

Design for Digital Humanities Practices Focusing On People With Visual Impairment

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This work is an unfolding of the paper published on Eva London 2021, where the pilot Project “Lembrei de Você (LDV)” – “I remember you”, which aimed to create a network of people who would support one another during pandemics using online technologies. This paper goes a step ahead and discusses the proposal of a platform based on the feedback of studies carried out from LDV’s pilot project aiming to create easier efforts in order to reduce the stage of solicitude of people in insolation, being them or not visually impaired one. The current study will address issues concerning the design and practices in digital humanities, as well as the methodologic processes for developing a communications and distribution platform for visually impaired people

Inclusive design. Accessibility. Visual impairment. Digital platform. Pandemic. Post-pandemic.

1. INTRODUCTION

The social distance caused by the Covid 19 pandemic exacerbated the problems associated with loneliness among people with disabilities or in social vulnerability situations. The observation of this reality revealed the need to establish a support network for people with and without visual impairments, promoting autonomy and well-being through scientific-technological advancement. We identified the need for effective communication, interaction, and an integration support network system based on inclusive design, the digital humanities manifesto, and previous research consequences and results.

Inclusive design refers to research and development that promotes democratic access to products, services, and systems that provide comfort, care, and quality of life for those who use them. These premises guided the pilot project “Lembrei de Você (LDV)” – “I Remember You (LDV)”, a network of co-responsible volunteers who organise, read, record,

and send audios to people with or without visual impairment who are lonely and socially vulnerable.

The LDV pilot project, which currently serves four institutions and 800 people, highlighted the need for new studies and scientific and technological development to create an appropriate system for disseminating, facilitating, and optimizing the accesses and processes involved.

The specific issue pertains to the development of a system within the scope of socially inclusive design that integrates oral and sound relations and collaborates in stimulating autonomy, providing reception, and improving the daily satisfaction of the public served.

Participants in the LDV pilot project back up the evidence of plausibility. Their reports demonstrate the effectiveness of the sensitive and memorial experience: the audios received provided entertainment, comfort, and well-being.

The theme is essential for the field of knowledge because it reaffirms the contribution of design to society, particularly for people with visual impairments or who are socially vulnerable.

The project employs processes of co-creation, participation, and collaboration of the subjects involved, based on social design methods that highlight the designer's role in the face of problems in the Brazilian reality and social context. In this sense, the results demonstrate the effectiveness of inclusive design, which is socially responsible and human-centred. They also contribute to current social, cultural, and technological innovations.

Thereby, we will adopt the methodological procedures of participatory research and the social design practice model. This approach includes planning phases, preliminary studies, commitment, evaluations, critical analysis, investigations, efficiency and effectiveness analyses, estimates, implementation, transformation actions, finalization, dissemination of the generated results. The sub-phases are as follows: awareness and knowledge about the problem and reality of those assisted; participation for a joint solution; interaction promotion; problem analysis; generation of needs; prioritization of emergencies; brainstorming in search of a solution; definition of goals and objectives and planning of those involved in the process; assessment of the dynamics and overall process through interviews with the public served, volunteers, and staff. Finally, the results will be produced and scientifically disseminated. The method used will be qualitative, with approaches such as bibliographic, documentary, and field research, as well as collaborative and participatory processes.

In this article, we will present the evolution of the work titled "Design in times of pandemics: accessible literature to people with visual impairment", presented in the EVA London 2021, (MOURA et al. 2021), as well as the applied methods and preliminary studies for the development of the management system for the LDV project, ranging from issues related to the visualization of data accessible on the web to the visually impaired to the high-level requirements for the "Lembrei de Você 1.0 Platform".

2. DESIGN AND DIGITAL HUMANITIES PRACTICES

What is the current definition of the Digital Humanities? The digital era has been present since the Second World War; however, with the arrival of the World Wide Web, personal computing, mobile computing, and social medias, the digital revolution entered a new phase, giving birth to a completely

expanded and transformed set of creation and knowledge dissemination possibilities (Burdick et al. 2020).

Design is re-signified and goes through paths that are always more alternatives to the initial conceptions that associated it only with industrial of graphic production by adapting to several innovative, cultural, social, and contemporary and dialoguing with different research fields. This project includes a reflection on the actuation of design centred on the human being, as well as some of its unfolding such as co-creation and other perspectives of actuation, which are supported by arguments derived from contemporary design discourse. On it, we reflect on the role of design in social contexts, particularly in an experiment in which the subjects who participated became co-responsible for the outcomes.

