3.3

Complexities of collaborating

Understanding and managing differences in collaborative design of museum communication

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In the museum literature, collaboration is portrayed as an essential activity of museum practice. Numerous accounts emphasize that collaboration is practiced internally at museums (e.g. Hansen and Moussouri, 2005; Lee, 2004; Macdonald, 2002) and that museums furthermore collaborate with external parties, such as other cultural institutions (e.g. Kavanagh, 1995; Robinson, 2014; Waibel & Erway, 2009), museum users (e.g. Simon, 2010; Mygind, Hällman, & Bentsen, 2015), education institutions (e.g. Boddington, Boys, & Speight, 2013; Søndergaard & Veirum, 2012) and private businesses and consultants of all kinds (e.g. Fischer, 2001; Olesen, 2015; Roberts, 2015). Historical studies (e.g. Schneider, 1998; Star & Griesemer, 1989) have demonstrated that collaboration is not a new museum activity. On the contrary, these studies showcase how museums have engaged in complex collaborative activities for centuries. However, it may be argued that the past decades have seen a rise in the attention to the potentials of collaboration across earlier demarcations, thus resulting in increasingly complex constellations of collaboration (Springuel, 2001; Davies, 2010). In spite of this, the museum literature often deals with collaboration in relation to

overall perspectives and outcomes, rather than on how collaboration is actually practiced as a complex work process across various stakeholders (Olesen, 2015).

Inspired by insights from Science and Technology Studies (STS), this chapter frames collaboration as a complex work process that benefits from a detailed analytical attention. More particularly, we are interested in collaboration in regard to the design of museum communication relating to museum exhibits, exhibitions and media. In the first section, we broadly introduce collaborative design practices in the museum area and give overviews of potentials and challenges of collaborative design by drawing on conclusions from the museum literature. We conceptualize differences as a particularly important factor across dissimilar constellations of collaboration and argue for the value of a detailed analytical attention to the complexities of differences when researching and managing collaborative design of museum communication. In the second section of the chapter, we refer to the manners in which STS-researchers have studied knowledge and technology development processes by various approaches to complexity. Based on our own studies of collaborative design processes in museums, we give examples on how two STS-approaches can be used to investigate differences in order to understand the socio-material practices that come to influence collaborative processes across various stakeholders. By way of conclusion, we discuss how the advocated approach can introduce new directions to both research and management of collaborative design of museum communication.

Potentials and challenges of collaborative design

Museum studies on collaborative design particularly revolve around three different constellations: first, collaborative design internally across different museum staff groups; second, collaborative design across museum staff and external design professionals; and third, collaborative design across museum staff and museum users. These constellations seem to be

particularly important for developing museum communication today, signalling a need for involving expertise about museums, about design and different media types and about usage. Even though this division is simplistic, since collaboration often more or less involves all of these groups, studies on collaborative design of museum communication tend to focus on one of the groups. We therefore find it to be a relevant distinction in the overview of the museum literature on the subject below.

Collaboration across museum staff groups

Museums employ different staff groups that hold dissimilar expertise, such as curators, educators, designers and so on. Studies touching on collaborative design internally across these groups often focus on exhibition design. Indeed, designing a museum exhibition is generally considered to be a team effort (e.g. Dean, 1996; Lord, 2002). The potentials of collaborative design across museum staff groups are often argued to be greatest if the groups holistically take part in all aspects of the process, in contrast to silo culture and linear exhibition-making, where the work of, for instance, curators, is finished before educators become involved (e.g. Grasso & Morrison, 1999; Hooper-Greenhill, 1999; Jung, 2016). Thus, educators can be "forced into a remedial role, making the best of a bad job once the exhibition has opened" (Hooper-Greenhill, 1999, p. 38).

Studies on exhibition design tend to focus on overall perspectives or finished exhibitions, as for instance pointed out by Lee (2004) and Macdonald (2002). However, some studies have portrayed collaborative design practices as messy and complex work processes (e.g. Lee, 2004; Macdonald, 2002; Star & Griesemer, 1989; Yaneva, 2003). A central theme in these studies is the challenge of collaborating across differences between museum staff groups; using words such as "factional warfare" (Macdonald, 2002, p. 260), "battle" (Schneider, 1998, p. 32), "struggles" (Schneider, 1998, p. 32) and "fire-fighting" (Hansen & Moussouri, 2004,

