the passive attitude of the simple spectator of an exhibition (Tallon & Walker, 2008). As visitor studies confirmed learning is encouraged and promoted when the information provided is explained in a way that the learner can interpret, understand and support. In this context, personalized educational products and services is the ultimate goal of stimulate learning for museums' diverse audience.

In view of the fact that visitor and their visit motivations' differ by physical limitations, personal, socio-cultural context and identity-related aspects (Falk, 2009), the prospects of an individualized or categorized segmentation through personalized educational products and services could be seen as solution for the creation of an inclusive educational environment. The diversity of the visitors requires

that museums can develop paths able to cater the personal knowledge of every individual. Until now, this is happening mainly in tour groups, by a human to human personal interaction with the tour guides.
By targeting audiences either individually or categorical, the match of the right content at the right time and to the right recipient can be achieved.

3. Method

To explore how museums can make use of personalized educational products and services through digital means to become more inclusive institutions, an exploratory qualitative approach based on expert interviews within the museum field was followed.

Among the best suited and most commonly used data collection methods that exist in qualitative research are interviews (Kumar 2011). This paper's approach is connected to theoretical and practical deliberation; attempting to realize what social reality is and how it ought to be studied (Minichiello et al. 1990). Thus, this research was conducted based on expert interviews as a method of inquiry to provide an insightful analysis of the proposed phenomenon under investigation (Creswell, 2007).

In this exploratory study, a number of 11 semi-structured expert interviews were conducted within a qualitative research paradigm, attempting to "gain understanding of the field of research, and to develop theories rather than test them" (Minichiello et al. 1990,p. 101) while a topic list with open-ended questions was used to guide the experts' narratives and allow them freely express on the research issue.

As a special form of semi-structured in-depth interview, the expert interview can be defined as conversation with the purpose of "obtaining descriptions of the life world of the interviewee in order to interpret the meaning of the described phenomena" (Kvale & Brinkmann, 2009, p. 3). Considering that this paper aimed to allow the interviewed subjects' perspectives to be expressed in a relatively openly designed interview situation (Flick, 2003), the semi-structured design was chosen providing to experts the time and scope to express their diverse views, opinions, statements and personal experiences while at the same time it allows the researcher to compare their responses among other participants in a circle of experts (Harrell & Bradley, 2009).

Rather than participatory observation or systematic quantitative surveys, expert-interviews is a more efficient method of gathering data in situations in which it is difficult or even impossible for a researcher to gain access to a particular social field (Bogner, Littig & Menz, 2009). This flexibility is another reason that the expert interview method has been chosen as a research method for the investigation of personalized educational products or services in museums about which little is known.

Lastly, expert-interviews method seemed most appropriate for this research since it gives space to hear voices of people who have internal organizational experience within this paper's research field namely museums. In contrast to surveys or case studies, expert-interviews method enables this research to obtain quickly and qualitative results from a source of respondents who can provide qualified information on internal knowledge structure within the social phenomenon inquiry (Bogner, Littig & Menz, 2009). This makes it a suitable method to provide a distinctive "inside" information from various perspectives about the nature of the changes within inclusive museums in the context of the emerged personalization.

3.1. Research method

According to Janesick (1998), "the design is the choreography that establishes the research dance". Hence, the nature of the research design is the rationale that links the data to be gathered and the exported conclusions to the initial questions of a study. It contains an overview of the main components under investigation, such as the research questions and propositions, estimating how validity and reliability can be achieved (Brinkmann, 2013).

To answer the research question "*How can museums make use of personalized educational products and services through digital means to become more inclusive institutions?"* a qualitative research of in-depth expert interviews was conducted around the creation of personalized educational products and services through digital means for museums' movement towards inclusivity.

The main reason that qualitative research has been chosen as a research method is its relevance to the study of social relations (Flick, 2003), as a major tool for a deeper understanding of social and cultural meaning (Denzin & Lincoln, 2013). As opposed to quantitative research, which is usually used to draw more generalizable conclusions, qualitative procedures offer a deeper understanding of the reasons for certain situations without losing sight of their context (Berg, 2004). Therefore, a qualitative approach was essential to collect significant data from units' research that are actively involved in the museum field and can provide their knowledge and understanding of the research issue (Boeije, 2010).

As researchers support (Meuser and Nagel , 1991; van Audenhove, 2007), in-depth expert interviews are recommended as data collection technique in fields that are new. Accordingly, expert interviews deemed appropriate for this exploratory research on the quite new and unknown field of personalized educational products and services within museums as means for more inclusive museums. Furthermore, Meuser and Nagel (2005) stated that experts are agents "bearing specific functions within an organizational or institutional context," who "(re)present solutions to problems and decision-making processes" (p. 74). Therefore, the method of expert interviews seemed most suitable for assessing the validity of information gained from expert's special "objective" knowledge in the museum field in regards to the role and the implementation of personalized educational products and services for museums' movement towards inclusion.

With regards to the data analysis, a qualitative approach of thematic analysis was followed as a way of analyzing the qualitative gathered data. Thematic analysis was chosen to analyze data according to commonalities, relationships and differences across a data set (Gibson & Brown, 2009)

The first fundamental step for this paper's research design is to define the experts who will be acted as the main unit of analysis, thanks to their special knowledge (Bogner, Littig, & Menz, 2009).

3.2. Sampling

In the realm of this research eleven interviews with experts involved in the museum field were conducted. The sample includes experts from six different institutions in total with main focus on experts from the national museum of the Netherlands, as this research is conducted in cooperation with Rijksmuseum. All the eleven experts were selected regarding their role within museums or their close collaboration with museums in which one or several personalized educational projects, products or services were launched or managed by them.

The goal of most qualitative researchers is to collect data until empirical saturation is reached (Mason, 2010). However, there is no standard way to reach saturation. In regards to this study, the number of eleven expert interviews has been considered acceptable within the method as data saturation is reached when any new additional information can be gathered or further coding can't be emerged (Guest et al., 2006).

The intention of qualitative research is to develop an in-depth exploration of a central phenomenon rather generalization (Creswell, 2009), thus the sampling strategy of this study is not random. The sampling selection strategy employed was purposeful, permitting in-depth insights and a wide range of perspectives on the research issue (Boeije, 2014). Additionally, as the selection of the "right" experts is regarded as one of the main methodological problems for expert interviews (Bogner, Littig & Menz, 2009), the so-called snowball method was followed. The snowball method presumes a "bond" between the initial sample and others in the same target community (Berg, 1988). According to Creswell (2004), the snowball sampling is a technique to find research subjects "when the researcher asks the participants to recommend other individuals to study" (p.206).

As this research was conducted in cooperation with the national museum of the Netherlands the selection of the first expert was derived from Rijksmuseum. The snowball strategy was employed from the beginning when this independent expert was asked to recommend other relevant experts as potential units of research. This method enabled access to other suitable experts in the limited time frame for data collection (Boeije, 2014). Therefore, once this first interview completed and during the rest process, each interviewee was asked to recommend further experts whom I could talk with. In this context, every interviewee was approached with a request for an interview email, describing the research project of this paper.

The sample consists of eleven individuals who are working for and within the museum field in Netherlands (N=9), Germany (N=1) and Greece (N=1). Nine of them were members of educational and tour guides departments in four different Dutch museums (Van Gogh=2, Amsterdam museum=1, Rijksmuseum=5, Stedelijk=1) while the rest two were experts in the creation of personalized digital products and services for cultural heritage and museums in relevant organizations in Europe. The eleven

interviews were held in the time period between April 20th and May 24th, 2017. They lasted between 35 and 60 minutes. The interviews were all conducted in English while seven of them were face-to-face and four of them via Skype due to distance barriers. The table presents an overview of the interviewees, the institutions that they are working for and the area of their expertise.

