Rediscovering mental health intervention methodologies through Design

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doi.org/10.21606/iasdr.2023.336

Collaborations between Design and Mental disabilities organizations have the capacity to develop new intervention methodologies responding to the limitations of the intellectual development disorder in different contexts. The progressive integration capacity of design in organizations, seeks to analyse the degrees of its influence on the intervention and implementation of a collaborative creation process. Creative methodologies in the social innovation sector, specifically in direct action with users, encourage and enable the development of new techniques resulting in potential innovative activities and products with a view to increase efficiency in the execution of tasks or obtain information on the impact on the user’s quality of life. This cross-sector partnership enabled the unveiling of potential reformulations to multidisciplinary practices among the technical specialists already integrated in the organizations and the designers as well as organizational procedures currently applied.

Keywords: social innovation; codesign; public health; intellectual and developmental disabilities

1 Introduction

The present paper underlines the absence of creative and design techniques and processes in the Intellectual and developmental disabilities (IDD) sector in Portugal, presenting an opportunity for the integration of Product Design professionals in this sector and, consequently, the creation of new methodological practices and adapted products. Focusing on the development of a new process to create intervention and rehabilitation projects that encourages effective interaction and synergy between team members, the main objective, due to its innovative potential, is to improve the quality of life and daily tasks of the mentioned institutions’ clients, as well as the health technicians’ quality work, through the integration of design methodologies in the sector. Jannelien Wieland (2019) previously highlighted in her studies that the inadequate understanding of mental disorders among mental health care providers contributes to the restricted availability of quality mental health care. To effectively meet the needs of this group, it is crucial to increase the exchange of knowledge and the sharing of experiences. This is particularly important for individuals with Mild Intellectual Disability (MID) who lack proper registration, as they may face reduced access to diagnostics and treatments,
risking undertreatment and inferior mental health outcomes. (Shoumitro Deba, 2021) The importance of a multidisciplinary partnership aims for multidirectional contribution and cooperation in distinct phases of intervention to increase diagnosis information: a) Co-Recognition of the context (physical and social); b) Co-Observation and data collection; c) Co-Development of instruments for diagnoses; d) Co-creation of solutions with an impact on the autonomy of clients; e) Co-validation; and f) co-integration, promoting the construction of knowledge in the development of new methodological and co-creation interactions. This project’s purpose is the analyses of how impressive the pertinence and impact of an in-house designer in Activity and Training Centers for Inclusion is in a) Food and personal care; b) Therapeutic support; and c) Promotion and development of physical, emotional, psychic and social well-being. Case studies have been developed at varied institutions and cooperatives since 2018 and since then it has been possible to verify the presence of design professionals in the communication and image sector. (Bernarda, 2020) In April 2022 it was possible to initiate the “Defigne” project, a collaborative protocol with CERCICA (Cooperative for the Education and Rehabilitation of Unadapted Citizens of Cascais), an Occupational Activities Center, located in Cascais (Portugal), with 50 clients with severe disabilities, followed by a team composed by a Technical Coordinator (1), Occupational Therapist (1), Occupational Activity Assistants (10), Monitors (4), Superior Technician of Special Education and Rehabilitation (STSER) (3), Physiotherapists (2) and a Psychologist (1).

1.1 Background in Portugal (context and conditions)

The project is focused on the interaction between different health specialists in the intellectual difficulty sector, thus envisioning a new process of construction of intervention and rehabilitation projects. (Berger I, 2023) The integration of Design in this process aims to streamline the processes of co-creation by using explanation techniques and the deconstruction of ideas to generate further integrated and interdependent connections between peers and enabling forward sustainable conditions to enhance the positive impact of the participation of all team members throughout a design project.
however it is possible to see data that has emphasized the need for greater attention and intervention. (EU, 2016) In 2001, Census statistics revealed that the percentage of people with disabilities was 6.1\% of the resident population. (Santos, 2022)

![Figure 2. Disability types in 2001 in Portugal (CENSOS statistics).](image)

In 2011, 17.8\% of the population, five years old and older, were reported to have great difficulty or being unable to perform at least one of the following daily activities: seeing, hearing, walking or climbing steps, memory or concentration, bathing or dressing alone and understanding others or themselves. (Instituto Nacional de Estatística, 2022)

