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To What Extent Is Public Participation a Compass for Designers?

1 Introduction

As inclusive designers active in the cultural sector (museums, public institutions, heritage sites), we are sharing our experience because we are convinced that some of our methods and issues overlap with those of space design and architecture more generally. Inclusive design takes into account a range of contextual disabilities (physical, motor, mental, generational, material, etc.) in order to design spaces and objects that are suitable for as many people as possible. In this way, it doesn't follow the universalist aim of design for all.[1] Inclusive design aims to make spatial environments (orientation, finding one's way around), objects (mental representation of a subject, a form), and content accessible to visitors, thereby avoiding the pitfall of standardized design, whose legitimacy lies solely in compliance with regulatory standards. Inclusive design poses an additional requirement: to find the common denominator in the design project that will make sense to the greatest number of people (user centric process), rather than invoking accessibility and ergonomics standards that are supposed to work systematically and for everyone. In fact, each designed solution is a tailor-made response to the different contexts mentioned above. Designing for end users with diverse needs (which includes people with permanent, temporary, and situational disabilities, which means everyone at the end) requires knowing and understanding their needs and integrating them into a co-design process. We have developed specific user participation methods with the most accurate and methodical approach possible.

1 Francesc Aragall founded the Design for All Foundation in 2001, defending a design that aims to create environments, products, and services that can be used by everyone, without the need to adapt or specify them for certain groups after they have been designed (Aragall & Montana, 2012).

2 Co-Design and Inclusive Design: Where Does Public Participation Fit in?

Testing an inclusive exhibit with the public means assessing its usefulness and user-friendliness. It also means assessing its legitimacy as a designer. Here we present our different co-design methods and how they reflect our understanding of the changing uses of these exhibits.

Inclusive Design and Co-Design: Close Links

By giving users a key role in the design of exhibits, inclusive design can be considered as co-design. Co-design places the user as an actor in the process and not just as the object of study in the design process. Sanders and Stappers (2008) point to the emergence of co-design in Scandinavia in the 1970s with "participatory design." All stakeholders (employees, partners, consumers, users, citizens) are heavily involved in the design process to ensure that it meets their needs and is useful over time. Inclusive design takes account of the "extreme users"[2] and even involves them in the design process. The inclusive design approach involves the participation of users (blind, visually impaired, hearing impaired, people with intellectual disabilities, people with reduced mobility), at the very least to express their needs, test prototypes, or evaluate the designed solutions once they have been installed. We have developed a working methodology for involving users at different stages of the process, depending on the level of complexity of the project. We distinguish four stages at which it is possible to involve users: upstream of the project, during the definition of the key design concept, during design tests, or during post-installation (Table 1), as well as levels of project complexity beyond which the impact of user opinions on the final decision must be carefully studied (see Fig. 1).

Taking account of the user's experience, needs, and expectations is an essential part of an inclusive design approach. We use two methods: one involves users in the form of so-called non-conscious participation and the other uses so-called active participation (we will define these below). Sometimes, depending on the objectives of the tests, they are combined.

2 According to Stanford's d.school, "to determine who is an extreme user, you must first ask yourself what aspect of your design challenge you want to explore to the extreme" (Mazer, n.d.)

Figure 1: Photos of sessions with users at the Natural History Museum of Karlsruhe during a focus group: active participation method in three phases of the project (key concept phase, conception phase, post-installation) (Photo: Mathias Vielsäcker, Naturkundemuseum Karlsruhe).

Active Participation of Target Audiences and User Tests

At the start of our activity, we spontaneously used the active participation of users with disabilities to test our concepts (see Table 1). The method: a group of people – often recruited by the institution running the mediation project or via our network – takes part in a workshop to test the exhibits. They are approached and observed within a specific framework and informed about the purpose of collecting their feedback and what we are going to do with it. At the start of the company's learning curve, not only did we have to improve our design thanks to the testimonies of these target audiences, but above all we had to convince the institutions of their legitimacy. We had to deal with the difficulties involved in recruiting testers and in ensuring that we were representative of the various disability situations, as well as with the limitations associated with the fact that these opinions – like all opinions – are subjective. The question of the representativeness of these testers remains a delicate one: the subject of disability remains relatively taboo and

is dealt with only on the fringes of public policies. For this reason, the very small amount of statistical data on museum attendance by people with disabilities (partly for reasons of personal data protection) makes it difficult for those responsible for accessibility and inclusion to make the case for their outreach projects (Muxxe, 2020).

Table 1: Public participation during the project. This table enables us to distinguish levels of participation by type of audience and by phase of the project.