Table 1: List of interviewees, the institution they work for and their area of expertise

Name	**Institution**	**Area of expertise**
Eva Wesemann	Antenna International	Director Creative Strategy EMEA: working experience for the development of personalized tools for museums
Justin Waerts	Amsterdam Museum	Senior Educator: specialized on programs for schools
Marthe de Vet	Van Gogh Museum	Head of Education Department
Noortje Bijvoets	Rijksmuseum	Head of tour guides programs
Sander Daams	Rijksmuseum	Educator and Staff member Schools, specialized in programs for visual impaired visitors
Wouter van der Horst	Rijksmuseum	Educator and staff member schools, working experience with personalized educational products
Dr. Angeliki Antoniou	University of Peloponnese at Department of Informatics and Telecommunications	Academic Laboratory Teaching Staff, specialized in technologies and applications for cultural heritage, educational games, user profiling and personalization
Birte ten Hoopen	Rijksmuseum	Senior staff member Families and Children Department
Anouk Heesbeen	Stedelijk Museum	Outreach Executive
Annemies Broekgaarden	Rijksmuseum	Head of public and education department
Ann Blokland	Van Gogh Museum	Senior Curator of Education

	Department, specialized in program for senior citizens and visual impaired people

3.3. Operationalization

As aforementioned above, eleven semi-structured interviews with experts working in and for the museum field were conducted for the data collection. A topic list was prepared to guide the interviews based on the three research questions of this paper following the structure of the literature review (see Appendix A). To allow the interviewees to share as much in-depth information as possible, the questions were kept purposefully open (Harvey, 2011). Additionally, the questions' order was arranged to each interview condition. From the beginning, each interview began with an introductory part of the research topic and the broader focus on museums' inclusivity and the personalization aspect of educational products and services through digital means. Therefore, the sensitizing concepts of the topic guide were formulated in questions and sub-questions around three main topics: first the idea of inclusivity, then the goals of personalization and lastly experts' opinion on the implementation of personalized educational products and services through digital means.

In details, the first topic refers to inclusion within museums. This part was mainly focused on the reasons for museums' focus on inclusive practices. The experts were asked about their perspective on inclusion as an important topic within the museums. The notion of inclusion in terms of education was also indirectly examined by questioning the respondents how they perceive inclusion in terms of education so the answers could later be compared to the related personalized educational products and services responses. Lastly, the experts were asked to provide examples of their experiences on inclusive practices during their career while their opinion on the areas that need more improvement in terms of inclusion within museums in order to assess the limitations and the potential improvements to the current museum environment.

The second topic deals with the idea of personalization. In particular, this part focuses on the goals and the reasons of personalized educational products and services through digital means. The template explores how the creation of personalized educational goods will serve the demand of museums' movement towards inclusivity. The interviewees were asked to share their opinion on the benefits of personalized educational products or services through digital means in regards with the three central pillars of personalization: diversity, usability/accessibility, and learning.

Following, the third topic refers to the implementation of personalization and its degrees within museums. Interviewees were asked to provide their opinion and their experiences on how personalization

could be ideally incorporated within their institutions, in order to identify a comprehensive and clear understanding of what experts in the field consider as ideal personalized educational products and services.

3.4. Data analysis

The strategy followed for analysis of the interview data was a qualitative approach of thematic analysis. Traditionally, thematic analysis is the most widely used qualitative approach to analyzing interviews. It produces an insightful analysis that answers particular questions as a method used for "identifying, analyzing, and reporting patterns (themes) within the data". (Braun&Clarke, 2006, p.79). According to Bazeley (2009), the themes should follow the explanatory model of "describe, compare, relate". In this context, the process of the analysis included three stages of open, axial and selective coding of the data. For the sake of this research, thematic analysis is the mostly suitable method in qualitative research, in order to identify the complex meanings from the textual data set with main, focusing mainly on the content using simultaneously prior theoretical concepts (Riessman, 2008).

The analysis of the data collected through interviews with museums' experts was based on a three-stage procedure suggested in the literature: data familiarization, data coding, and theme development and revision (Creswell, 2007). Hence, according to the generic procedure once the data was collected the transcription of the recorded interviews from an audio to a text format took place. In order to facilitate the familiarization process and to narrow down the thematic comparison, paraphrase followed. Following, the extracts of the interview text were directly coded based on the ideal matching with the theoretical framework information. Accordingly, the codes that have emerged from the open coding process were connected to each other in the realm of axial coding process (Guest et al., 2011).

In essence, the management of unstructured information was classified, coded, and sorted in order to identify themes and arrange the information according to the needs of the study (Richards 1999). However, it must be said that the stage of thematic comparison have been continuously checked in order to ensure that the results were complete and valid.

At this stage, the reviewing of the differed features from interview to interview begun. The scientific conceptualization between the emerged themes was formulated into categories drawing the theoretical knowledge base. Finally, the theoretical generalization framed the arrangement of the empirically generalized findings, enabling the re-constructive process of "new" theory related to the already elaborated one.

4. Results

This research aims to provide a deeper understanding on how museums can make use of personalized educational products or services through digital means to become inclusive institutions. This chapter presents the results of the data collected through the eleven semi-structured expert interviews.

The interview guide was built upon three main pillars: the importance of inclusion, the goals of personalization through personalized educational products and services and the various degrees that personalization can be implemented within museums. Similarly the findings are divided in these three sections.

As mentioned in the methodology chapter the data was conducted and analyzed through thematic analysis, attempting to compare the findings and retrieve emerging themes in which the role of personalized educational products and services in the museums' movement towards inclusivity can be recognized and perceived. Therefore, these themes will be presented to provide a better understanding and answer the research question of this research of how museums can become more inclusive institutions through personalized educational products.

4.1. Inclusion

Sub-question 1: What are the goals of inclusion within museums?

To assess the importance of inclusion within museums, interviewees were firstly asked to what extent they think that inclusion is interesting for museums.

Diversity

All the interviewees firmly expressed that inclusion is itself the goal of museums in order to remain relevant, public and open institutions for the whole society and its diverse audiences.

Noortjee Bijvoets noted:

> Rijksmuseum is for everybody. Everybody is much larger than we think. So we want people to think themselves welcome from all kind of backgrounds

While Marthe de Vet stated:

> A museum is a social enterprise and to me, the existence of a museum is based on inclusion. Museums should be able to include as many people in a community as possible.

In the same context, Angeliki Antoniou referred to the importance of inclusion for the future of museums.

> Inclusiveness is the way to guarantee the sustainability of museums in the future. If you just keep the traditional clients of museums, then they will not survive in the 21st century. We need somehow to make people come in museums and make them relevant for their lives. People need to find meaning within museums for their own lives, so museums should become a central part of their life and inclusion will help us towards this direction.

Interesting was the fact that Eva Wesemann related the goal of inclusion to their social responsibility as public institutions.

> The main interest was to reach out more visitors and increase the visitor number. Of course, the economic value is important but this start to change, as now the focus is on what other values can be generated and this is more about the social responsibility that they have. So now the focus is how we will provide more wellbeing.

The above quotes illustrate that whatever the motivation is, inclusion has widely recognized by experts in the museum field as the main focus for the viability of museums to sustain their value and deal with the diverse audience.