p. 171) to illustrate the potentially intense conflicts occurring due to differences. A variety of theoretical frameworks have been used to understand these differences. For instance, conflicts in exhibition design teams have been argued to be caused by the co-presence of different communities of practice (Lee, 2004; Hansen & Moussouri, 2004), different educational intentions (Lindaur, 2005) or different values (Davies, Paton, & O'Sullivan, 2013). The majority of these studies do not come up with concrete ways of dealing with these conflicts, other than to be attentive to the differences. As stated by Lee (2007, p. 183), differences of opinion arising in exhibition teams should be seen as "the inevitable result of communities of practice coming together to create something new." Thus, conflicts are not necessarily seen as something that needs solving but rather as something that occurs naturally in collaborative environments and holds potentials for innovation. Furthermore, artefacts, such as sketches and prototypes, have been demonstrated to have significance for conducting collaborative design across museum staff groups (Lee, 2004, 2007).

Collaboration with external design professionals

Besides collaborating internally across different staff groups, museums engage in collaborative design with a range of external professionals with expertise in design, such as exhibition design, digital design and interpretation design, etc. Engaging in these collaborations has the potential to bring new knowledge and know-how into museums. Particularly, the increasing use of digital technologies in museum exhibitions (Parry, 2007, 2013; Parry & Sawyer, 2005) has resulted in the need for collaboration with external design professionals. Thus, since the early days of museum computing, studies have noted on the lack of digital knowledge and technical expertise in museums (e.g. Sarasan, 1981; Parry, 2007; Jones-Garmil, 1997). As Sarasan (1981) for instance concluded in a study of the application of computer technology for collection management, museum staff was said to

have “a serious lack of understanding [of] the use of computers.” While the lack of knowledge may be argued to be less of a problem today (Parry, 2013), there are still studies pointing to poor integration of technologies in museums for this reason (e.g. Holdgaard & Simonsen, 2011).

Lack of knowledge and know-how in relation to an area of design expertise may then be an argument for engaging in collaborative design with external design professionals. At the same time, lack of knowledge and know-how is often mentioned as a challenge. Conservative attitudes and inexperience can cause grave conflicts or a situation where the external design professionals need to educate the client (Holdgaard & Simonsen, 2011; Skot-Hansen, 2008; Parry, 2007; Roberts, 2015). This may also result in late or limited engagement of external design professionals. Similar to arguments made about collaborative design across museum staff groups internally at museums, some studies argue against silo culture and linear development processes by pointing to benefits of early and deep engagement of external design professionals (Olesen, 2015; Roberts, 2015). Other studies simply urge museums to be attentive to the level of engagement (Davies, 2010; Holdgaard & Klastrup, 2014). For instance, Davies (2010) finds that external collaborators are not so commonly involved in management planning and key decision-making. This “may be entirely appropriate but it is only a limited form of co-production,” as Davies (2010, p. 318) concludes. The way funding is granted to museum design projects can be a reason for such late or limited engagement (Olesen, 2015, 2016; Clay, Latchem, Parry, & Ratnaraja, 2014).

These challenges are related to the basic challenge of collaborating across differences, which again is a main theme in the literature on collaborative design, here in relation to external design professionals. Thus, challenges of differences in terms of knowledge, know-how and experience may have great influence on the success and extent of collaborative design. Furthermore, differences in terms of concerns, work cultures and languages are mentioned in

the literature (Clay et al., 2014; Davies, 2010; Parry, 2007). Involving a broker with knowledge about different sectors can be a way to overcome the challenge of collaborating across differences (e.g. Clay et al., 2014; Søndergaard & Veirum, 2012). For instance, brokerage can help participants in collaborative processes "to feel comfortable outside their professional 'comfort zones'," as pointed out by Clay et al. (2014, p. 5). Additionally, artefacts, such as sketches and prototypes, have been demonstrated to have a positive role in collaborative design processes across museum staff and external design professionals (e.g. Mason, 2015; Olesen & Knudsen, 2017). However, recent studies point to the need for on-going reflexivity as essential for the success of such measures (Olesen, 2015; Olesen & Knudsen, 2017).