Observation method	Active participation		Non-conscious participation	
Type of audience	General audience	Audience with specific needs	General audience	Audience with specific needs
Project phases				
Upstream		Museu Nacional d'Art de Catalunya		Possible, as it is in fact an on-site assessment before the start of the project
When defining the key design concept of the project	Natural History Museum of Karlsruhe	Museu Nacional d'Art de Catalunya	Not feasible	Not feasible
During the design phase (x times)	Natural History Museum of Karlsruhe	Natural History Museum of Karlsruhe Museu Nacional d'Art de Catalunya	Not easy, but feasible in the form of on-site experiments (not experimented yet)	Not easy, but feasible in the form of on-site experiments (not experimented yet)
Post-installation	Museu Nacional d'Art de Catalunya	Natural History Museum of Karlsruhe Museu Nacional d'Art de Catalunya	Louvre Museum (Pavillon de l'Horloge) Museu Nacional d'Art de Catalunya	Possible (not experimented yet)

Observation of Spontaneous Uses by the General Public

Active participation has its limits, such as the fact that it takes into account the opinions of a small number of people to validate a design direction, or, conversely, that it fails to question the general public when exhibits are placed in the general visitor's itinerary, accessible to all. This is why we started using the non-conscious participation of the general public: visitors are observed on site, discreetly, using the shadowing technique. The aim is to observe the spontaneous ways in which the public uses the inclusive exhibits and to see whether or not these solutions, initially designed for those who cannot see the cul-

tural contents or artworks because of their disability, help to enrich the visitor experience for all visitors with new rituals, as suggested by Yves Winkin (Winkin & Doueihi, 2020). The audience study carried out at the end of 2019 by Muxxe at the Louvre (in the section "Pavillon de l'horloge") was the first of its kind for Tactile Studio: it observed the discovery of 12 tactile exhibits by the general public in order to ascertain their interest in them.

Combining Methods of Observing Usage: As Instructive as It Is Complex

Carrying out a study of usage that combines the observation of all visitor profiles means clarifying visitors' expectations in terms of museum experiences and no longer in terms of their supposed abilities according to their profiles. One can here consider the example of the inclusive path recently created for the Museu Nacional d'Art de Catalunya (MNAC) of Barcelona. This audience study, carried out in June 2023, ensured that six inclusive stations (out of the 21 created) were correctly positioned in relation to the original artworks and that they were ergonomic; the study then observed the positions of visitors' bodies, their attention spans, and their interactions with the exhibits and/or with each other. During the test, some sighted people thought that they were expected to put themselves in the shoes of a blind person, to understand a work of art without being able to see it, and so on. The "shadowing" observation carried out at the same time was of great interest because it enabled us to find out what spontaneous use is made of the exhibits by visitors in general, rather than by a visitor who knows he or she is being observed and may be tempted to conform to a visitor profile (the one he or she represents in this test). Over and above the uses of the exhibits themselves, we also looked at how visitors naturally wander around the exhibition rooms and what their other points of interest were.

As designing visitor experiences is a work in progress, we have one more experiment to carry out: combining different audience profiles in a test session. We want to carry this out because, on the one hand, it's closer to the reality of a visit to the museum, and because, on the other, we assume that visitors will not remain insensitive to a visitor's behavior when faced with an artwork or an exhibit that is different from their own. The general public can learn from the strong attention paid by the visually impaired (as at the MNAC). This encourages us to reconsider some people's abilities: I cannot see (or can no longer see), but I know how to take the time to observe, listen, and explore sensory objects; I can see but I cannot / can no longer can take the time to explore a tactile object for more than seven seconds; I cannot /can no longer listen to a story all the way through; etc. And, conversely, if a visitor comments aloud on the artwork or the exhibit, this benefits the visually impaired next to them, in addition to the comments made by the person accompanying them.

3 Broad Public Participation: Light or Thickening Fog for Designers?

These methods of participation have had a major impact on the visitor experience, on the organization of institutions and, above all, on the design methods of designers and architects.

Impact on the Visitor Experience

Observing and analyzing visitor behavior and reactions, whether non-conscious or active, makes it possible first and foremost to adapt the design of objects and visitor spaces, for example, to the average level of understanding during tests. Gathering feedback from users before the final stage of the project means that content can be adjusted (in terms of wording and layout) and that the combination of content and interaction models can be adjusted to improve comprehension, ensuring that as many people as possible have their own experience of the topic and making it more user-friendly. For example, as part of the project at the Natural History Museum of Karlsruhe, we validated the positioning, content, and length of the sign language videos with a hearing-impaired tester during the design phase. He then gave a positive opinion during the evaluation of the project and emphasized the relevance of this choice for the overall understanding of the exhibition.

The active participation method ensures a high level of visitor involvement. Visitors are able to understand the content all the better because we have asked them about the relevance of the design solutions developed. In all our projects, we found that the testers were highly motivated to share their experience with their network. Their enthusiasm and spontaneous promotion of the exhibition encouraged the museum teams to continue listening to user needs.

We have also observed a high level of visitor satisfaction during these user participation sessions. In both our approaches (non-conscious / active), user satisfaction is an element that we observe. Testing the content and design of the space enables us to confirm elements and optimize them. So it's fairly noticeable that visitor satisfaction is higher, because visitors' opinions are taken into account and their use is likely to be improved. The final phase of the project with users, which is the evaluation, takes place when we ask visitors about their satisfaction, particularly in the active participation method. As for the general public, if they are informed of the user tests, they may be satisfied (and even more confident in the institution) if opinions other than those of the experts are taken into account. This was the view expressed at the end of the session by all the members of the general public who took part in the evaluation carried out at the Museu Nacional d'Art de Catalunya (MNAC) in Barcelona.