Business perspective

However, a progressive theme that emerged from three experts related to diversity, was correlated to the need of museums to become more relevant, economically viable and sustainable, gaining more visitors. Angeliki Antoniou highlighted:

> Museums focus on inclusion to increase their target audience, they can't survive with the passing tourists anymore. They need to have returning visitors and to do that museums need to adopt inclusive practices and strategies. The goal is a diverse audience that will increase their visibility will make them relevant in society and of course their funding.

Eva Wesemann stated:

> What I would really call out for is that museums success is no longer measured by visitors' numbers but by its visitors' diversity".

Following, Noortje Bijvoets also stated:

> Museums' focus on inclusion because it is fashion. Indeed, inclusion enhances people life. We have to share, have to do everything for the people that come. They want to be connected with the public, inclusion is fashion but also a necessity because we need audiences.

Accessibility

To examine further the goals of inclusion, interviewees were particularly asked why museums focus on inclusive practices. Seven out of the eleven experts referred directly to accessibility.
Anouk Heesbeen supported:

> We should show our relevance to society and to make sure that you are actually welcome everyone who wants to visit the museum and make sure that they will have access to what you are doing. The idea of accessibility it doesn't sound just physically. Of course facilities are important but also having the intellectual accessibility of the museum. People actually have the chance to get to know your collection if they are interested in that. As Dutch we are really behind with people with disabilities but it is something that should be open and it is mandatory to become inclusive.

Annemies Broekgaarden stated:

> Inclusion is about accessibility. Museums should focus on inclusion to become more accessible to people with physical barriers and mental barriers,

Marthe de Vet noticed:

> The goal of inclusive practices is to make museum world and life accessible to as many people as possible worldwide.

The common notion of accessibility as the main goal on museums' focus on inclusion was additionally mentioned by Ann Blokland, who commented that technology could be interesting to improve access for the diverse audience:

> Inclusive is being accessible for everyone and especially for people that can't visit a museum. Technology and its means is a perfect tool to include them in the museum experience apart from the physical experience.

In the same context Eva Wesemann noted:

> Inclusion refers to the reduction of barriers and usually it is used for the reduction of physical barriers so architecture that doesn't allow impaired people to access the actual museum place or it's a reduction of communication barriers what kind of languages for visual or hear impaired people we can use to communicate our content to the people.

As can be seen the idea of inclusion in terms of the removal barriers and diversity, is what experts recognized as the main goal for museums focus in inclusive practices. The experts seem to agree with the theoretical conceptualization of UNESCO (2005) which relates inclusivity with diversity.

4.1.1. Inclusion and education

The interviewees were also asked how they perceive inclusion in terms of education, in order to examine their awareness regarding the context of inclusive learning. Five out of eleven insisted that inclusion is the basis of museums' educational mission. Anouk Heesbeen commented:

> Reaching everyone should be at the base of what you do within museums. The fact that now we are trying to move from exclusive to inclusive approach as educational part as a whole says a lot.

Wouter van der Horst commented:

> I think that we should look at schools that have the opportunity to reach every layer of the society. People who would visit a museum out of their own motivation those are not really hard to

> reach them, as they are coming anyway. They like the museum experience, they enjoy art. But as schools can reach all the societal layers, museums should focus on how we reach these layers.

Angeliki Antoniou stated:

> Museums could be seen as educational institutions from the wider sense. But are able to taught, to be accessible for the wider public? They act as informal learning institutions and can be a part of formal learning practices. Within the framework of lifelong learning, museums' focus should be given on how much inclusive their educational tasks are.

The above quotes illustrate that the interviewees related inclusive education with diverse audiences in terms of different social layers, in response to the demand of museums serve their educational value (Scott, 2010).

4.1.2. Current inclusive performance

In order to examine the current museum attitude towards inclusiveness and gain a deeper understanding on how this could be improved, interviewees were asked if museums perform well in terms of inclusion. Eight from the eleven experts admitted that museums are so close to become inclusive but are not still there. Anouk Heesbeen stated:

> I think that the wish of doing it is really large, but the problem is that true inclusion takes time t to become part of the philosophy of the museum and to be formed.

In a more progressive sense Angeliki Antoniou stated:

> No, they don't perform well at all. Museums at least European museums in smaller places such as Greece or smaller museums in size or in number of items, they perceive inclusiveness in terms of access to disabled people. In that sense they perform ok but this doesn't mean that they include people for all learning levels or social classes so they might have a disability point there but they don't include people from different social realities. So they don't incorporate inclusive practices.

Wouter van der Horst said:

> I think in general you see more the focus shifting to become more inclusive but we are still in the stage of really defining what does this mean. What does it mean to be an inclusive museum? This definition it is in a very beginning phase and there are some examples where museums have experimented with some inclusive programs also for people with disabilities (visual or hearing) but those are mainly smaller experiments and I think museums now are in the stage of really defining what does inclusive museum mean.

Annemies Broekgaarden commented:

> Different people have different definitions about what inclusion is. Actually we are keep discussing on the term because we are not using it yet within museums. Personally, I think that we do a lot of things in terms of inclusion but we don't really use the term inclusion.

Thus, it seems that the experts referred to museums' willingness but focused on the lack of a common definition among the institutions. In line with this question interviewees were also asked on what areas need more improvement in terms of inclusivity within museums.

Listening the visitors

Most of the experts noted that what is still missing is the perception of museums as a place for everyone. In particularly, experts were intensively focused on the need of a change from the museums' perspective on how they communicate and sustain their relationship with the public. Angeliki Antoniou expressed that:

> Museums in most people's mind life are places for higher learning classes; they are elitist so it's not relevant for everyone. So why a person woke up on Sunday morning and go to a museum if that's not a part of their reality? And we can't expect from people to feel that they are part of their reality if museums don't do that on their own and that could be achieved only if museums adopt inclusive practices. By trying to find those people's interests, needs and requirements and try to build on those. For instance you can't expect teenagers to go freely in the museums you need to know what teenagers like and make the museum a place that they will like it.

An interesting outcome about the importance of an internal change within museums policies and practices was given by Eva Wesemann:

I think that the highest barrier is the mindset of the museums. Most museums they don't want to be inclusive in the sense that want to be open for everybody. If you look one of the main task that the ICOM uses to define museum responsibility is the collection and preservation, presentation, communication. Most museums perceive preservation as the most important objective. Preservation means that too many visitors are seen as disturbing as a risk for a room with high class artworks. I could tell you hundred of stories about the things that museums do that don't really help the visitors to feel comfortable in museums or to stay very long. They don't have sits in their places for visitors to sit down and really connect the audience to the artwork for really long time. Those are barriers that museums still have and inclusion refers mainly to the reduction of barriers.

4.2. Personalization

Sub-question 2: What role do personalized educational products and services play within museums?

The results showed that most interviewees expressed with enthusiasm that personalized educational products and services could be quite interesting for the museum:

Personalization is the dream. (Sander Daams)

Everything is better in personalization. (Justin Waerts)

We should be able to pinpoint individuality and serve people in that way. (Birte ten Hoopen)

The three main pillars of the findings related to the benefits of personalized educational products and services through digital means were: learning, accessibility/usability and diversity.

4.2.1. Learning

Accommodate different interests

Eight out of eleven experts agreed that personalized educational products stimulate learning, revealing the theme of learning interests and requirements. The experts indicated that learning is a personal process that differs among the visitors, explaining that only personalized educational products can offer what everyone particularly needs in order to be taught. For instance, Sander Daams stated that:

> People perceive things different and learn different, some learn by images, by words, some by embodiment. Personalization is critical as a process to cater every single learning preference.