Collaboration with users

Recently, more and more projects that involve users in design processes in museums have occurred (Smith, 2013; Taxén, 2005; Smørdal, Stuedahl, & Sem, 2014; Davies, Tybjerg, Whitely, & Söderqvist, 2015; Mygind et al., 2015), and several studies have researched the potentials and challenges when museums collaborate with users (Mygind et al., 2015). Rationales behind such processes have predominantly been formulated as democratic. Thus, involving users can potentially help museums become more reflective to the multiple practices of cultural heritage in society at large (Mygind et al., 2015; Schorch, 2013; Smith, 2013; Lagerkvist, 2006). Further, such processes can be seen as expressions of "a political rationale" which "implies an attempt at giving voice to a group of people, using a system or an institution to create more democratic processes and goals" (Mygind et al., 2015). However, more pragmatic rationales have also been formulated, such as aims to develop "high-quality user-oriented information technology" (Taxén, 2005; Knudsen, 2016; Mygind et al., 2015) or

to mobilize new visitor groups (Fuks, Moura, Cardador, Vega, Ugulino, & Barbado, 2012; Termini-Fridrich & Shepherd, 2010).

Again, the challenge of collaborating across differences is a main theme. Differences are described in numerous dimensions, such as differences in terms of foci (Lynch & Alberti, 2010), work culture (Giersing, 2012), language (Mygind et al., 2015) and values regarding cultural heritage (Morse, Macpherson, & Robinson, 2013; Fouseki, 2010; Ashley, 2011; Tzibazi, 2013; Smith, 2013). Differences are seen to be challenging, as they can lead to lack of recognition, respect, openness and trust (Smith, 2013; Tzibazi, 2013). When differences arise in relationships with users, museum staff tend not to have sufficiently considered "the full ramifications of co-production in practice" (Lynch & Alberti, 2010, p. 28). Also, when faced with conflicting interests, they are sometimes not ready to let the foreign practices and beliefs be truly influential in museum processes (Tzibazi, 2013; Thumim, 2010; Fouseki, 2010; Lagerkvist, 2006) and neither to openly reject or refuse such influences. Sometimes, they even "deftly avoid … conflict, subtly by-passing differences of opinion and effectively overriding … [participants'] passion and anger" (Lynch & Alberti, 2010, p. 22). Thus, in some studies, differences – combined with museums' inabilities to deal explicitly with them – are considered barriers to success on both the democratic and pragmatic outcome measure levels.

However, some studies point to differences – and the controversies and conflicts arising because of them – as potential possibilities towards more genuine negotiations and dialogues (Lagerkvist, 2006; Fouseki, 2010; Tzibazi, 2013). Here, "unpredicted reactions and developments" should be regarded "as *necessary* for the project, rather than as barriers" (Lagerkvist, 2006, p. 60). These studies also pinpoint that museums' ability to reflect on such controversies are significant for their usefulness and influence on museum practices.

However, there are various – if not conflicting – ideas of what it requires of museums to be

reflexive in collaborative processes with users. Tzibazi (2013) stresses that museums should pursue "institutional transformation" while Morse and colleagues (2013, p. 102) emphasize that museums should operate with well-defined codes of purpose, take an "ethical stand" and thus maintain a clear position and authority in relation to such.

Several studies (Morse et al., 2013; Tzibazi, 2013; Lagerkvist, 2006; Fouseki, 2010; Thumim, 2010) indicate that differences are – if not constituted, then – developed in the encounters between participants, and as Fouseki mentions, museums can even work as "diversifying zones" (2010, p. 188). This points towards the significance of planning, facilitating and managing the activities of collaborative practices in ways that are sensitive towards the development of differences. However, methods to do so have not, with few exceptions, been presented and discussed in the literature. Fouseki (2007) introduced a model for training museum practitioners in negotiations and the management of diversity. In addition, Davies and colleagues (Davies et al., 2013) presented the Museum Values Framework (MVF) in order to help museums reflect on the different management roles ("team leader," "facilitator," "guardian" and "business manager") they take on in collaborations (with both internal and external partners).

Altogether, the literature creates an ambiguous view on collaborative design where especially differences of various kinds are seen to pose potentials and challenges at once. Also, the impossibilities and sometimes undesirabilities of setting up certain aims, codes of purpose and ethics because of the evolving and unpredictable nature of collaborative design processes add to the difficulties of managing such processes. Here the majority of the literature recommends that actors apply their skills of reflexivity rather than certain rules or recipes to help navigate in collaborative design processes. Thinking of the ambiguousness of differences brings our attention to the manners in which STS-researchers have studied

complexity and touched upon questions of how to both understand and manage differences in collaborative work processes.