Impact on the Institution

For the cultural institutions that were involved in the process of including users through the design of their space, the impact was significant. Also very significant was the enhancement of their content.When we organize the project presentation, test, and evaluation sessions (active participation method), we call on the local network of these institutions for two reasons: first, because the local partners, associations, and visitors already have a high degree of commitment to and interest in the institution, which strengthens their link with the institution; second, because they are the best relays for the institution's offerings.

As cultural institutions are involved in user participation sessions, they are able to refine their understanding of their visitors' needs and uses and to gain greater precision in developing their exhibition projects. For example, the Natural History Museum of Karlsruhe mobilized all its teams to work together on the "Von Sinnen" temporary exhibition project and capitalized on this knowledge to plan the next temporary exhibition.

Impact on the Work of Designers

Compared with the many marketing studies carried out in supermarkets or consumer areas, studies on the use of museum facilities and spaces are rare. By analyzing how visitors move around, what they pay attention to, and how much time they spend on the content, we can draw conclusions. This type of study is more reliable when we use the non-conscious participation method (i.e., the visitor is not aware of being observed). The conclusions drawn from the observation enable designers and architects to improve the current project and be more relevant for future proposals. The object can be adapted or better thought out beforehand thanks to the study of uses; the scenography and areas of movement can be optimized so that the space is consistent with the hierarchy of content and the visitor's level of attention. The study of the uses of inclusive sensory stations at the Louvre (Muxxe, 2019) showed the that the visitor's level of attention is highest at the entrance of an exhibition room, and that it decreases irremediably as the visitor progresses, regardless of the room that she or he enters.

Insofar as a designer or architect has to take into account the constraints of each new space or each new object that she or he designs, taking into account the lessons learned from past observations saves a considerable amount of time during a new design phase. This gives the designer a more precise understanding of visitors' needs and of the criteria to be taken into account in the design when ensuring that the visit flows smoothly, leads intuitively to the points of interest, and provides an enriching and enjoyable experience for a very wide audience. Of course, you might think that setting up user participation methods would be time-consuming, because it would be an organizational burden. In our

experience, however, they actually save a considerable amount of time on design decisions. The importance of the legitimacy of the decisions supported by these methods is not negligible.

In the course of our work with cultural institutions and during the implementation of user participation methods, we have also noted a significant development in the agility of the teams. Thanks to these methodical observation sessions, the designers and architects have created a real toolbox for inclusive design and are gaining in relevance as the projects progress. We think it's important to be aware of this and to think about capitalizing on the knowledge acquired and the practical situations that have arisen. This experience can encourage teams to extend an inclusive path, as we found out in 2021 for the Musée national des Beaux arts de Québec following a conclusive user test.

Table 2: Level of user involvement in the final decision, depending on the complexity of the project

Level 1 – user experience > professional expertise	**Level 2** – user experience < professional expertise
What we observe (taking account of users' opinions)	What can be deduced from observation 1 (work of a space and UX designer, deductions from level 1)
orientation interest motivation understanding comfort appreciation	hierarchy space and content/narrative orientation combination of transmission formats

4 Conclusion

Unsurprisingly, the participation of the public in the design process brings with it a paradigm shift for designers. We have the intuition that what is most decisive in this change is openness to considering other senses – i.e., other than the visual – in design proposals. Now that they have become multi-sensory, they aim to cover the diversity of audience profiles and their learning styles. The contribution of the public to the design of a project also changes the design process: involving the user during the design process means that design choices can be validated or changed. This process of iteration is beneficial: as designers and architects become used to asking the public to test their concepts and products, improvements will become finer and more sensitive, and the final user experience will become more intuitive and satisfying.

Admittedly, the experiences described here take place in a museum or cultural context, but they can be extended to public spaces, where the issues of orientation and understanding content are essential. This is not a prescriptive framework, but rather the creation of a practical knowledge base that can be partly reused in other contexts. The role of the designer is therefore to base the final design choices on knowledge that has been "augmented" by the audience in all its diversity. This is what determines his quality as a designer.

Of course, the scope of our contributions is limited by the small number of projects where participatory methods have been used and by the relative novelty of this process. We are convinced that this field of action needs to be developed in order to understand the impacts, which are certainly even more far-reaching for the mission of designers and architects. Each cultural site is so unique that the method of participation is very often adapted and therefore personalized. In particular, the observations relate to various subjects, or we measure different elements depending on the museum and the public (the project at the Karlsruhe Natural History Museum, for example, was in a space of 700 square meters, whereas the MNAC itinerary concerns a space of several thousand square meters, so the observation of the wandering is totally different and not comparable). The positive impacts mentioned, such as the agility of the design teams, are also observations that we made based on a small sample of teams (less than ten), so it would be interesting to check, by means of a larger-scale study, whether the impact is confirmed in other design contexts and in other places.

5 References

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