Katherine McCoy, Milton Glaser, Victor Margolis, and others present the actuation of the designer in projects prioritizing human development in the collection organised by Steven Heller & Veronique Viénne (2003), who emphasise the need for an ethical and critical posture of the designer in the face of contemporary problems, in a more intense actuation of the design police.

The central questions of this research are related to individual autonomy, social integration, helping to improve the lives of people with or without acuity quality, fulfilling the wellbeing of people with or without visual impairments, fulfilling the scope of inclusive design that is allowed by projectable or non-projectable materials, and ensuring equal opportunities for all people in society.

Visual impairment is defined by a decrease, loss, or lack of visual acuity in the visual field. These two ophthalmologic scales are concerned with the loss or incapacity of seeing at a distance (visual acuity) and the amplitude of the area covered by vision (visual field).

According to Ottaiano et al (2019), data from the global population show an increase in the number of blind people in the elderly (over 60 years) due to longer life expectancy. According to IBGE (2019), the elderly population in Brazil (2019) is expected to double until 2042, when compared to 2017, when the country had 28 million elderly people, or 13.5 % of the total population).

In light of this reality, and after reflecting on the main principles of design, we became concerned about finding solutions and contributions to improve the search for quality of life in order to improve people's well-being. And, in recent years, we have devoted a significant amount of time and effort to ways of designing that benefit people with visual impairment.

Williams (2022) states that people with disabilities will benefit significantly if the digital humanities community seeks inclusive projects and becomes serious about the importance of adopting principles. The author argues that inclusive design principles should be instilled in digital humans to influence a broader culture.

Considering what was revealed, the solution that we discovered to broaden the reach of the pilot project was the systematic implementation of a digital platform of management and communication in order to interact in a collaborative and solidarity of defenders of self-esteem and motivation for the promotion of autonomy and social integration of people with or without visual impairment.

3. STUDIES ON DIGITAL PLATFORM FOR PROJECT “LEMBREI DE VOCÊ”

The integration of medias has grown significantly over the last few decades, giving the Web culture a multimedia flavour. It also encouraged the development of sharing models, co-creation, publication, and communitarian building, with the Web serving as the focal point of a social contemporary society. Because of smartphones, tablets, and other ubiquitous and pervasive media and computing, the concept of the Web as a public service extending public spaces has clearly intensified.

In view of this Web concept, the digital platform is being developed based on studies, analyses, evaluations, and surveys conducted, as well as the planning and execution of the beta version of such digital platform for the management of communication, content collection, and distribution for the visually impaired, including and targeting sighted people, because inclusive projects must meet and provide comfort to all. Nonetheless, it is expected that the findings will contribute to the development of autonomy and, as a result, the well-being and improvement of the quality of life of those involved in the study.

The platform will allow for the expansion of the scope of service to include more people and institutions that did not directly participate in the initial actions, as well as the generation of models to serve other Portuguese-speaking countries in the medium term.

The project team defined the high-level requirements for the development of the Lembrei de Você 1.0 platform for recording, validating, managing, and sending audios for both internal and external customers, allowing the platform's basic operating flow to be generated.

The World Wide Web Consortium's Web Content Accessibility Guidelines (WCAG) 2.0 define accessibility standards that focus on areas such as strengthening text alternatives for textual and non-text content using media resources to make it easier for users to see and hear content. Making all functionality available through the keyboard, including design for different reading speeds, usage speeds, and abilities to make the website look and feel predictable. Maximizing compatibility with current and future hardware and software including assistive technologies.

The following specifications were defined for the development of the platform with audio recording, validation, management, and sending functions, both for internal users and external clients via WhatsApp:

3.1 Web Platform

Mobile application (IOS and Android) for some modules. Accessibility for screen readers was provided, with modules as follows:

3.1.1 Readers / Readers

Module for content creation, where users record and send audios for evaluation.

- Web and Mobile
- Only authorised users
- Content library (digital collection with texts available for reading)
- Filters by type, author and title
- Authorization to use voice, rights and project policies on first use after being authenticated (mandatory)
- Audio recording
- Recording tools (start, pause, end)
- Audio category
- Recording Manual (script in tutorial format)
- Management of recorded audios
- Sending audio
- Audio deletion (for audios not yet uploaded)
- Audio delete request sent
- Status
- Not sent
- waiting validation
- Approved
- Returned for adjustments
- Refused
- News (interface for receiving multimedia messages, no interaction, filtered by user profile)

3.1.2 Audio curation

Module for managing the contents created by the readers module.

