Investigação em Design e o seu Papel Sociocultural: A oportunidade crescente do Design Participativo como Metodologia para a Inclusão na Literacia Musical

Design Research and its Social-Cultural Role: The rising opportunity of Participatory Design as a methodology for inclusiveness in musical literacy

Inês Antunes
ORCID ID 0000-0003-3233-0357
inesp.antunes@gmail.com
UNIDCOM/IADE

Carlos Rosa
ORCID ID 0000-0002-2663-199X
Carlos.Rosa@universidadeeuropeia.pt
IADE/UNIDCOM

Flávio Almeida
ORCID ID 0000-0002-5228-8099
flavio.almeida@ubi.pt
IADE/UDICOM, UBI

Design, as a discipline, has had a sociocultural role since its inception by having the responsibility of, combining aesthetics and function, responding to the needs of the population. In the 20th century, especially with the post-World War consequences, Design gained a projection of its social role and designers increased the urgency with which they used their knowledge to elaborate answers, strategies and methodologies so that they could better respond to the growing needs. of people. The social, cultural and political changes around the world influenced both Design and designers, and several movements emerged, such as Design for All, Universal Design, Human Centered-Design, Accessible Design and Inclusive Design are examples of this continuous development of their socio-cultural role. Participatory Design as a methodology was also created to respond to Human Rights, in the 1970s, in Scandinavia, and had a strong impact on Design Research. The social and cultural role of Design is unquestionable and the potential for expanding the public covered by research in the area, using Participatory Design for inclusion projects is, in fact, a natural development of the methodology. From its use, several opportunities to improve social and cultural issues can arise and be answered from the point of view of the public - the group of people for whom the design is made - or user - the person who will use the product resulting from the design. - and not the perception of an individual external to the group and its reality; that is, the designer becomes an agent of change together with the individual(s) for and with whom the project - and its result - is developed. In this article, we intend to explore the methodology of Participatory Design and build a bridge between this methodology and Inclusive Design, as well as organize reflections on this subject and how to put this methodology into practice as a resource for inclusion, and taking as a case of state the development of an investigation with children, between 5 and 7 years old, that crosses musical literacy with Information Design.

Inês Antunes, Carlos Rosa, Flávio Almeida

325

O Design, enquanto disciplina, tem um papel sociocultural desde a sua criação ao ter a responsabilidade de, aliando estética e função, responder às necessidades da população. No século XX, sobretudo com as consequências pós-Guerras Mundiais, o Design ganhou uma projeção do seu papel social e os designers aumentaram a urgência com que utilizavam o seu conhecimento por elaborar respostas, estratégias e metodologias, para que pudessem responder melhor às crescentes necessidades das pessoas. As mudanças sociais, culturais e políticas ao redor do mundo influenciaram tanto o Design e os designers, que surgiram diversos movimentos, tais como, Design for All, Design Universal, Human Centered-Design, Design Acessível e Design Inclusivo são exemplos deste contínuo desenvolvimento do seu papel sócio-cultural. O Design Participativo como metodologia também foi criado para responder aos Direitos Humanos, na década de 1970, na Escandinávia, e teve forte impacto na Investigação em Design.

O papel social e cultural do Design é inquestionável e o potencial de expansão do público abrangido pela investigação na área, com utilização de Design Participativo para projetos de inclusão é, de facto, um desenvolvimento natural da metodologia. A partir do seu uso, diversas oportunidades para melhorar questões sociais e culturais podem surgir e ser respondidas do ponto de vista do público - grupo de pessoas para o qual o design é elaborado - ou usuário - a pessoa que vai utilizar o produto resultante do design -, e não da percepção de um indivíduo externo ao grupo e à sua realidade; ou seja, o designer torna-se agente de mudança em conjunto com o(s) indivíduo(s) para e com quem o projeto - e resultado do mesmo - é desenvolvido. Neste artigo, pretendemos explorar a metodologia do Design Participativo e construir uma ponte entre esta metodologia e o Design Inclusivo, bem como organizar reflexões sobre este assunto e como colocar essa metodologia em prática como recurso para a inclusão, e tomando como caso de estado o desenvolvimento de uma investigação com crianças, entre os 5 e os 7 anos, que cruza a literacia musical com o Design de Informação.