![Figure 3. Disability types in 2011 in Portugal (INE,2022).](image)

A study by the Observatory for Disability and Human Rights (Pinto, Neca, & Bento, 2022) revealed, in 2020, that the risks of poverty and social exclusion continue to be higher for people with disabilities (31.5\%), about twice as high as for people without disabilities (16.6\%). As an aggravating factor, the data on the number of support products made available through the Support Product Allocation System (SAPA) didn’t change much at said time (in 2015 there were 22,938 products and in 2020 there were 22,373), the conclusion being that the average cost of these support products has significantly increased, reducing their effectiveness and scope (idem, 2022).

Regarding the social responses, it was possible to verify a growth of 111\% distributed between the Center for Activities and Training for Inclusion (CACI), the Residential Home, the Autonomous Residence, and the Service for Persons with Disabilities. The figures show that, between 2000 and 2020, the Residential Home recorded a growth of 140 \% and the CACI a response of 88 \%. In relation to the total vacancies’ capacity, there already is an increase of 136\%, in the locations with the main responses (CACI, residential home, independent residence and support service) there was a growth of 205 \%. (Gabinete de Estratégia e Planeamento (GEP), 2021) It is inevitable to consider the data presented and the need for a response to accompany this growth in cases in the IDD sector.
1.2 Integration processes and introduction to Design process

Previous research studies on the application of Design Methodologies in the Health and Public Health sector, namely in the intellectual and developmental disabilities sector, have revealed the absence of creative and design techniques and processes, as well as opportunities for the creation of new adapted products.

As was established during previous studies, conducted for the implementation of design methodologies in the public health sector, it was confirmed that the solutions developed are the result of improvisations adapted by technicians and therapists. (Bernarda, 2020)

Through the potential partnership of the different multidisciplinary areas integrated in the Universidade Europeia, we intended to analyse and respond to the different scenarios that occur in the Mental Health sector, with the creation and design of different daily adaptations to different complex situations for the development of routine procedures, activities, or services.

This collaborative activity aims to reevaluate the potential of the health/technical interaction and the client’s potential to evolve and adapt to tasks, reducing the degree of dependence and the technician’s potential to perform and enhancing the promotion of social inclusion and participation in society.

The challenge of this project focuses on the assimilation of new practices in the development and collaboration system by health technicians and therapists. Updating the knowledge of resolution techniques in the co-creation of product development and designing previously unidentified solutions with potential to be developed and applied, this partnership with Design and Health Sciences will benefit these teams.

Through the partnership with social associations and companies that favour and can contribute to the joint evolution of this new collaborative methodology, new professional activity services are expected to be generated, together with the reformulation of current ones, thus allowing the integration of more elements in the teams and consequently new jobs and more adapted products.

Thanks to an assortment of case studies already developed in different areas of intervention with patients, the planning of activities will be done taking into account a pre-awareness of the potential.

The integration and development of design methodologies went through different phases. In a first phase, with the presentation of results in previous projects in the same sector or similar, it was possible to garner the Cooperative’s acceptance to integrate and monitor the day-to-day life in one of the health centers located in Rana, in the Cascais municipality (Lisbon District). (Bernarda, 2020) The development of solutions for different contexts generated greater confidence, validating the relevance of design through these preliminary case studies and an openness to collaborative development for an interoperable co-creation and shared decision-making with the community. (IDEO, 2015) (Bernarda & Ferreira, 2020)

2 Design methodology implementation

The Defigne, a collaborative project with CERCICA, has enabled an empathic design research in the field of intellectual and developmental disabilities domain with the development of intervention
methodologies and activities embracing a pioneering line of research that produces significant results in the national context in a first stage.

The know-how and experience of the team in the various areas (Design and Occupational and Intervention Therapists, Physiotherapists and Psychometricians) encompassed in the project provide a firm ground for its success in developing new and adapted processes and procedures. By generating adapted and sustainable products of high value that will influence the activities already applied it will favour the impact on the everyday life context.