Ways of differing

Inspiration from STS

For decades, STS have researched the partaking of multiple agencies when developing science and technology (Pinch & Bijker, 1984; Callon, 1986; Latour, 1988; etc.). Scholars within this field have sought to understand the socio-material assemblages of knowledge practices in order to better comprehend what drives technological and scientific development. Studies have shown that different socio-material *modes of ordering* (such as *enterprise*, *administration*, *vision* and *vocation*) form a scientific research laboratory (Law, 1994), and that different practices (such as blood pressure measurement, ultrasound, clinical conversation, rehabilitation therapy, etc.) take part in diagnosing and curing a bodily disease (Mol, 2002). Thus, STS approaches have paved ways for innovative findings about basic processes, by for instance showcasing a well-established research laboratory or a disease as sites of socio-material complexity (Mol, 2002; Law, 1994).

Obviously, processes of collaborative design in museums can be viewed as complex encounters where numerous differences are at stake. As mentioned earlier, differences are thus a main theme in the museum literature on collaborative design, and previous STS-inspired studies of museum practices have made us aware of how museums and their knowledge are made up of numerous socio-material connections (Star & Griesemer, 1989; Yaneva, 2003; Macdonald, 2002; Bennett, 2005; Meyer, 2008; Lee, 2004).

STS not only emphasizes complexity. Another central point is that while the multiple agencies within which science and technology evolve cannot necessarily be rationally

orchestrated, they still, in practice, *co-exist* (Law & Mol, 2002, p. 20). The Dutch STS-researcher Annemarie Mol subsumes attentiveness towards *co-existence* in the following manner:

> … what are attended to are resonances and similarities between, for instance, the mechanics of ways of relating. What is it to differ? How many styles of differing are there, how may different entities or actors both clash and show interdependence, what is the character of the "sides" involved, what kind of materials (and socials) are they made of? (Mol, 2002, p. 115–116)

Co-existence thus terms the manner in which complexity is handled in a socio-material assemblage, and complexity can be handled by a variety of such co-existences, or *styles of differing.*

Following this attention to differing, STS operate with an inexhaustible list of concepts that help comprehend the various types of co-existence (e.g. Mol, 2002; Meyer, 2008; Jensen, 2010; De Laet & Mol, 2000; Star, 2010). For our studies, we have been inspired respectively of the method of "positional mapping" introduced by Adele Clarke (2005) and the concept of "partial connections" introduced by Marilyn Strathern (1991) and applied by, for instance, Helen Verran (2001). "Positional mapping" proposes a method of mapping dissimilar positions in a situation in order to understand how different positions co-exist and evolve across aspects such as social groupings and time. "Partial connections" proposes to search for and understand the generative correlations and mutual influences between different cultural practices.

In our pursuit of better understanding and managing the complexities of collaborative museum design processes, what we particularly suggest to import from STS is thus the approach of examining and discussing the complexities of differing by various foci on co-

existences of difference. In the following, we give examples of how to apply this inspiration into concrete cases of collaborative museum design.

Two examples of collaborative design

Designing museum communication for all or for some? Investigating differences by positional mapping

At an art museum, a design team set out to design three apps. The team consisted of employees from various staff groups at the museum – such as educators, curators and communication specialists – and staff from an external design company with expertise in digital design. The goal of the collaborative design process was to develop three apps for three exhibitions, with the overall aim of developing a digital format for communicating artworks in an innovative way.

The participants in the project often had different opinions and wishes, resulting in many discussions and sometimes conflicts. Particularly one way of differing stood out as a recurring issue throughout the 1.5 years in which the project lasted, namely, how to define the target groups – i.e., the type of users that the solutions were targeted at. There were different opinions about who the target groups should be and, more particularly, how narrowly they should be defined. Simply put, one could say that there existed an opposition between wanting the digital solutions to appeal to a broad range of users and wanting them to appeal to a more narrowly defined type of users, such as, for instance, fashionistas, the creative segment, gadget lovers, etc.

At a first glance, these different opinions could be linked to typical concerns of two arenas involved in the project: The museum arena and the design arena. Arguments for appealing broadly were often accompanied by what the participants articulated as classical museum

concerns about inclusivity, seeing the museum as a place for everyone. A digital solution should therefore be useful for as many as possible. On the other hand, arguments for appealing more narrowly were often tied to concerns about usability, following what the participants tended to understand as a design logic in which a digital solution would be most useful if it was designed for a specifically selected target group. To give an example of this opposition, the team discussed at one of the first meetings in the project an idea proposed by staff from the museum to conduct focus groups with four different types of users: school classes, the museum members club, families and young people. The digital designers questioned this idea, asking, *Are they the target group you want to communicate to?* and stating, *We cannot make a digital solution that appeals to everybody, so you have to dare to make a choice*.