Additionally Justin Waerts stated:

> For me the museum is all about learning and interpreting. Personalized products or service can provide the opportunity for visitors to be taught by taking into consideration their individual needs and interests.

In this context, some experts insisted on the significant factor of visitors' satisfaction through matching their interests with the learning material in order to enhance the learning process. Anouk Heesbeen argued:

> Learning is the goal of museums and personalized educational products is able to teach a diverse audience in a way that they will be more likely to be taught.

Thus, the common patterns that were identified as the main benefit of personalization in terms of learning was the recognition of individual interest and differences regarding learning styles as a way to better serve the visitors through self decision making processes. As can be seen the experts seem to agree with the theoretical argument of how personalization accommodates individual and personal interests in association with increased knowledge (Filipini-Fantoni, 2003).

Increase fun and participation

Additionally, some of the experts commented on the need to create personalized educational products and services to trigger particularly youngsters in a more personally relevant approach such as games, participation and fun. Annemies Broekgaarden explained:

> Children or adults could find a visit boring but if you find a way or speak to a language that they use and activate them in a way that they are used or they like, we can activate them and motivate them to be active with regards to the collection. Personalized educational products or services could let us teach them in a way that they don't consider as teaching. You learn when something attracts you, you find it fun. If you want to be a museum for everyone that's means a lot of

people and among them there are different needs and you need to know and learn these needs and then you start from there to built up a connection in that way.

Eva Wesemann stated:

> We already have produced multimedia experiences for the younger audiences with interactive games that should be meaningful and foster the conversation with the artwork. That is the enrichment and learning for the museum itself.

In line with the theory of "edtaitment" where education and enjoyment are the goals of learning according to Stead (2002), the participants insisted that personalized educational products can provide enjoyment and fun, which attract the younger audience and their diverse learning styles.

Personal experience

Another interesting theme that was brought forward by five different experts was the connection of personalization with the creation of "experiences" as a mean to engage visitors and to stimulate learning. The pattern of experience was commonly used to emphasize that a personal museum visit through the usage of personalized educational products and services will become a personal experience, thus a more memorable one.

Justin Waerts noted:

> Personalized educational products and services offer new experiences. Learning is an experience and when you relate learning experience with a personal product you make the whole learning experience more effective and efficient.

Eva Wesemann stated:

> Personalized educational products and services stimulate learning especially through experiential stimulation experience. If you are doing something on your own always increase the learning process.

4.2.2. Accessibility/ Usability

Disabled people

Through the comparisons of the data analysis, the main theme that occurred in terms of accessibility was the audience segment of "disabled people". According to the experts, personalized educational products or services were automatically related with the barriers that mainly marginalized and excluded audiences are is facing. In details, 7 out of 11 experts connected the notion of access in terms of personalized educational products and services with marginalized and excluded audiences and particularly with disabled people and the facilities that should be implemented for their special needs as a way to involve them within museums. Angeliki Antoniou explained:

> A museum is there for them as well, even if you don't see them in the museums often, because museum is not accessible for them anymore. Personalization is particularly for those segments.

Language towards comfort

The first most commonly mentioned themes in terms of accessibility for disabled people through personalized educational products or a service was the notion of "comfort". Angeliki Antoniou said:

> Apart from bringing them in the museum you make them feel comfortable and as a part of the museum. This is the first step for social inclusion.

Six out of the eleven interviewees described that the first and most personalized service that they offer to make the museum more accessible for disabled is "language". Anouk Heesbeen stated:

> We started with a program for people who are deaf and we trained tour guides and facilitators who are deaf themselves. They are catered to their special needs because they can speak in the mother tongue. So people who are deaf follow a tour in Dutch sign language without an interpreter. This enhances their accessibility through maximizing the feeling of comfort.

While Angeliki Antoniou agreed:

> You are feeling welcome when someone speaks in your language, in a way that you can understand. This is how the feeling of discomfort changes.

Ann Blokland added:

> Being accessible for everyone means try to be an open museum. We are always making sure that we are not using difficult complicated languages, our labeling and text are easy, we want people to feel welcome.

In addition, four experts underlined the importance of digital means on personalized educational products as the facilitation to provide information in a language that they can interpret on their own increasing their independence:

> Museums are hiring people that navigate and interpret for visually impaired visitors the artworks in a personal way. This is a starting point but most of the disabled people have complained in the past about being depending on other people's support. New technology helps to provide a personal self-dependent experience.

Eva Wesemann mentioned, providing a great example where a visitor with physical disabilities can navigate around the exhibits without the help of a guide:

> We have introduced a ring where visual people wear and it comes with a 3d printed model, a map of the whole exhibition area and 3ed model of the barriers from the exhibits. In the 3ed map there are sensors that communicate with the ring. So when people come closer to physical barriers the ring starts rung help them to avoid the obstacles. In every exhibit the ring just plays the basic information about the artwork. Similarly, if the person stays longer in front of an artwork the audio starts playing more and more content.

Emergent theme: museums' physical structure

Regardless that the majority of the experts notice that accessibility and usability could be facilitated through personalized educational products and services, through the use of relevant language, the most common theme of accessibility was the physical structure of the museum. Five experts focused on accessibility as an imperative of the museum space itself, underestimating the importance of access through personalized educational products. In particular, Angeliki Antoniou mentioned:

> Indeed, personalized products through digital means -if are perfectly designed- can help the accessibility however, it's more important that the museum space itself and its architectural design be able to dictate visitors behavior and their experience.

While Eva Wesemann insisted:

> Creating more personalized tools within the educational department could help people feel more comfortable in the museum. But the first step is to get them in. So personalized educational tools are not the solution for everything.

4.2.3. Diversity

Personal connection

According to almost all experts, personalized educational products and services can serve the diversity thanks to the establishment of a personal relationship between the museum and the visitor. The notion of personal connection was recognized by the majority of the participants. Wouter van der Horst explained:

> Making a personal connection is the starting point for each visitor. Everybody is free to make their own personal connection within the museum environment. It could be something that someone could find funny or inspiring. It can be a story, it can be the overwhelming experience. The personal connection is always the key to have a positive experience to any "kind" visit in the museum. That's what we are trying to achieve as an educational department. The goal is to connect the visitors with the art and this connection is a really personal thing. You can't connect all audiences in one way and personalized educational products and services are the solutions to that.

To Eva Wesemann, a personal connection is what leads to inclusion:

> I think that personalization will result in a personal connection that will foster empathy which leads to inclusion. If you can share feelings you include people. So it is absolutely interesting to create personalized products if they want to reach out more people.

Similarly, Ann Blokland stated*:*

> The goal is to achieve people have a personal connection that they won't forget it anymore. This is what a meaningful visit means. Something that affected you emotionally. I think personalized

> educational products or services help them to feel that they are closer to who they are and what they want, and then the experience is better. So you are giving them a personal connection as an extra help for what they want.

Tour guides

In this basis, seven from the eleven interviewees described that the first and most personalized service that they offer to make the museum more personal for the wider public is "tour guides". Annemies Broekgaarden noted:

> We train our guides in order to build a personal connection with the visitors.

The first impression is what Noortje Bijvoets suggested as basic:

> It starts with how people are received, from the first person who takes your coat. It starts at the door. If he will open you the door. This offers the feeling of welcome, that this is your house.