**Figure 4. Collaborative and interdisciplinary processes**

Since the project began (April 2022), we were able (it was already possible) to identify some positive situations. We expect the creation of several products adapted to the needs of users and health technicians, as well as the development of a collaborative methodology focused on Design for health and well-being and adapted to IDD. (Jones, 2013) (IDEO, 2015)

This collaboration paved the way for the integration of creative methodologies in the social innovation sector, specifically in direct action with users, encouraging and enabling the development of new techniques resulting in potential innovative activities and products with a view to increase efficiency in the execution of tasks or obtain information on the impact on the user’s quality of life.

The main objectives of the project are:

- To intensify scientific and technological knowledge in the fields of inclusion and disability through the development of fast-prototyping solutions that will reduce time spending production and will accelerate the intervention and results.
- To improve the quality of life and daily tasks of the institution’s clients as well as the work quality of health technicians through a close collaboration and feedback.
- To intensify scientific and technological knowledge in the areas of Design, Mental Health, Inclusion and Disability, integrating teaching and research in the dissemination and scientific sharing, to arousing potential partnerships at the national level.

And as secondary objectives:
• To understand and characterize people with disabilities within their contexts by deepening the knowledge about their living conditions within the context of residence and institutionalization.
• To promote teaching, research, dissemination, and scientific sharing in the area of design for disability, inclusion and rehabilitation.
• To foster international cooperation and the sharing of experiences to promote the inclusion of people with disabilities in Portuguese cooperation policy.
• To improve the use of information for a statistical purpose on disability and inclusion, creating support for evaluation and decision-making processes.

The methodology has been defined in 8 phases:

• Phase 0: Planning and strategy: This phase involves key stakeholders and team members coming together to define the overall project scope, objectives, and timeline for the design collaboration.
• Phase 1: Discovery and understanding in context: Recognition of partners and planned participatory actions to get a picture of the reality and the path ahead through observation of activities and staff interviewing.
• Phase 2: User-focused research: Ethnographic research, understanding the tasks that require a lot of cognitive activity from the user, such as decision making, concentration, risks, problem solving, performance, memory, attention, and judgment in different contexts (Activities Room, Psychomotricity room, Gym and Refectory)
• Evaluation and validation.
• Phase 3: Prototyping and Preliminary Case Studies: Development of first approaches and impact. This process answered the first needs identified by the team as the most important to solve.
• Phase 4: Service design: Joint contextualization, mapping and brainstorming to build potential services, products, or systems.
• Evaluation and validation.
• Phase 5: Prototyping and Case Studies: Development of more detailed approaches and impact.
• Phase 6: System service planning and integration: visualization diagrams of relationships between different service components — people and processes —directly linked to touch points in a specific customer interaction and promotion of collaborative interactions.
• Evaluation and validation.
• Phase 7: Service Implementation: Action planning and service development.