While this opposition could easily be framed as rather simple and static, anchored in different groupings involved in the project, the STS perspectives presented in this chapter provide ways for more careful examination and discussion of the complexities of differing in the situation. For instance, the collaborative design process could be analyzed by the use of positional mapping (Olesen, 2015), a method developed by STS researcher Adele Clarke (Clarke, 2005) within the framework of *situational analysis*. The idea of positional mapping is to map positions in relation to an opposition in the situation studied. In this case, the different opinions on how to define target groups could be mapped. Importantly, these positions should not be linked to individuals or groups in the first place, but instead be represented on their own terms (Clarke, 2005). Thus, the mapmaker formulates positions on the basis of the data and draws a range of maps of how the positions are related to each other. Furthermore, positional maps could be drawn in relation to different periods in a project in order to map the development of positions – thereby illustrating how some positions change, new ones arise and others disappear. For instance, a map of one period might not have any

positions in the centre, while a map of another period might almost only have positions in the centre. In the example, maps were drawn in relation to three periods corresponding to the development of the three different apps. To give an idea of what a positional map could look like, see the unfinished positional map in figure 3.3.1.[1] This map presents a set of basic axis parameters that were used in the analytical work of the example.

For instance, one of the positions in the map could be *we cannot make a digital solution that appeals to everybody*; another could be *the museum is obliged by law to appeal to everybody*. These two example positions would be drawn rather far from each other, since they relate to the opposition under study in very different ways. In a map of a later period, these positions would not be drawn if the positions weren't represented in the data from that later period. Maybe other positions, more or less related to these, would take their places. Or the places would be empty. Importantly, positional maps should never be understood as final representations of a situation but rather as analytical tools for continually challenging one's ordering of the positions under study by visual means. Positional maps can be used for presentational purposes (Olesen, 2015), but it takes a considerable amount of textual explanation, which is why the example in figure 3.3.1 is a rather abstract example.

Using this approach gave way to a more detailed understanding of difference in the situation: a range of positions were expressed in relation to the opposition under study, and these positions changed throughout the course of the process, as did the way the participants related to the opposition. Indeed, while museum staff and design staff at times related to positions linked to what in the situation was largely comprehended as typical concerns of the museum arena and the design arena respectively, they also did the opposite. For instance, after having developed the first app, a new group of museum staff was involved in the project, and some of the original museum staff participants positioned themselves quite strongly in line with

what was initially comprehended as a design logic, saying: *We have experienced that a very specific target group has to be chosen, to whom it should appeal*.

Furthermore, mapping positions made it clear that some positions were very strongly arguing for the one or the other approach, while others were more vague or middle-seeking. For instance, some of these positions portrayed an interesting ambivalence between wanting to target the solutions narrowly but at the same time wanting them to be inclusive. In addition, one of the middle-seeking positions that developed throughout the course of the project took the difference into account in another way. This position argued that it might be possible to combine the approaches of targeting broadly and narrowly by working with several specifically defined target groups and not just one specific target group. For this to be successful, another solution format would be more appropriate, and the design team therefore quite radically changed the materiality of the project: While the original intent was to develop mobile apps, the final solution was an app for stationary iPads positioned at different locations in the museum. The larger screens of the iPads and their relation to only one artwork at a time made it more appropriate to provide different entry points targeted dissimilarly. In this way, a middle-seeking position resulted in a new idea that became defining for the final app developed.

This solution should not be seen as a final consensus defining the situation but rather as a complex resolution formed by the continuous interplay between different positions. The differing was comprised of multiple positions that related to and developed each other in complex ways throughout the project. The collaborative design process was managed in a way that allowed these different positions to co-exist and evolve. Sometimes the participants consciously related to or "talked to" certain positions, and this attention to positions seemed to have great significance for the solutions developed. Thus, the decision to change the solution format was anchored in a position that deliberately sought to combine or order other,

differing positions. In that way, differences were managed not as a static challenge but as something worthy of exploration that had the potential to catalyze new ideas about how to communicate artworks digitally. While the ambition to develop innovative digital museum communication catalyzed collaboration across participants from different departments at the museum and the external design company, the innovation itself only happened due to the manner in which the differences across these various participants were managed.

To sum up, examining the complexities of what might at first glance seem a simple opposition paved the way for a richer understanding of differing in the situation. In addition, this examination gave insight into how differences were managed in order for the participants to develop new ideas about how to communicate artworks digitally.