Additionally, Marthe de Vet supported respectively the notion of personal connection, mentioning that they have also tested how important is that for the visitors:

> We did a quantitative research asking visitors what would be an ideal museum visitor for them. All of them responded that it would be great if there would be a person there for them from the entrance until the entire visit.

While Noortje Bijvoets noted:

> Personalized educational products and services is a way to help people within the museum diverse information. It is a plus. However, we should keep in mind that people need the personal connection in one to one interaction. So yes, personalized educational products can help people navigate the museum but we should keep meeting them we shouldn't lose the tour guides. Not everybody wants a product to feel connected.

As can be seen, the participants insisted that personalized educational products or services could serve the diversity as a medium that will foster a personal connection with the visitors, making people feel that

are catered as unique. However, it is truly interesting to mention that the majority of the experts perceive personalized services and products from a human communication perspective, where barriers such as lack of funding and guide staff limit this option.

4.3. The degrees of personalization

Su-question 3: How can personalized educational products and services be implemented within museums?

According to the theory, the implementation of personalization varies technically. As seen before, apart from creating unique personalized products and service to each individual user, there are different degrees of personalized techniques: a) who does the personalization; b) what is personalized; c) and to whom personalize. Upon these three pillars of personalization, the analysis of the expert interviews tried to point out how the participants would be interested in implementing personalization and the reasons behind these decisions in order to become more inclusive institutions

4.3.1. What is personalized?

Content to segment information

The content was the main theme that is most likely to be personalized within the museums until now. Almost all the experts recognized the importance of personalization as a process of segmentation of content towards different target groups and interests. Additionally, the comparisons showed that most of the participants connected the content with the type and the identity of the museum. Five educators from the same museum admitted that they would prefer to personalize more the stories as the nature of the museum environment that they are working in is historical. Birte ten Hoopen said:

> We have a million stories and to achieve the dissemination of the art and heritage we need to make it more personal. Considering that there is a huge distance between the modern visitor and this history I believe that personalized content could unlock this gap or its size. This is important for kids as well as adults, to envisage the history with the present.

Apart from the content, a progressive opinion was derived from Angeliki Antoniou who pointed out that the experience within the museums should be personalized:

> Until now, the content to a certain extent is already personalized as we tried to change every single type of information to match the different visitors' styles. Now we are approaching this aspect, suggesting different thematic tours. We know that some people, for instance, have a preference to see archaeological elements or preservation techniques so we create different thematic tours based on their interests and their personal profiles. So, personalization towards the bigger thematic tours. To cater their interests and cognitive profiles using MBDA brain technique indicator a psychological tool to assess different cognitive styles and we are correlating this with different thematic preferences. So based on their cognitive profiles we suggest them to follow a visit that matches with their interests.

Type of the museum

However, a crucial limitation related to what is personalized was the "type of the museum". According to three different experts, personalized services could be seen as intrusive from the visitors, especially in cultural heritage spaces that are prestigious for them. Angeliki Antoniou stated:

> There are certain museums types that people do not want any kind of application including personalized applications and those are the museums that people perceive them with great importance, like historical or archeological museums. Indeed, people are more open to personalized applications when they go museums to that perceive them less serious for example children museums, zoos, botanic gardens, science museums.

In line with this perspective Marthe de Vet stated:

> When we design personalized applications for heritage we need to incorporate different elements to become successful. One of these is the space itself. As I said we need to pay attention to what kind of museum it is what are people think about it, what are the stereotypes people have about this space and how open they are in personalized educational services because you might design something that is perfect but then people show much of resistance and they don't want to use them.

Insisting on the good design of personalized products or services Angeliki Antoniou explained:

> Educationally it might be better for the diverse audience learning process experiences but for reasons that can't foresee people rejected them and that could just be because when they used to

> go to a museum with their grandmother they didn't have it. So when you design something you have to remember that is not just the learning goals and the museum content, it's also the whole museum framework and the society within the museum is a part of. And what people think about it as space and what the characteristics of the museum are, what their educational needs are, what are you trying to teach and why. And then you try to consider personal elements such as emotional characteristics.

Another important aspect of limitation regarding personalized educational products that was related to the type of the museum and the amount of their information was provided by Ann Blokland:

> Art museums are different. We have developed multimedia tours, having people make their own tours and choices and follow their own path in a personalized way. But the research has shown that people appreciate the linear route that we have. Van Gogh museum has a linear chronological story in order to explore the story of the painter. Maybe in Rijksmuseum that has so many different collections is different but Van Gogh's museum visitors want to be taught by the museum and its staff. They need to be helped by them and their knowledge as they are the authority of the institution.

Additionally, in the same context of art museums, Anouk Heesbeen mentioned that personalized educational product could potentially limit the visitor for exploring the unknown environment:

> It is difficult to create a product that is truly personal of course. But sometimes especially in the contemporary art museums is not always about what you like it is about a content that makes you surprise or disturb your attention and if you categories audience according to their like you might miss something.

As Anouk Heesbeen described:

> Personalization is the key that makes you open the door. But when you stand in the door the experience can also surprise you so the experience itself doesn't have to be personalized. But if you personalized the complete experience what new is there to discover. Because you are based on something that someone else has seen before. So the personalization for me isn't a goal itself, personalized tools are the way to open the door which gives you access to something new.

User interface /Functionality: creating user friendly products

According to the participants, the critical role of a personalized educational product and service relies upon the exploitation of technological capabilities. The pattern of "functionalities" arose as one of technological benefits of the 21st century that museums should make use in order to create a more user-friendly product or service for its visitors:

> The possibilities have improved. The techniques are changing and the user friendliness of an app is important. So, we are always looking for new ways of improvement of the products that we are making. (Annemies Broekgaarden)

User control

As can be seen, the interviewees unconsciously connected the user interface perspective with the functionality of a service and a product. It is worth mentioning the pattern that was found through two interviewees was related to the importance of "user control". For instance, Wouter van der Horst explained:

> We are actually experimenting a lot with art tools. More and more functionalities are being added and that's a form of personalization. The social media for example enable the user to change the color, the image, and the banners. The user has the completely control of the way it looks, respectively museum visit is your own experience and when is personal you need to feel that you control it.

Six out of eleven experts stated that a user friendly interface would match visitors' interests and needs in an easy but intentional way. Almost all referred to their multimedia tours designed in a way that allows the visitors to navigate the museum space in an easy and user-friendly way, that allows everyone to choose the detail of the information that he prefers to receive.

In the same context, the participants focused particularly on functionality as a way to facilitate visitors' museum experience and promote the participation of the original artworks and the visitors, by using personalized products and services that enhance this relationship. Accepting the trend of using multimedia devices and developing applications for the engagement of the visitors with art, participants insisted on creating personalized products or services that would be easily used but they won't require the visitors' attention all the time. Eva Wesemann stated:

> A personalized product or service should be very easy to use, very intuitive. Technology should help people to look at the original and not look down on the screen. We are using highly sophisticated technology to help people navigate around. They can be oriented in line with the exhibits but they don't have to carry and control the device, they can simply put it in their pockets.

However, recognizing the interest of personalizing the interface design of educational products or services, three out of eleven interviewees insisted on the technological limitations within museums*:*

> It has been tried in the past. But then the system should be fully adaptive and go really quickly. It is a challenging and difficult part technically."(Angeliki Antoniou)

In parallel, they commented on the difficulty of responding to its particular visitor and the barriers of being able to proactively assess what would be more interesting to the visitor. Angeliki Antoniou explicitly explained that a flexible autonomous activity in an intelligent manner to accomplish tasks that meet its design objectives, without direct and constant intervention and guidance of humans:

> You might think that they want a button in a certain order but they might get upset wanted in a different order s most of the designers are choosing the standard android layout in their programs. People are very experienced to android systems so this standardized approach would at least facilitate the usage of a product.