The development of projects/activities is planned according to the identification of a functional need and respecting the parameters of the International Classification of Functioning, Disability and Handicap (ICF) (World Health Organization (WHO), a classification system of the person’s activity and environment that influences health, essentially in participation, performance, and ability to bridge the gap between abilities and activity requirements. (WHO, 2002) According to the domains established by the IFC, the projects aim to reach the following domains (Cook, Polgar, & Encarnação, 2020) (WHO, 2002): Learning and applying knowledge, General tasks and demands, Communication, Mobility, Self-care, Domestic life, Major life areas, Community, social and civic life.
2.1 Preliminary projects and results
In this pilot project, the overall goal was to collectively create ideas for potential joint projects based on characteristics that favour usability: Cognition, Manipulation, Mobility and Communication, overcoming difficulties in locomotion, perception, operability, handling, manipulation, and coordination. Considering that the person with cognitive impairment shows greater difficulties in performing daily tasks and activities and the existing products on the market are scarce and generalist, the solutions to increase the efficiency of the technician’s work are self-generated through improvised solutions. Each client has specific needs, development and training potential and the degree of dependence of clients on each technician or assistant is high. The preliminary projects were mainly support products to provide functionality and participation to their users. According to the Human Rights Indicators 2021 (Pinto, Neca, & Bento, 2022) and based on Azevedo, Féria, Nunes da Ponte, Wann and Recellado (1994), Support Products are fundamental instruments and devices that allow to compensate or mitigate functional limitations and participation level restrictions in the living context of people with disabilities and/or impairments, taking into account the requirements posed by an activity or context in which it intends to perform. Cowan and Turner-Smith (1999) expound their definition based on the individual’s ability to perform a task that he could not otherwise perform, or how it increases the ease or safety with which the task can be performed, however it is necessary to take into account the specificities of each user in their needs and capabilities, the activities they intend to develop and the context in which the application of assistive technologies is made with beneficiaries and health experts in order to ensure a better fit, avoiding rejection and consequent abandonment. (Phillips, 1993) (Cook, Polgar, & Encarnação, 2020) (Borges, Dandolini, & Soares, 2016)
Azevedo (2006) also proposes that the areas of activity serve as the basis for a classification of assistive technologies. It is proposed to divide the assistive technologies into communication, mobility, orientation, manipulation and, in specific cases, cognition. In Portugal, the classification defined by the International Standards Organization (ISO) is used for the prescription of assistive products. According to the organization it is possible to define support products for: a) individual clinical treatment, b) training skills support, c) orthotics and prosthetic devices, d) personal care and protection support products, e) personal mobility products, f) domestic activity support products, g) furniture and adaptations for housing and other buildings, h) supporting communication and information products, i) supporting products for handling objects and devices, j) supporting products for environmental improvement, machines and tools and k) supporting products for recreational activities. The selection of a supportive technology, according to Cook & Polgar (2008), should have phases that have similarities to the human-centered design process (IDEO,2015): Identification of the activities (Project plan) intended to be carried out taking into account the level of autonomy, the different levels of help, assistive technology or a combination of these hypotheses; Assessment of the user’s physical, sensory and cognitive functional abilities (Experts and Group Interviews) , as well as the abilities required by the activity (Observation, Immersion) and Evaluation of the context (Frameworks).
From the very beginning it was possible to testify the need to review the intervention practices of the institution’s professionals in order to complement the analysis, intervention, monitoring and progression of users with technical resources that are part of the design process, favouring the responsiveness to the needs of clients and the evolution of the needs of the health experts that accompany them throughout their development. Innovative activities and products have been
developed with a view to increasing efficiency in the execution of tasks aiming to achieve a more sustainable future, by improving the quality of life of these communities and more efficient procedures that can accelerate the proposed objectives the projects aim to reach in the following domains (Cook, Polgar, & Encarnação, 2020) (WHO, 2002): Learning and applying knowledge, General tasks and demands, Communication, Mobility, Self-care, Domestic life, Major life areas, Community, Social, and Civic life. The creative construction to uncover new solutions was established by priority levels. At this stage it was possible to identify different positions, as well as the priorities that were inevitably grouped according to the practices and challenges of each technician/assistant. According to the team recommendations the most relevant area for intervention is the refectory since it’s a space where they want to promote autonomy in an activity that involves manipulation (Fig.1).

![Intervention domain relevance](image)

**Figure 5. Intervention domain relevance.**

Consequently, a set of developed products based on the ones that were being implemented, such as adapters that have improved the use of meal utensils, thus enabling the user’s autonomy (fig.6) during activities and games with the possibility of combining sensory stimuli such as cognition and memory (visual, auditory, and tactile).

![Lifting Base for plates](image)

**Figure 6. Lifting Base for plates**
2.2 Conclusions and considerations

The process presented is an innovative case for the integration of a designer in the development of project planning in the sector of intellectual disability, and since the very beginning it has been possible to account for a set of actions validated by technicians for its potential application in new creative methodologies, and in the development and construction of new projects for the day-to-day life. The collaborative process had an initial holistic approach analyses to clarify the potential sectors and methods for improvement.

Figure 7. Design Methodology and Analysis.

The analysis of design methodology implementation in the planning and discovery process within an Instructional Design and Development (IDD) organization revealed noteworthy outcomes. (Fig.7) These included enhanced recognition of design strategies and processes, validation of established design practices, the emergence of new collaborative approaches, and improved problem-solving and prioritization. The methodology also facilitated acknowledgment from peers and colleagues, encouraged comprehensive solutions through diverse perspectives, and effectively addressed critical issues, fostering recognition, collaboration, innovation, and efficiency. These findings highlight the valuable role of a well-executed design methodology in driving positive changes within the IDD context.