- Web only
- Only authenticated users
- Collection of audios (sent by the readers/readers module)
- Audio evaluation
- the player
- Audio recategorization (change of category)
- Audio validation
- Approval (optional feedback message)
- Rewrite request (mandatory feedback message)
- Deletion (mandatory feedback message)
- News (interface for receiving multimedia messages, no interaction, filtered by user profile).

3.1.3 Shipping management

Module for creating packages (from audios approved in the curation module) and managing submissions to listening users.

- Web only
- Only authenticated users
- Approved audio library
- Management of audio packages
- Package configuration
- Number of audios
- Automatic report generation (information on the audios that make up the package)
- Packet deletion (not yet sent to any listeners)
- Packet alteration (not yet sent to any listeners)
- Package inactivation
- Package shipping schedule
- Internal submission for platform listening users
- External shipping to WhatsApp
- News (interface for receiving multimedia messages, no interaction, filtered by user profile).

3.1.4 Listeners

Module for listening and sharing (spontaneously by listeners) the available audios and packages

- Web and Mobile
- Authenticated and Unauthenticated Users
- Library of available audios (recorded, validated and made available) and audio packages
- Filter by type, reader, author and title
- Player
- External audio sharing via WhatsApp
- Internal audio sharing for registered users

- Assessment of audio and packages (feedback “liked” or “disliked” + optional message)
- News (interface for receiving audio-only messages, without interaction, filtered by user profile).

3.1.5 Administrative

- Web only
- User management
- Access profile management
- Platform settings]

3.1.6 Contact

- Web and Mobile
- Only authenticated users
- Text message centre (asynchronous chat style)

3.1.7 About

- Web and Mobile
- Authenticated and Unauthenticated Users
- Project information page
- The methodological aspects that guided this qualitative investigation are present in the research process for the development of the digital system.
- To investigate, considering Design methodologies, means for the development of a digital project management system.
- To create the digital environment's information architecture based on characteristics that are divided into four large interdependent systems, each with its own set of rules and applications: Organization System, Navigation System: Labelling System and Search System
- To create navigational components that are easily accessible to people with visual impairments, such as menus, arrows, navigation nodes, hypertext, and images.
- To create digital platforms for Windows and IOS – (Project development under the perspective of Design methodologies).
- To conduct interviews with selected groups of professionals in the field of visual impairment. The results of observations made about the use of the digital platform will be analysed to reinforce, exemplify, and discover the question of effectiveness in the use of the product (Semi-structured interviews).
- To elaborate a prototype of the digital system
- To validate the digital map with professors of the medical field.