Introduction

The 20th Century brought several challenges in terms of Design. After the World Wars, mainly the second one, and with the rising of special needs in the population due to physical impairment due to war's results, several accesses started to be questioned by designers and architects. The places that used to serve a massive part of the population were now considered out of date due to the rising needs of the users; this led to the term '*barrier-free design*', which rise mainly in the United States of America, during the 50s and these solutions seemed to serve the overall population during the following years. However, with the faster evolution of science and medicine, the population was also growing older and living longer lives, leading to a rising in physical and visual needs. All this new social context led to the development of '*accessible design*' or '*design for all*' concepts in the 1970s; in this new scenario, both products, physical accesses and services become more '*user--centred*' designed, intending to consider all the population, including the disabled people. Participatory Design, rises as a research methodology in the 1970s and 1980s, in Scandinavia, as a way to engage workers in workplace decision making, being the political and socio-cultural reality lived back then, essential to its creation. ‹‹(...) *This early Scandinavian work was motivated by a Marxist commitment to democratically empowering workers and fostering democracy in the workplace*›› (Spinuzzi, 2005). Participatory Design was once developed to answer to workers' rights and easily grow towards new technologies development. The Participatory Design strategy is different from all others because it intends to develop work '*with the users'* instead of '*on behalf of the users'*. This innovative reality had given

a new holistic view of Design and obtained outcomes that suited people's needs. It was only in 1997 that the Principles for Universal Design were defined by the Center for Universal Design; in these principles, we can find guidelines for making design accessible for the main needs of the population. The critics of these principles and theories believe the designation 'Design for all' is mistaken because it is impossible to make a design that answers to all individuals' needs; however, it is important to understand that both 'Accessible Design', 'Design for All' or 'Inclusive Design' empowered designers to answer to the main needs of the society, which includes people of all sizes, ages, abilities or disabilities, social background and cultural characteristics. The need to improve and redefine this knowledge changed through the years as a result of several changes in society:

> ‹‹*The need for redefining inclusive design arose from two parallel global changes. First, while inclusive design is indeed a positive track in the overall sphere of industrial design, it is hindered by this very definition—the need to offer viable solutions for the industry. Second, facing global tectonic shifts ranging from social, political, cultural, and economic changes led us to the need for value-oriented design*›› (Gasparotto et. Al, 2021).

Considering Design has a responsibility to improve people's lives when we consider Inclusive Design we intend to focus on emphatically answering the needs of the defined public and making the 'artifact' as accessible as possible (engaging the most of human diversity). Design Research, rises in the 1960s and supports the innovation in the area of expertise as a theoretical matter, contributing with useful terms, boundaries and ways of thinking by Designers (Atkison & Oppenheimer, 2016). By all meanings, Design Research aims to ‹‹*(...) improve the quality of products and to reflect on the transformation of design practice while at the same time contributing to a greater understanding of design as a social phenomenon*›› (Margolin, 2010). As Designers, we are entitled to detect these needs and perform a responsible answer to them; and this includes, not only, employment and workplace reality, but also social and cultural inclusiveness worries. ‹‹*While usability and accessibility testing is valuable in order to uncover usability and accessibility problems, evaluation by itself is (...) mainly a means to identify problems, not to provide solutions*›› (Fuglerud & Sloan, 2013). When thinking about developing solutions and new ways to engage some problems, Participatory Design should be considered a quality methodology for Design Research. And this is because it is characterized by having the designer to experience the needs of the public/user to build solutions as an 'artifact' together, in an unquestionable inclusive way. This can offer essential information that - if carefully handled - can help to identify previously unseen or not highlighted issues and contribute to innovative strategies and potential solutions. Through the decades, Participatory Design had been em-

braced in different areas of the 'artifact' being the result of the Participatory Design project, no matter its 1 characteristics. expertise, changing the paradigm of only being developed in companies and engaging other realities of human interaction:

‹‹*Participatory Design (PD) has expanded from workplace democratisation to non-work settings and to "fringe" groups who lack social power for a variety of reasons (e.g. age, disability, culture). This includes children, older adults, people with cognitive impairments such as dementia, neurodiverse people, people with motor impairments, people with visual impairments, Deaf people, and people with communication difficulties*›› (Korte et.al, 2019).