The second set of outcomes emerged following the initial production and application of the first prototypes, starting with a Needs Assessment. This process allowed for the identification of critical areas that required immediate attention through a dedicated Low-Cost Solutions Development phase. Innovative and budget-friendly approaches were devised to address the identified needs.

Collaborative Problem-Solving-Development emerged as a significant approach, where teams collaboratively worked together to devise effective solutions. This collaborative process further evolved into a Co-Design process, where stakeholders and users actively participated in shaping the design solutions. Finally, the outcomes were validated through rigorous Product Testing, ensuring their viability and effectiveness. This iterative cycle contributed to a comprehensive and inclusive design process that catered to critical areas while promoting Collaborative innovation and Data-Driven
Design incorporating data analysis, evidence-based design decisions, improving the precision and quality of their work.

The third phase unfolded subsequently to the initial preliminary case studies, as they indicated potential areas for improvement. Leveraging in-house resources, the focus shifted towards product refinement and development. This encompassed thorough evaluations of client benefits, the effectiveness of the care support team, and the overall service provided.

These evaluations yielded valuable insights that, in turn, generated new data for further research. This research, in combination with insights gathered from client feedback, served as a foundation for both product development and innovative explorations into new areas.

The success of this process culminated in client approval. This phase illustrated the iterative nature of the design cycle, where each step informed and refined the next. By strategically integrating in-house resources, client feedback, and research-driven insights, the organization was poised to not only enhance existing products and services but also to identify novel opportunities for innovation and holistic client satisfaction.

The fourth ongoing stage involves the following key aspects: Family Recognition, Home Delivery and Appliance, and Caregiver Adaptation. These components are integral to the organization's ongoing efforts to enhance its design solutions and ensure a comprehensive and user-centered approach. The focus is on recognizing and addressing family needs, optimizing home delivery processes, and adapting caregiver practices to create a more inclusive and supportive environment for users. Through continuous refinement and adaptation in these areas, the organization aims to deliver impactful and meaningful design solutions that cater to the diverse needs and preferences of its users.

The actual contribution of Design in the institution’s daily practices has been positive, essentially increasing the efficiency of practical activities, and the integration of Design in the project planning processes has been progressive. At CERCICA, the Defigne project has redesigned a more holistic perspective of the potential of Design, bringing together the areas of knowledge, and enabling a transdisciplinary creative process. With this case study, we expect to expand and demonstrate the potential of the designer’s role in different contexts, demonstrating and implementing new processes in project development and, as Manzini as suggested, to generate social innovation through design. (Manzini, 2016) The integration on an already defined and structured planning enabled a perception of the programming of tasks, activities, and treatments, facilitating the allocation of Design implementation in the already defined planning, not interfering or obstructing the existing routine. It also allowed health experts and technicians to be more open to contributing to potential changes and developments in tools and practices for the benefit of clients.

2.3 Reflexions on Transdisciplinary Methodology development

The involvement of stakeholders in the process of co-creation in this specific context is relevant and it is up to the designer the role of instructor and facilitator among those involved. (Bernarda J., Ferreira, Queiroz, & Silva, 2017) This methodology is being developed in similar case studies to achieve a deeper approach to each case and to improve solving capabilities in daily problems. As we have already analysed in similar contexts, the synchronization of the entities involved is fundamental and it is up to the designer to conceptualize and facilitate the infrastructure of co-creation increasing the
cross-knowledge-based learning methodology by redistributing the interactions between distinct social and health sectors. (Norman, 2011) (Berger I, 2023)

The analysis insights of the interdisciplinary interactions have demonstrated specific procedures that have to be reviewed, adjusted, and reformulated:

- Peer-to-peer recognition will allow an in-depth knowledge of the profile of the health experts and their working method. With this process it will be possible to have a greater engagement and co-relationship on the typologies of intervention and possibilities of co-creation.
- To recognize and differentiate criteria and technical terms to benefit each participant, of all areas of intervention, to have a clearer perspective of the peer’s activity and methods demystifying potential preconceptions and disinformation.
- Develop Coping Strategies to develop cognitive and behavioural mechanisms of response to situations of adaptation to new contexts, namely by the elimination or modification of the situations that create the problem, through the perceptual control of the meaning of the experience and its consequences.
- Collaborative techniques and procedures integration have gradually been adopted on health services to approach an interdisciplinary problem, allowing a more holistic and consensual problem-solution, and promoting a win-win benefit for all health experts, patients, and institution.
- Be conscious about the low budget of the institutions and adapt design solutions to this reality.