Channel: the solution for young audiences

An important finding related to the significance of personalization in terms of the channel was connected with the younger audience segments and particular their motivation for participation, explaining:

> Produce multimedia experiences for the younger audiences with interactive games that should be meaningful and foster the conversation with the artwork. (Eva Wesemann)

The notion of individual learning styles was also most commonly referred in response to the individual requirements that everybody has during a museum visit:

> People perceive things differently and learn differently, some learn by images, by words, some by embodiment it is good to have different ways of media. For youngsters, we have different materials as well because we want all the senses to be touched. We try to use the form that suits to the audience. Especially for youngsters, those are so difficult to keep concentrate with art. (Nortje Bijvoets)

An equally interesting finding that was related to the channel was the social media importance. Five out of eleven participants mentioned that the connection of personalized educational product with social media could be extremely beneficial for people engagement:

> To make your visit very personal, a right and easy way is to connect that with channels that everybody can also use. Such as Instagram or Snapchat, especially for young people. How cool would be if you could create a filter of Rijksmuseum within these social platforms.

Wouter van der Horst mentioned, before continuing:

> It would be a very positive experience and everybody would like that nobody would at least hate it. He might don't like the way it looks, but it is a really simple way for museums to reach something like that with their audiences.

4.3.2. Who does the personalization?

In regards to the data collection about visitors, all the experts mention that the basic information for a well organized and personal museum experience starts from the information that they have about their backgrounds. From the analysis of the expert interviews emerged that data is a key solution for the creation of a personalized educational product or service.

Every interviewee emphasized the value of collecting data about the visitors and the potential users of personalized educational product or service in order to implement a well-designed personalization strategy that will be personally relevant to each visitor. In particular, the patterns that occurred from research are two basic demographical elements, the "age" and "nationality". However, the fundamental themes through comparison were the visitors' "motivations" and "interests". For instance, Annemies Broekgaarden mentioned:

> You need to know what drives someone. A truly personal experience is driven by "who that person really is" and you can't do that by just asking, ok she is 19, she is Dutch, she is white. Of course, in the generic scene that says something but if you are really looking to offer me a personal experience. You need to look deeper than that.

Additional interesting themes that arose from four experts were the "type of visit" and the "visitor role". Annemies Broekgaarden explained:

> We need to know the different roles that everybody cares on when he is coming to see how we can serve them. It is completely different how you will personalize the museum experience for a mother who visits the museum with her child and when she visits it with her friends.

Explicit or implicit personalization

According to the theoretical framework, an important distinction between the levels and aspects of personalization is adaptability -when the user can shape an interface and create a profile manually, adding and removing information in the profiles-, and adaptivity -the user is seen more passive, having less control (Bonnet, 2002). The results showed that the participants supported that personalized educational products and services should allow the visitors to participate by making their own choices during each visit. Almost all the experts agreed with this opinion, inductively Eva Wesemann mentioned:

> You don't make a decision on behalf of your visitors beforehand. It's a visitors' choice to personalize the content itself.

All of them declared that the perception of the users would be the perfect way to serve him in a clear and comprehensive manner, thus the personalized educational products and services would provide this option. For instance, most of them referred to the personal tour guides as an indicative example Anouk Heesbeen mentioned:

> Ask questions about the prior visit is something that we do in the tours" although "from a visitor perspective asking it might not be interested to answer questions.

In the same context a really interesting example was provided by Eva Wesemann which confirms that a system would not be able to guess the type of the visit or the instant emotion of the visitor:

> We prefer to start with a questionnaire asking instead of gender and age things such as what is your mood at the moment the instant feeling, are you looking for activity and interactivity or fun , are you on your own or family. Are you interested in technology, facts or history? And based on the answers, the best match of information and individuality is proposed.

As can be seen the experts think that visitors are the ones that should make the decision on what can be personalized. However, it is worth mentioning that experts paid little attention on personalization based on digital products, underestimating the potentials of technology as a data mining technique.

4.3.3. To whom to personalize

All experts agreed that segmentation of the users is crucial for catering their needs, recognizing personalized educational product as a mean to serve them individually. In regards to the target of personalized educational products, all of them supported that individuated personalization would be the ideal solution:

> We want to create personalized products for everyone. In this process we could also identify groups that we haven't realized before, needs that there were there but you never really achieve to even think about them. (Wouter van der Horst)

However, limitations in terms of resources was the most commonly commented barrier for this process:

> If we would have the means from funding or government we will be able to make sure that all the different needs of the visitors would get catered. (Sander Daams)

In a second level, they immediately preferred to a "group personalization" for those segments that might need more attention and help within the museums. Thus, the common pattern of personalization regarding the target group was the marginalized and excluded audiences into groups that have the same physical disabilities such as visual impairments or deaf people.

However, it is absolutely important to mention the participants' focus on the demand of explanatory consumer research for the adoption of personalized products and services as the only way that a categorized personalization could be beneficial. Eva Wesemann explained:

> We work with personas. During the development process of a product we create personas with a name and a biography with a special character and interest. Those are supposed to present a specific target group. But giving them a name and a personal history they became really tangible. We can immediately understand what this person is looking for, why he is coming in the museum, what triggers him, what are the areas that is connected with him and that would be potentially reflect a large proportion of visitors.

As most of the participants admitted personalized educational products or services would only be interested into categorizing through segmentation that as they admit their marketing departments conduct:

> The research that is executed in marketing departments on ways to reach your audience but in a more in depth way. To really understand your audience, what the audience wants, what are they look like, creating personas. (Wouter van der Horst)

5. Conclusion

As mentioned in previous chapters, modern museums are being challenged to open up a movement towards inclusivity as providers of culture and education. In this context, this research contributes to the identification of factors which can potentially promote the value of inclusivity in the museum field. Acting as an explanatory study, it proposes the creation of personalized educational products and services through digital means by introducing theoretical suggestions on how the concept of personalization can be transferred in museums' educational tasks in order to become more inclusive institutions. That being said, the results revealed some interesting findings in order to answer the main research question: *"How can museums make use of personalized educational products and services through digital means to become more inclusive institutions?"*

The previous section has shown that the idea of inclusion is noticed a significant value related to museums' educational tasks (UNESCO, 2005), which in response to the diverse audience can be addressed ideally through a personalized approach. The findings illustrated that the creation of personalized educational products and services through digital means can respond to museums' learning mission towards a heterogeneous audience, enabling its access and accommodating individual interests and requirements. In that sense, the results correspond to the inclusion theory presented in the theoretical framework that responds to a diverse audience needs by anticipating its particularities and aiming to its presence, participation, and achievement (UNESCO, 2005).

In line with the general imperatives of adopting inclusive practices within the museum world as became clear from the literature review (American Association of Museums, 2010), the research has shown that inclusion is perceived as the main goal and social mission of museums, which according to Scott (2010) is what constitutes their value. However, even though inclusion has been perceived as the major focus, the results revealed that it has not been integrated yet in a comprehensive way into their environments. In this regard, the findings supported that the mission of museums is to serve the public as a whole and to become an institution that can be addressed not only to regular and traditional visitors but to more potential segments.