Having this in consideration, valuing its potential as a methodology for inclusiveness and accessibility is an accurate hypothesis. But first, it is important to understand the main elements of Participatory Design, which are essential for developing research following this methodology; they are 'Initial Exploration', 'Discover Processes' and 'Prototyping' (Spinuzzi, 2005): The first stage of the process - 'Initial Exploration' - is the time when the designer meets the public and the place in which the research is being held. It is important to gather as much information as possible at this step due to the key elements that can be gathered for future intervention. ‹‹*The selected users should be included in the design process from the beginning to inspire innovation*›› ((Fuglerud & Sloan, 2013). At this moment, the designer will observe and actively collect information about generic features such as routines and schedules, responsibilities, roles and technologies used, connection with the 'object of study , etc., that will provide a basis for supporting the development of the 2 research in question. The second stage is the time to 'Discover Processes', which means, the moment when the designer is already working together with the public to find organizational strategies, common goals, ideas of improvements and other and other creative and strategic responses to the problem. At this stage, several group activities can be conducted to support emerging ideas but it is important for the designer to strategically observe and capture information for the future step of development. It is important to state this stage is ‹‹*(...) mainly a way to identify problems, not to provide solutions*›› (Fuglerud & Sloan, 2013). The third stage is 'Prototyping'. At this moment of the research process, the designer and the public will work together to find answers to the detected issue. The This can be something as broad as an *artifact*, a solution, an organization or a discipline. 2 'artifacts' can be developed in a lab or on-site by one or more people. Several tools can be used to engage the public at this stage and guarantee a more approachable result: ‹‹c*o-realization insists on maintaining a dialogue between users and designers which requires designers 'being there' (...), becoming a member of the setting, and acquiring familiarity with members' knowledge and mundane competencies*›› (Blomberg & Karasti, 2013). To Spinuzzi's (2005) guidelines for developing a Parti-

cipatory Design project, we would add a fourth stage called 'Evaluation'. This step is essential to guarantee the positive performance of the developed prototype or 'artifact' and to assure the first identified needs/goals are being answered. Several techniques can be used at this stage, such as inquiries, on-sight observation, etc. to perform this stage. If, at this time, the designer understands the 'artifact' needs to be fixed due to not be performing as expected when developed, should go back to previous stages to improve it and redesigned it with the newly collected information, towards a better outcome: ‹‹*It is important to Spinuzzi's argument that users do develop individualized methods of use, which shows that users are not mere victims of the designer's work, but rather active contributors to the process*›› (Ferris, 2004). Having this methodology's stages put in place is important to clarify why Participatory Design has great potential to support inclusion projects. ‹‹*Social responsibility in participatory design begins with the communicative process between designers and prospective users*›› (Novick & Wynn, 1992), so this initial relationship between the designer and 'the other(s)' (the person or the group of individuals) is both raw and rich. Raw to the characteristics of the meeting - both designer and public don't have previous active knowledge of each other's experience - and rich due to the standards of this research methodology - the ongoing work, together, for a specific goal, that brings to the table information that would not be considered otherwise or, if it would be considered, it would most probably take much more time to be adapted to all the specific needs and conducted properly. Independently of the public, if a social or cultural project is put into place, frequently questions such as who, when, why, and how are considered. Participatory Design, as a methodology, not only allows to answer to all previous questions, it can also perform a more structured guide to developing projects next to communities that actually serve people's needs by addressing their difficulties, experience, realities and performance. By having the opportunity to build a structured answer (or 'artifact') to a social-cultural issue within the community, and by having the people from the community, for which this answer is thought, working together with the designer is an opportunity for enriched exploration. These research projects can serve any individual or group, independently of their needs, as stated by OCAD University, Inclusive Design Research Centre (n.d.): ‹‹*Rather than a personal characteristic or a binary state (disabled vs non. disabled), disability is framed as: a mismatch between the needs of the individuals and the design of the product, system or service. With this framing, disability can be experienced by anyone excluded by the design.*›› It is safe to say, we have conditions to affirm Participatory Design is indeed a methodology that can perform positively toward improving proximity with several individuals and their communities. However, there are some details to consider in case a decision is made based on this kind of research. There are three limitations of this methodology that need to be carefully analyzed in order to capture positive results:

1. Time

This kind of research always comes together with a great amount of time. It is not possible to consider such a project without considering a carefully built timetable that states the different stages of its development. Plus, it is recommended to have some extra time added in case some of the stages don't flow as expected. Not only does the Designer(s) need to count with its need to have their availability but also the availability of the public the research is being conducted with.