3 Institution internal procedures analysis

The integration of a methodology in a structure implies an adaptation of all processes in different areas. As Peter Jones (2013) has already stated, the recognition and integration of design in healthcare may be a complex challenge thanks to the need for extensive reviews, development testing and approval. With this case study it has been possible to verify such distance from familiar processes to Design, more specifically in the processes of analysis and observation, creative development, and data validation. In social and health care, the opinion of stakeholders and of some organizations on a design aiming for cooperation in social sustainability projects, still revealed some surprise, possibly due to its innovative nature. (Bernarda, 2020)

Previous studies have demonstrated the designers’ capacity to handle a heterogeneous collaborative sense in sharing distinct knowledge with associated social added value, the ability to promote collaborative processes due to his aggregating ability to combine different sectors for a common good and the designer’s capacity, as an operating specialist in the visualization of conceptual ideas, to a subsequent materialization and production, triggering innovative activities and products. (Bernarda J. , Ferreira, Queiroz, & Silva, 2017) These facts are aligned with the perspective of Peter Jones who highlights the need for a more integrated intervention of the designer in the development of patient-centred projects and services in public health organizations. The integration will inevitably assess the status of procedures in practice by the organization and the review potentially will have a direct impact on the intervention strategies adopted by the structure, being aware of the range of experiences and constraints under which the different health experts operate. (Bernarda, 2020) (Meroni, et al., 2018)
The Defigne project is registering a progressive evolution and the planned strategy considered the integration phase in planning, peer recognition and strategic collaboration activities. According to what was observed in the first phase, it was possible to recognize some important notes on the impact of the integration of design in the context procedures and identified specific domains and distinct areas for improvement:

On institution:

- Implementation of rapid production (3D printing) processes to accelerate new intervention methods and products.
- Update of procedures and new methods of analysis of evolution and diagnosing, enhancing a faster and more detailed deepening of diagnostic capabilities.
- Additional methods of understanding and classifying the degree of disability by expanding the procedures of analysis to achieve a more detailed report.
- Review of individual support plans and activities adapted to specific clients, accelerating a personalized intervention process.
- Promote methodologies of creativity and knowledge through innovative discussions and meetings, supporting shared and constructed knowledge designing correlated activities between the different technicians in order to have a consequent and interdisciplinary impact.

On clients:

- Development of products to give the client more autonomy in daily activities granting also a more general attention and follow-up to the group dynamics by the health assistance technicians.
- Better satisfying and pleasant emotions to promote less stressful and anxious moods that, according to the health experts, generate accidents and shocks between clients or with the health experts, leading to a more difficult activity development.
- Review of individual support plans and activities.
- Advancements in Assistive product design approach to bridge the gap between functionality, aesthetics, and inclusivity, ensuring that assistive products are seamlessly integrate into the users' daily routines and activities.

On Health Experts:

- Encourage health experts to participate more actively in the development of new adapted products by co-designing, co-testing and co-validate prototypes.
- Clarify design procedures and creativity capacities on complementary sectors.
- According to a survey applied to the Specialists and Health Care auxiliaries’ team, it was possible to verify a tendency to consider the mobility and motor manipulation factors as the most relevant to overcome.
- Sensory enhancement techniques will offer new possibilities of perception and interaction for individuals with sensory impairments.

On Design:
• Presenteval participation in the evaluation of context and diagnosis, as well as in the validation and monitoring of the implementation.

• Contribute to scientific advancements through tools development for situation analysis (Person, Situation, Context, and Institution).

• Isolate and focus on distinct problems.