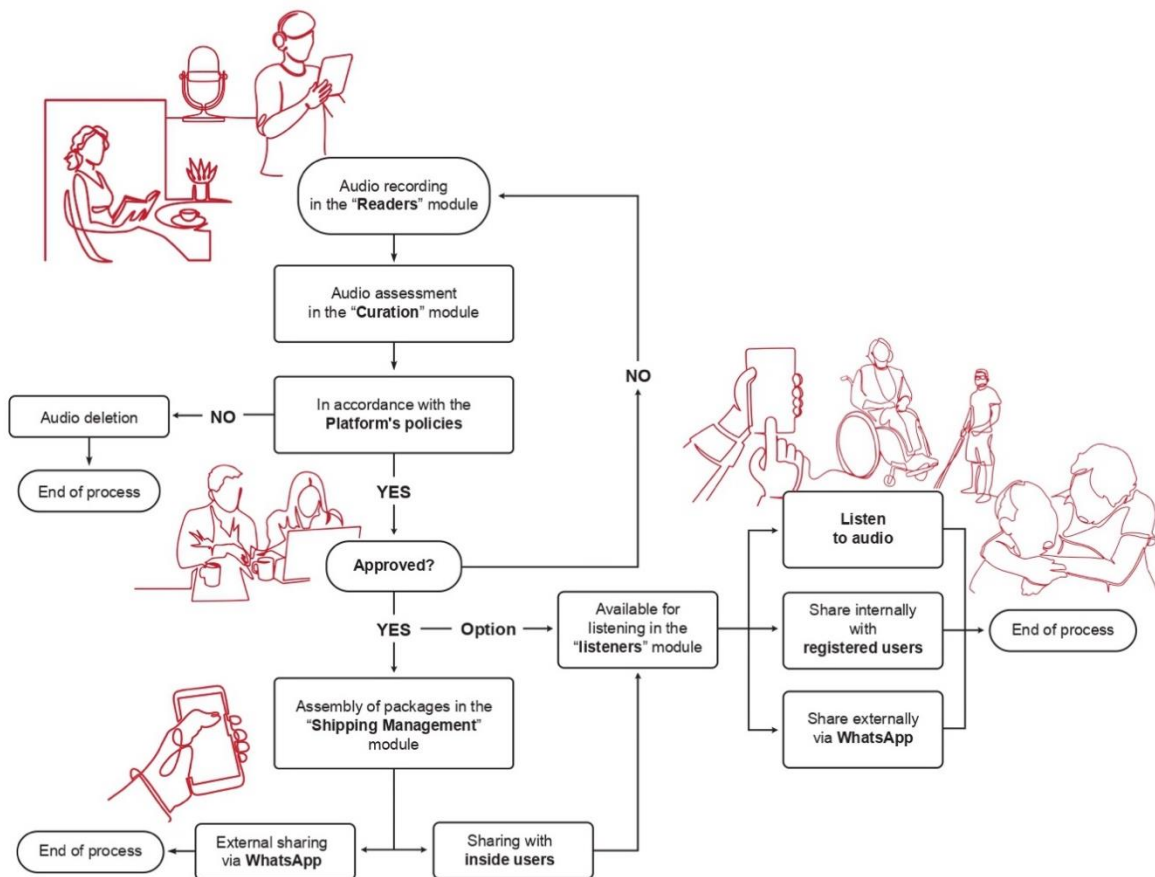


Figure 1: Basic Platform Operation Flow. Source: Authors.

Data are typically quantitative and measurable, making them easy to handle by computational processes when codified in digital language. As a result, we can use computational power to devise new methods of mapping those data in order to incorporate new interpretative meanings.

The visualization of complex data in digital environments, or the dynamic visualization of data, is one of the truly new cultural forms enabled by computing. (...) We can visualise very large data sets using computers, creating dynamic visualization, feeding data in real time, basing the graphic representation of data on their mathematical analysis, using a variety of methods ranging from classical statistics to data prospection, and mapping one type of representation into another (images in sounds, sounds in three-dimensional spaces, etc.) (Manovich 2004, p. 149).

4. CONCLUSION

The studies that we have developed make use of the Web's capabilities and show that, nowadays, design focused on social issues tends to explore

the possibilities and challenges of understanding the human being in all of its complexity and diversity. The designer began to adopt an exploratory posture for projects, products, environments, services, and manifestos that will express the subjectivities of the subjects involved.

It is clear, both from the authors discussed here and from the basic design precepts, that the main focus of this area is the human being in all of their needs, singularities, diversity, and sensitivities. Thus, we believe that the great challenge of contemporary design is to be developed in a sphere that understands the complexity and diversity of people who live the reality of our time, of which one of the most prominent and also complex aspects is inclusion, particularly in these times of social isolation in the face of Covid-19.

Inclusion in design implies participatory processes. It is up to the professional in this mode of design to mediate the necessary interactions for the process, as advocated by Bonsiepe (2011) when arguing that autonomous production is an alternative to heteronomy and a restorative action, implying the formulation of more humanistic projects. According

to Manzini (2015), participatory practices mark the end of designers' imposing strategic position since the industrial age, granting autonomy to the subjects involved in the process.

Faced with this situation, the project presented here aims to promote inclusion through the design of actions that generate social integration of the individual and stimuli for the expansion of the perceptual, aesthetic, sensitive, imagery, and cognitive repertoire, allowing for the strengthening of self-esteem and aiming to build autonomy, dignity, and, as a result, citizenship in times of pandemic.

5. SUPPORT AND ACKNOWLEDGMENT

PPGDesign – Faculdade de Arquitetura, Artes, Comunicação e Design, UNESP/Bauru. CNPq – National Council for Scientific and Technological Development from Brazil, Mônica Moura, “Bolsista de Produtividade de Pesquisa (PQ)” – Proc. N°. 314690/2020-4 Cistina Portugal, “Bolsista de Produtividade de Pesquisa (PQ)” – Proc. N°. 308786/2018-1.

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