2. Money

Financial issues are probably one of the most relevant cons of this methodology. Although you can perform most of the activities without adding money to the equation, it is always necessary to consider a comfortable amount for its development due to its characteristics. This kind of research takes a lot of time to be developed - if properly - and the Designer(s) responsible for its conduction needs to have his/their balance covered. Also, it is possible some money needs to be conducted on the needs of the project (methods and developed *'artifacts'* throughout). It is important to have this in consideration and actively look for strategies to cover this basis, such as a planned budget and possible support of the project with partnerships with relevant organizations.

3. The Designer's sensibility toward the public

The Designer or the teams of Design Researchers will conduct a project with individuals or groups that can have different characteristics. It is important for the Designer(s) to consider if they have the sensibility to work together with the public selected for the project. If this is not considered, the project can be the project may be doomed from the start. For every project of Participatory Design, ‹‹*the designers must be aware that some issues, such as the understanding of participants' habits and values, cannot be addressed in a few participatory sessions*›› (Gasparotto et. al, 2021). All of these limitations are fundamental to properly planning such research methodology in order to anticipate possible needs or cons that can happen during its development. In conclusion, and despite the cons of this using Participatory Design as a methodology for research in social-cultural projects, the fact ‹‹*Participatory Design moves away from universalism and towards specificity*›› (Getto, 2014) is the main characteristic that cannot be excluded from this evaluation. This characteristic is, probably, the one that offers the most potential to verify its positive applicability of it in this kind of project. The social and cultural role of Design is unquestionable and the potential of expanding the public of Participatory Design Research toward inclusiveness is an opportunity for development. From its use, several bases to improve social and cultural issues can arise and be answered by the public (a specific group of people studied by a research project) or user (the individual using a product or 'artifact' developed by

the project) point of view, instead of someone else's perception. The results born from this research methodology can bring Design, as a discipline and practice, closer to people and continue to show the innovation brought to serve a broader range of users through Design Research.

Case Study - Design Research for Music Accessibility

As stated before, the meaning of inclusiveness has expanded and nowadays the public designated in projects for improving accessibility can be performed for every stages of life and for everyone, no matter the differentiated characteristics. Our research project is based on making Musical Literacy more accessible and inclusive for young children - from 5 to 7 years old. This Design Research project intends to create an alternative iconographic system that translates music sheets (musical notes, *tempo* and rhythm) as a way to engage children at a young age, no matter their social and cultural background. The specific goals of this project are:

• To define the implication of strategies related to semiotics in communication design, applied to musical expression;

• To develop an alternative system of musical iconography to represent musical notes, time and rhythm, in order to increase the accessibility of children to musical literacy;

• Promote Graphic Design as an important discipline for cultural inclusion and accessibility.

For this to happen, the Participatory Design methodology will be used and adapted for this Design Research project. But first, the basic information:

- What is our research about? Iconographic System for Accessible Musical Literacy
- Who is its main public? This project is developed with and for children 5 to 7 years old and the 'artifact' will be developed with their inputs.
- Why does this matter? Because Formal Music Learning is expensive. It's needed a lot of time and money to cover this type of learning and, acknowledging the potential of Music Literacy for young children, we believe this inequality in access due to social or cultural backgrounds should be reduced.
- How will we conduct this research? By following a Participatory Design metho-dology.

The plan for the activities is developed in four (4) stages, following the already explained steps: Stage 1. 'Initial Exploration' - The Designer will meet the children and collect data about their previous knowledge of music through some questions and playful activities; Stage 2. 'Discover Processes' - The Designer will conduct some activities with the children to collect visual data on how to create a solid alterna-tive system towards musical literacy. The way children are engaged in the process will give ongoing guidelines for the positive development of the 'artifact' that will be essential during the process of research. Stage 3. 'Prototyping' - The Designer

has the prototype of the 'artifact' created, being in this case, the pictograms to translate the music, developed from the results of past activities. The children will be divided into two groups, A and B. Group A, having some guidelines on how to follow the alternative system and group B with free flow methods. At this stage, children will be taught one piece of music (created specifically for this project and based on nursery rhymes, to guarantee no previous knowledge or access to it and clearer results). From the way children play the piece of music and from their comments and thoughts, the Designer can go back and redraw the prototype. Stage 4. 'Evaluation' - The 'artifact' is now ready to be played. The alternative iconographic system for musical literacy will be developed at this time and will be put into practice and evaluated next to the children. They will play the piece of music they learned in the previous stage and the way they will perform it and identify the alternative musical notation will be essential for validating the developed system.