Places of facts or experiences? Differences as partially connected

At a cultural history museum, a digital platform for mapping and describing Danish rock music history was designed (Knudsen, 2015, 2016). The platform was developed over a 1.5-year period collaboratively across museum staff, museum users, a digital designer and other professional partners, such as a venue owner and a rock journalist. It was envisioned by the museum that the meeting places of Danish rock music, such as music venues, festivals, youth clubs, etc., should be mapped and described by digital content, such as collected or created pictures, videos, written text, etc. These materials were to be uploaded at the digital platform by both users and museum staff in an ongoing process.

On the surface, this collaborative design process also presented a rather simple opposition, here between imaginations of either an experience-based or a fact-based digital mapping. For instance, it was discussed what the primary content of the site was entitled to document: one participant suggested that site-specific hallmarks were to be identified for each of the meeting places of rock music put to the map. This would include descriptions of establishment phases,

organization structure, music genres, architecture, etc., thus a rather fact-based mapping. As a reaction to this, several participants flagged *the experience of rock music* as another, maybe more important, issue to be documented on the map. They stated that the portraits of meeting places of rock music would necessarily have to contain the specific personal reactions, reviews, stories and memories of fans and musicians who had engaged with rock music in these places.

However, when taking a more detailed look at the different versions of the digital platform emerging in the design process, it was not always an overall opposition between two routes that appeared. Rather, myriads of different issues were at stake. For instance, topics of how to make the communication format most attractive were raised:

> Rock music librarian: I simply have troubles reading long passages on a screen, I will rather listen, I think it's excellent listening to someone telling a story.

In addition, the issue of use and users were discussed: Some participants emphasized that *attracting the normal user* was one of the most important missions of the digital platform. While others suggested that the platform should appeal to historians (amateurs and professionals) who already had an interest in rock culture as a historical subject and were searching for specific information on the places of Danish rock music.

> Rock journalist: I don't think of the map as something to be sold as an experience. The map should be a good tool for those who have an interest in rock music history or local history.

As can be seen from these excerpts, there were several differences at stake in the formulations of what purposes the map was going to serve. Some were pointed at the topical content, others at the format of content (between the fact-based or experience-based), others at the navigation and entry points, and again others were occupied with discussing who the users of the platform should be.

At the same time, the participants very often made use of dual oppositions in their arguments. This could be seen when the spoken-for design idea or direction was substantiated by a negative description of its imagined opposite. Oppositions thus helped shape and specify the participants' imaginations and design ideas regarding the map. At the same time, the oppositions related to many dimensions in the design process and certainly did not all centre around the same issue. Table 3.3.1 shows a list of oppositions articulated by various participants in relation to the design object.

How oppositions played a strong part in the collaborative design process could be understood by the concept of *partial connections* (Strathern, 1991; Verran, 2001). This concept pinpoints difference as something that emerges and is practiced in interdependent relations and thus within partial connections. Difference is therefore not a latent, logical and essential phenomenon *between* humans but rather something we develop by our *connections*. Difference is something we practice and manage "by contingently separating or connecting" (Verran, 2001, p. 30). As differences are emergent, they also vary and can be moved in several directions. Furthermore, differences can move into either simpler or more complex constellations.

With this attention in mind, the participants in the collaborative design process could be seen to gradually order the divergent directions and different oppositions into a simple and overall opposition between *facts* and *experiences*. For instance, one of the museum staff representatives described the results of a group discussion to the larger group by saying: *We spent ample time talking about facts versus experiences …* The discussion was much more complex than that, but in this way, the participants tended to relate the opposition between facts and experience to all issues concerned with designing the digital map, such as the platforms' purpose, users, media, etc. Thereby, the many shades of difference, as well as their changeability, were not maintained in the further implementation of design ideas. As a

consequence, the map was designed with a clear and static division between the *factual* and the *experience-based* content. A division which also clearly demarcated a division between the factual rock historians and the experience-searching "normal users," between the encyclopaedic and the personal content, the factual and the social media, the system and the feelings, etc. In this way, many diffuse and vaguely related working oppositions were managed into one collapsed and more static overall opposition.

By understanding difference through the analytical framework of partial connections, we get an understanding of how various differences emerged, co-existed and interacted, even though one opposition was eventually conceptualized – and practiced – as the overarching opposition by the participants. As in the other example, the ambition to develop innovative digital museum communication catalyzed collaboration across various partners – in this case, staff from different departments at the museum, museum users, a digital designer and other professional partners, such as a venue owner and a rock journalist. However, the differences that transpired from this complex constellation came to be managed in a rather simplistic way. Thus, the design largely centred on what came from discussions of the one opposition, and other oppositions or ways of differing were not really maintained and explored.