Accordingly, the vital need of inclusivity was recognizable in terms of accessibility and diversity connected mainly with marginalized and excluded audiences. In the same context, the results showed that personalized educational products and services through digital means can be seen as means towards this direction thanks to their ability to improve the access and the usability for museums' diverse visitors, by creating a personal connection. However, one of the most surprising findings of this research was that hardly any interviewee focused on personalized digital products and the digitalization potentials. In depth, the findings showed a focus on the accessibility of personalization as a human to human communication

put it in wording related to tour guides and their significance for the creation of a personal experience. In that sense, the research has shown that personalization in physical terms was mostly preferred in the museum field.

Investigating the different degrees of personalization, interesting considerations were also revealed. Firstly, in accordance with the theory of Fan and Poole (2006) that personalization is related with different things to different people in different contexts, the research has shown that experts were interested in proceeding with all the different degrees of personalization. That being said, the findings illustrated that the design possibilities of personalized products and services can be beneficially related to inclusivity, as different elements to respond to diversity.

In details, with regards to the first dimension, what is personalized, the findings showed that the content of personalized educational products was mostly preferred as a process to segment the diverse museum information towards the heterogeneous audience. A surprising result was the degree that this was influenced by the type of the museum a factor that impacts the level of personalization in a sense that it will not limit the content discovery. Additionally, the user interface was also related to the diverse learning needs, acting as facilitator in the multidimensional learning content of museums (Muntean, 2009), while findings showed that channel is identified as the medium to serve diversity in terms of young audiences. However, the results disclosed multiple and critical comments related to the implementation of these personalized possibilities of design, disclosing the technological inability of the museums to design them in a not intrusive way.

Secondly, the research has shown an emphasis on the dimension of "who does the personalization" protesting the demand of data as a way to adapt to the different learning needs which are a particular aspect of inclusive learning (UNESCO, 2005). It is worth mentioning that in this context, the appreciation of the visitors in the data collection process was highlighted, approving the relative role of the visitor as the provider of information in the construction of museums' public value, as Scott identified it (2010), as well as his critical and participative role as inclusive learning has depicted it. Lastly, with reference to the target of personalization, the results highlighted individuated personalization as the greatest way to respond to each visitor separately in accordance with the central mission of inclusion to anticipate individualities. However, practical barriers to serve each visitor separately were recognized through the research, revealing instead the preference of a categorized personalization process as an easy way to segment the diversity, emphasizing on marginalized or excluded audience segments which are particularly recognized within inclusion theory (UNESCO, 2005).

5.1. Limitations and further research

This paper tried to examine the role of personalized educational products and services through digital means for museums' movement towards inclusion. Examining the quite modern idea of personalized techniques within museums in relation to their lifelong learning mission for the establishment of inclusivity within museums, few limitations arose that could act as incentives for further research.

To begin with, the selection of the units' research was based on three different geographical markets: Netherlands, Greece, and Germany. Therefore, the greatest variety should be investigated. To do so, it can be assumed that the broader research could be further conducted with expert interviews per each individual country.

As explained, museums simply by the virtue of public institutions are needed to be relevant for a diverse audience which can be served by the creation of personalized educational products and services through the usage of digital means. While this paper focused on experts' interviewees, further studies on the user perception can shed more light on the reasons and the assessment of personalized educational products and services as a pathway towards inclusivity. Particularly, as the interviewees also admitted the critical thinking of the visitors is the main source of evaluation of new products and services. Thus, participants' surveys, experiments or observation research on visitors seem quite critical and interesting, helping museums to proceed with the creation of personalized educational products and services through digital means.

Lastly, this study suggested that personalized educational products and services through digital means could be exploited by museums for their transformation towards inclusivity, driven by UNESCO's conceptualization of inclusion in terms of learning. As results revealed most of the participants anticipate personalization in building a personally relevant relationship with the visitors in the general context. Thus, the research could be extended, looking forward towards personalized products and services enabled by digital tools regardless their learning purposes. Accordingly, as a big proportion of the participants declared, further research on the visitors' emotions through the usage of personalized products and services will limit up to the investigation of personalization as a new strategy for museums' enrichment.

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Appendix A: Topic list

Introductory text

My name is Ino Kranioti and I am a graduate student in the Media and Business department at the Erasmus University in Rotterdam. I am currently writing my dissertation in cooperation with Rijksmuseum on museums' movement towards inclusion through the creation of personalized educational products or services through digital means.

First of all I would like to thank you for participating in this research. As I informed you by email, this interview will be a discussion with open questions around your opinion and experiences with inclusive practices and personalized educational products and services. Therefore, the first part of our conversation will be related with inclusion and then we will move to personalization topic.

Let me inform you that I would like to audio record and transcribe this interview for the purpose of my research.

Please not that the interview will not be anonymized and the interview and the results will only be used for the purpose of this disseration.

You are always free not to answer any particular question, if you feel uncomfortable and in case you need any clarification at any time during the interview, please feel free to ask me.

We can begin when you are ready.

Inclusion

1. To what extent inclusiveness within museums is an important topic in the museums?
2. Why do you think museums focus on inclusiveness?
    - *Diversity*
    - *Presence, participation and achievement*
    - *Marginalized audiences*
    - *Improvement and new policies*
3. How do you perceive inclusion in terms of education?
    - What actions have you taken to make your educational products and services more inclusive?

4. Do you think that museums perform well in terms of inclusion? If not, what are the areas that need more improvement in terms of inclusion within museums?

Personalization

5. To what extent do you think that it could be interesting and beneficial for museums to create personalized educational products or services? Why?
6. Why it would be interesting to create personalised educational products for museums?
    - In your opinion, do personalized educational products and services through digital means stimulate learning? If so, why?"
    - Do personalized educational products and services improve the accessibility and the usability of a museum experience? If so, how or why?
    - To what extent do personalized educational products and services respond to the diverse audience?

Implementation of personalization

7. Do you already offer personalized educational products or services so far? If so, what?
    - Can you give provide me with examples?
8. If you had all the means what would you like to personalize?
    - Would you be interested to personalize the content? If so, why?
    - Would you be interested to personalize the user interface? If so, why?
    - Would you be interested to personalize the channel? If so, why?
    - Would you be interested to personalize the functionality? If so, why?
9. What kind of data would you like to have for the creation of a personalized educational products or service?
    - How would you prefer to get them?
    - Do you think it would be better to ask directly the visitors? If so, why?
    - Would you be interested to get the data indirectly?
10. Who are you targeting with personalized products or services?
    - Would you make use of personalized educational products or services for specific groups? What kind of groups?
    - Would you be interested to use them for each unique visitor?