Both stages 3 and 4 can be repeated if the results are not satisfying on the first try; the schedule of the research project has this in consideration and will be adapted during its development. This research is still under development; the data collected throughout will allow us to better understand the way children (5-7 years old) think about music and how their abstract thinking works.

The results of the research will benefit from this information as they will be key for the development and ongoing evaluation of the iconographic system. With positive outcomes, this investigation will allow both children, parents and teachers to engage in a new way to learn and play music - and the social-cultural role of Design Research will, once again, be strengthened.

Bibliografia

Blomberg, J., & Karasti, H. (2013). Ethnography - Positioning ethnography within Participatory Design In T. Simonsen, Jesper Robertson (Ed.), Routledge International Handbook of Participatory Design (pp. 86–116). https://doi.org/https:// doi.org/10.4324/9780203108543

NDA - National Disability Authority (2021). Center for Excellence in Universal Design: What is Universal Design. Retrieved from: https:// universaldesign.ie/

Cortés-Rico, L., & Piedrahita-Solórzano, G. (2015). Participatory Design in Practice. 518–525. https://doi.org/10.1007/978-3-319-22698-9_35

Ferris, T. L. J. (2004). Tracing Genres Through Organizations: A Sociocultural Approach to Information. IEEE Transactions on Professional Communication, 47(4), 329–330. https://doi.org/10.1109/ tpc.2004.837977

Fuglerud, K. S., & Sloan, D. (2013). The link between inclusive design and innovation: Some key elements. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 8004 LNCS(PART 1), 41–50. https://doi.org/ 10.1007/978-3-642-39232-0_5

Gasparotto, S., Celaschi, F., Formia, E., Celaschi, F., Formia, E., Silvestri, D., Varini, R., Brignoni, M., Ventura, J., & Bennet, A. G. (2021). Updating Values . Perspectives on Design Education with Time. Retrieved from: https://www.academia.edu/ 45674660/The_Value_of_Values_From_ Inclusive_Design_to_Social_Design

Getto, G. (2014). Designing for engagement: Intercultural communication and/as participatory design. Rhetoric, Professional Communication, 5(1), 44–66.

Atkinson, H., & Oppenheimer, M. R. (2016). Introduction: Design Research – History, Theory, Practice: Histories for Future - Focused Thinking. DRS2016: Future Focused Thinking, 7, 2585–2592. https://doi. org/10.21606/drs.2016.510

Jones, D. (2012). Tracing the user experience of participation: What is it and why does it matter? SIGDOC'12 - Proceedings of the 30th ACM International Conference on Design of Communication, 243–249. https://doi. org/10.1145/2379057.2379104

Korte, J., Constantin, A., Alexandru, C. A., Fails, J. A., Eriksson, E., Good, J., Pain, H., Hourcade, J. P., Garzotto, F., & Waller, A. (2019). Pushing the Boundaries of Participatory Design. In Human-Computer Interaction – INTERACT (pp. 747–753). Springer-Verlag. https://doi.org/10.1007/978-3-030-29390-1_74

Novick, D., & Wynn, E. (1992). Participatory behavior in participatory design. CSETech, Paper 280. http://digitalcommons.ohsu.edu/csetech%5Cnhttp:// digitalcommons.ohsu.edu/csetech/280%5Cnhttp://digitalcommons.ohsu. edu/ csetech%0Ahttp://digitalcommons.ohsu.edu/csetech/280

OCAD University (n.d.). Inclusive Design Research Center: What is Inclusive Design. Retrieved from: https://legacy.idrc.ocadu.ca/about-the-idrc/49-resources/ online-resources/articles-and-papers/443-whatisinclusivedesign

Spinuzzi, C. (2005). The methodology of participatory design. Technical Communication, 52(2), 163–174. Retrieved from: https://www.researchgate. net/ publication/233564945_The_Methodology_of_Participatory_Design

Spinuzzi, C. (2002). Toward integrating our research scope a sociocultural field methodology. Journal of Business and Technical Communication, 16(1), 3–32. https://doi.org/10.1177/1050651902016001001

Ventura, J. (2018). Inclusive Design. The Bloomsbury Encyclopedia of Design, 474– 479. https://doi.org/10.5040/9781472596161-BED-ONLINE-007

Margolin, V. (2010). Design Research : Towards a History. Conference Proceedings: Design & Complexity. Design Research Society International Conference Montreal 2010, 978–984