Detailed analytical investigations of differences could have paved way for a richer understanding of the oppositions in the situation as well as the way they were managed. Instead of generating a single dual division in the collaborative process, as well as in the design of the platform, the participants could have thought along, and maintained, the lines of vague multiple directions regarding both content, users, media, etc. The many different directions towards the Map of Danish rock history could have been separately explored and concretized more thoroughly, for instance in design sketches and prototypes. In this way, each different version of the platform might have gained a more concrete and less conceptual form before being drawn into co-existence with other versions (Olesen & Knudsen, 2017).

Possibly, this could have paved the way for a digital platform making more sense in a complex and hybrid landscape of content and communication. A landscape where differences are constantly generated and changed, as they emerge and dissolve in their concrete and materialized relations to each other, and thus change their *ways of differing*.

Conclusion

As described earlier, a great variety of challenges and potentials of collaboration are mentioned in the museum literature on collaborative design. In this chapter, we have conceptualized difference as a common denominator and somewhat overall factor of particular importance. Thus, we find that differences of numerous kinds are presented as challenges, but also, to some extent, as potentials in all of the three constellations of collaboration highlighted (across different museum staff groups; across museum staff and external design professionals; and across museum staff and museum users).

Inspired by the attention towards complexities applied within STS, we suggest that detailed analytical investigations of differences can inform our knowledge about the challenges and potentials of collaborative design processes. As discussed in the examples, we can for instance understand differences and the ways they unfold, change and influence a design process through STS concepts of *positionality* and *partial connections*. Mapping positions on their own terms, we see how different positions change and mutually inform each other in complex ways across aspects such as social groupings and time. Here, differences are understood as a potential, as they foster new positions and ideas that traverse through divergent types of expertise and logics. In line with this, we can move towards focusing on differences as generative and emerging and thus as something inherent in a collaborative design process rather than in the partaking participants. Thus, approaching differences as consequences of partial connections that evolve into either vague parallels, multiple

directions or strong oppositions can give us a view as to how processes unfold differences in dissimilar ways.

The two examples presented in the chapter illustrate how such developments can be understood by various approaches to complexity. The act of investigating difference is approached dissimilarly in the two examples. In the first example, difference is approached *internally*, since the focus is on *one difference* and how that difference holds a complexity. Here, the oppositional view on how to target users is conceptualized as one key opposition in the collaborative design process at the art museum. By use of positional mapping, the example illustrates how the opposition comprised a myriad of different positions and their interactions – thus internally complexifying the understanding of the too-simply-framed opposition. In the second example, difference is more overly approached *externally*, since the focus is not just on one difference but on *many differences* and their interaction. Here, the example points to how one opposition that is conceptualized as overall to the collaborative process is actually collapsed from a range of other oppositions – thus complexifying the too-simply-framed opposition externally. Importantly, both approaches can be used to complexify differences internally and externally. However, we have sought to showcase dissimilar approaches to a detailed analytical attention to differences. Thereby, we also emphasize that dissimilar ways of operationalizing the STS perspectives have potentials for introducing new insights into the understanding and management of collaborative design of museum communication.

In terms of managing these collaborative design processes, looking at ways of differing can, for instance, provide insights into how creative thoughts depend on the formulation of oppositions. At the same time, oppositional differences can turn out to be exclusive and simplifying in a complex collaborative field of directions. Such views on the formations of difference may provide hints as to how differences can be handled in divergent ways, thus

giving food for reflection on how to manage collaborative design processes. Depending on the concrete situation, some activities will seem more likely than others to either spark oppositions into being or to keep the differences in vague parallels. Also, managers may choose to explicate or frame differences in certain ways to try to achieve or avoid certain discussions. An ongoing and detailed attention to the complexities of differing can thereby be a useful part of a design strategy.

Thus, the STS perspectives presented in this chapter can introduce new directions to both research and management of collaborative design of museum communication. For researchers, these perspectives function as tools for obtaining a more nuanced and complex understanding of the challenges and potentials of collaborative design across various stakeholders. For managers, a detailed attention to the complexities of differing can be essential for the generation of new ideas and the ability to collaboratively develop communication solutions that adhere to an increasingly complex media usage in today's museum world.