Appendix B: Coding tables

INCLUSION

Selective codes/Themes	Axial codes	Open codes	Supporting quotations from experts
Diversity (11 out of 11 interviewees)	Becoming an open institution for everyone;	Serving whole society; diverse audience; welcome everybody; inviting everyone; connecting art with all people	○ Museum should be able to include as many people in a community as possible- Marthe de Vet ○ People think themselves welcome from all kind of backgrounds – Noortje Bijvoets ○ What I would really call out for is that museums success is no longer measured by visitors‟ numbers but by its visitors‟ diversity”. – Eva Wesemann
Business focus (3 out of 11 interviewees)	Sustaining museums' future;	Public institution; including all the communities; surviving as institutions; becoming relevant to everyone; social responsibility	○ Inclusiveness is the way to guarantee the sustainability of museums in the future- Angeliki Antoniou ○ Museums want to be connected with the public, inclusion is fashion but also a necessity because we need audiences. – NoortjeBijvoets
Accessibility (7 out of 11 interviewees)	Reduction of barriers	Facilitating access to everyone; people with disabilities; physical and mental barriers; technological facilities	○ Inclusion is about accessibility – Annemies Broekgaarden ○ The goal of inclusive practices is to make museum world and life accessible to as many people as possible worldwide. – Marthe de Vet ○ We should show our relevance to society and to make sure that you are actually welcome everyone who wants to visit the museum and make sure that they will have access to what you are doing. – Anouk Heesbeen
Educational mission (5 out of 11 interviewees)	Learning for all	Educating; reaching everyone; schools; learning disabilities;	○ The fact that now we are trying to move form exclusive to inclusive approach as educational part as a whole says a lot.- Anouk Heesbeen ○ From my perspective the key to

		societal layers; lifelong learning; teaching empathy	inclusion is empathy, which means that you enable people to perceive and share their feelings of someone who is somehow foreign to them.- Eva Wesemann
Changing the perception of the visitors (8 out of 11 interviewees)	Barriers of inclusivity	Need for change; internal policies' limitations; lack of inclusive philosophy; listening the visitors; elitist image;	○ There are people that they think that they are not really smart. – Ann Blokland ○ Unfortunately we are keep thinking for groups and not with them to speculate exactly what they are what they are looking for. What I personally miss is go into dialogues with them and the perception of the visitor as well. – Justin Waerts ○ Museums in most people's mind life are places for higher learning classes, they are elitist so it's not relevant for everyone. – Angeliki Antoniou

PERSONALIZATION

Selective codes/Themes	**Axial codes**	**Open codes**	**Supporting quotations from interviewees**
Learning (8 out of 11 interviewees)	Accommodating different interests	Recognizing learning requirements and differences; matching interests; products for diverse audiences; learning styles, increasing knowledge	○ Personalization is critical as a process to cater every single learning preference. – Sander Daams ○ Personalized products or service can provide the opportunity for visitors to be taught by taking into consideration their individual needs and interests.- Justin Waerts ○ Personalized educational products is able to teach a diverse audience in a way that they will be more likely to be taught.- Anouk Heesbeen
	Increasing fun and participation	Youngsters; trigger attention; becoming	○ Personalized educational products or services could let us teach them

		attractive; multimedia experiences; interactive products; providing fun and enjoyment	in a way that they don't consider as teaching. You learn when something attracts you, you find it fun.- Annemies Broekgaarden
	Creating a personal experience	Engaging visitors; memorable experiences; personal learning processes;	o Learning is an experience and when you relate learning experience with a personal product you make the whole learning experience more effective and efficient.- Justin Waerts o Personalized educational products and services stimulate learning especially through experiential stimulation experience. If you are doing something on your own always increase the learning process.- Eva Wesemann
Accessibility/Usability (7 out of 11 interviewees)	Facilitating disabled people	Open museum; bringing people with disabilities; excluded segments; special needs; not regular visitors	o Inclusion apart from diversity includes disabled people, students with learning disabilities and different educational levels. Those are the important segments–Sander Daams
	Language towards comfort	Not complicated languages; welcome people; labeling; feeling of comfort; tour guides	o You are feeling welcome when someone speaks in your language, in a way that you can understand. This is how the feeling of discomfort changes.- Angeliki Antoniou o We are always making sure that we are not using difficult complicated languages, our labeling and text are easy, we want people to feel welcome.- Ann Blokland
	Physical structure	Physical disabilities; excluded audiences; removing physical limitations;	o It's more important that the museum space itself and its the architectural design be able to dictate visitors behavior and their experience.- Angeliki Antoniou o First there is the building. Is it accessible for wheelchairs or do we

		tackling barriers	have the right elevators where all disabled people can use. Also for audiences that apart from physical have other particularities such as mental, deaf and blind people.- Annemies Broekgaarden o We have to start with some basic foundation like making your museum accessible.- Wouter van der Horst
Being addressed to diversity (8 out of 11 interviewees)	Building a personal connection	Connecting visitors with art; increasing feelings; emotional experiences; Tour guides	o I think that personalization will result in a personal connection that will foster empathy which leads to inclusion. If you can share feelings you include people.-Eva Wesemann o You can't connect all audiences in one way and personalized educational products and services are the solution to that.- Wouter van der Horst o The goal is to achieve people have a personal connection that they won't forget it anymore. This is what a meaningful visit means. Something that affected you emotionally. - Ann Blokland
	Tour guides	Human communication; one to one interaction; feeling of welcome; building relationships;	o We train our guides in order to build a personal connection with the visitors.- Annemies Broekgaarden. o It starts with how people are received, from the first person who takes your coat. It starts at the door. If he will open you the door. This offers the feeling of welcome, that this is your house.- Noortje Bijvoets

DEGREES OF PERSONALIZATION

Selective codes/Themes	Axial codes	Open codes	Supporting quotations from experts
Content to segment information (9 out of 11 interviewees)	Making it more personal	Variety of information; well-designed requirements; segmentation of content; matching stories with interests;	o Achieving the dissemination of art and heritage through personalization. - Birte ten Hoopen o When we design personalized applications for heritage we need to incorporate different elements to become successful. One of these is the space itself.- Marthe de Vet
The type of the museum as a critical factor for personalized educational products and services (6 out of 11 interviewees)	Paying attention on museum' identity	Possibilities of intrusiveness; well-designed requirements; information diversity; art materials;	o In Rijksmuseum that has so many different collections is different but Van Gogh's museum visitors want to be taught by the museum and its staff. They need to be helped by them and their knowledge as they are the authority of the institution.- Ann Blokland o We need to pay attention to what kind of museum it is what are people think about it, what are the stereotypes people have about this space and how open they are in personalized educational services. – Marthe de Vet o When you design something you have to remember that is not just the learning goals and the museum content, it's also the whole museum framework and the society within the museum is a part of.- Angeliki Antoniou
Wanting to make user-friendly products (6 out of 11 interviewees)	Enhancing museum experience through user control	Technological capabilities; multimedia potentials; functionalities; visitor-centered products; facilitating museum experience	o The social media for example enable the user to change the color, the image, and the banners. The user has the completely control of the way it looks, respectively museum visit is your own experience and when is personal you need to feel that you control it.- Wouter van der Horst
Personalizing channels for young audiences (5 out of 11 interviewees)	Increasing young's participation	Multimedia experiences; improving interactivity; different learning	o To make your visit very personal, a right and easy way is to connect that with channels that everybody can also use. Such as Instagram or Snapchat, especially for young people – Wouter

		options	van der Horst o People perceive things different and learn different, some learn by images, by words, some by embodiment it is good to have different ways of media. Especially for youngsters those are so difficult to keep concentrate with art.- Nortje Bijvoets
The importance of data collection for personalized products and services (11 out of 11 interviewees)	Visitors' contribution in the data collection process	Age; type of visit; background information; personal interests; learning styles; visitor' style; matching information based on data;	o You need to know what drives someone. A truly personal experience is driven by "who that person really is. -Annemies Broekgaarden o You don't make a decision on behalf of your visitors beforehand. It's a visitors' choice to personalize the content itself.- Eva Wesemann
Targeting to cater diverse needs	Personalization for all but grouping segments with special needs	Consumer research; reaching new audiences; minority groups; targeting people with special needs;	o During the development process of a product we create personas with a name and a biography with a special character and interest. Those are supposed to present a specific target group. But giving them a name and a personal history they became really tangible.- Eva Wesemann o We want to create personalized products for everyone. In this process we could also identify groups that we haven‟t realized before, needs that there were there but you never really achieve to even think about them.- Wouter van der Horst