• Deepen design inclusion potential in different public health sectors.

3.1 Future Design expectations in public health organizations

The process of integration and work within the cooperative partner (CERCICA) was developed together with activities with specific objectives to improve the effectiveness of the client’s activities or routines. The analysis was elaborated according to parameters related to the ability to carry out the activities, to determine the level of support that may be required, essentially considering the autonomy in the tasks and the handling of objects, potential for interdisciplinary collaborations among the health experts in order to provide comprehensive care, validating the need for design professionals in the public health sector as promoters of new services and products that can improve health outcomes, but also as facilitators of internal interdisciplinary collaboration and guidelines of action. This activity has produced some outlines with potential for future evolution in public health organizations such as:

• Baseboard for inputs on daily challenges: This could involve creating a centralized platform or system where public health professionals can report and track the daily challenges they face, whether related to patient care, resource management, or other issues. This information could then be used to identify trends and areas for improvement reducing trial-and-error and expediting the implementation of successful strategies.

• Interdisciplinary pattern behaviour and interaction flow analysis: By analysing the patterns of behaviour and interaction flow between different departments and professionals within a public health organization, it may be possible to identify ways to promote a better and more effective collaboration for developing hypotheses and intervention plans, which can help ensure that all relevant perspectives are taken into account and that interventions are tailored to the specific needs of the population being served.

• Development of new practices that contribute to qualitative research in Design, Interdisciplinary practices, Public and Mental Health matter, improving their ability to gather and analyse data, and make evidence-based decisions.

• Development of profiles for disability evolution, by registering a set of data that could be organized and listed to perform a more intuitive overview of the client actual state and progression which could provide a more intuitive overview of a client's actual state and evolution over time. This information could be used to inform treatment plans and improve outcomes for health experts.

• Autonomous production of adaptive tools through self-productive systems, such as 3D printing, can offer significant advantages to institutions by enabling them to customize and adapt their tools and utensils quickly and efficiently to meet the needs of their clients or patients. By using 3D printing technology, institutions can produce tools and utensils that are specifically designed to meet the unique needs of each individual, thereby providing a more personalized experience that can lead to improved outcomes and increased patient satisfaction. In addition to providing greater customization, autonomous production systems can also help institutions reduce costs by eliminating the need for large-scale production.
facilities and reducing waste. This type of creation can be performed on demand, reducing the need for inventory management, lowering the risk of overproduction with significant advantages in terms of customization, cost reduction, and waste reduction.

- Disability Led design implementation will challenge negative stereotypes and stigmas surrounding disability and will promote a more positive and empowering image, involving all concerned in the design development. (by involving people with disabilities and healthcare experts on)

We can also conclude that some health trends will potentially arise, and designers should be aware and prepared to be an underlying participant:

1. Development of multidisciplinary facilitator skills to develop spaces/timelines for collaboration and coordinate a higher range of Health experts that will have the opportunity to discuss and define the most appropriate and personalized treatment recommendations, favouring the development of health equity metrics, helping public health professionals and caregivers identify and address health disparities, subtle changes or abnormalities that may indicate the early stages of disease and dementia.

2. Healthcare system knowledge to identify the nods that can relate or distance distinct disciplines, Communication skills for bridging together professionals from different fields with a common language, Organizational skills in planning agendas for collaboration, Mediator skills favouring a helpful communication and influence knowledge distribution and Culturally competent to include all cultures.

3. Analyse medical imaging data and Identify gaps in current treatment approaches and develop new therapies, products, or interventions to address these gaps.

4. Developing medical prototyping and medical creativity skills to enable fast-response innovation in-house helping healthcare professionals to iterate on solutions quickly and arrive at effective solutions.

5. Incorporating In-House Resources: Leveraging in-house resources for product refinement and development showcases an innovative approach that maximizes internal capabilities and knowledge.

6. Encouraging experimentation and fostering a culture of innovation can help healthcare organizations to stay ahead of the curve and adapt to changing healthcare needs and technologies, which in turn drives effective problem-solving.

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Acknowledgement: I would like to express my gratitude to all the health experts and assistants at CERCICA who have contributed to the implementation of Design practices that have supported the results of this research paper.