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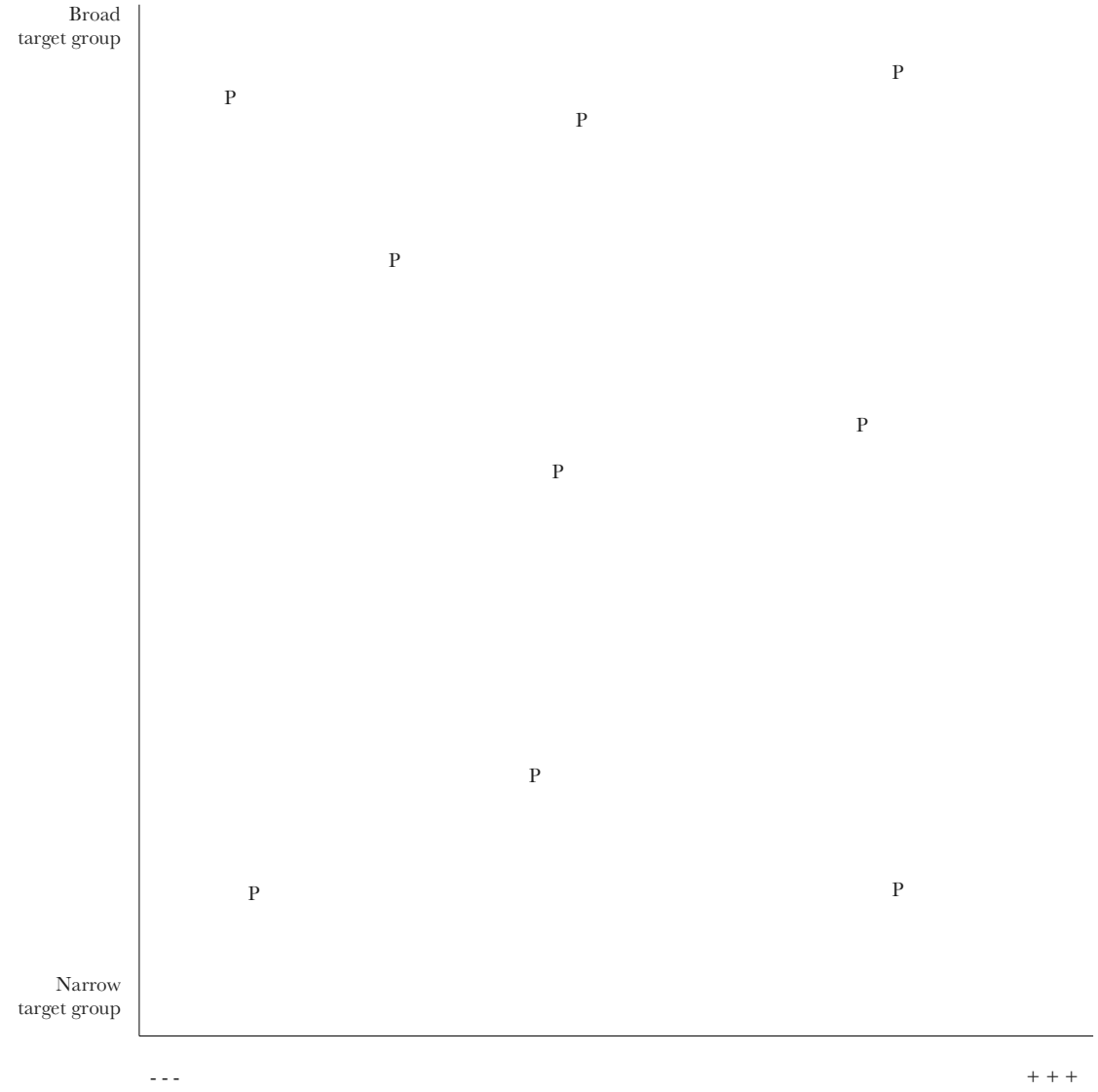
3.3.1Figure 3.3.1 Unfinished positional map. The “P”s indicate where positions, for instance, could be inserted.



3.3.1Table 3.3.1 A list of oppositions articulated by participants in the design process towards a digital platform mapping the places of Danish rock history.

OPPOSITIONS	
INFORMATION TOOL	EXPERIENCE
EDITED	PERSONAL
HISTORICALLY ANGLED	“EVERYTHING”
FACTS	ENTERTAINMENT

FACTS	SOCIAL
ENCYCLOPAEDIA	FAN SITE
ENCYCLOPAEDIA	PERSONAL
ACADEMIC	CONCERT EXPERIENCE
SYSTEM	FEELING
SITE-SPECIFIC	EXPERIENCE
THE HISTORY OF DENMARK	MEMORIES

[1] For other visual examples of positional mapmaking, see for instance Clarke (2005) and Olesen (2015).