Changing perspective on social inclusion and design: exploring the concept of designing for inclusive attitudes

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The pandemic increased disparities and exacerbated pre-existing inequalities. Attitudinal barriers and discrimination were also exacerbated by the pandemic effects. Some diversity conditions suffered more than others post-pandemic status because their needs were not embedded in the pandemic planning prior to COVID-19. Also, the pandemic effects underlined the importance of embedding Inclusion, Diversity, Equality and Accessibility strategies in complex contexts such as in healthcare systems. Therefore, the paper focuses on how to improve inclusive attitudes through design for fighting discrimination and promoting diversity in society. However, traditional design for inclusion approaches does not provide instruments to address this aspect. Consequently, the paper embraces the Design for Inclusive Attitudes (DxIA) framework and explores the possibility to identify insights for the related design principles. Cases are reported according to an innovative framework for analysing them by matching types of interventions/policies, levels of change, individual identities in diversity, inclusion needs, design domains and design disciplines. Additionally, artificial intelligence (AI) platforms were used to provide interrogations on the DxIA aspects and inspire the identification of insights for the DxIA principles. As a result, the paper presents the analysis of the cases and the text analysis of the interviews with the AI platforms. They were discussed by underlining seven insights that may serve as principles for the DxIA. Finally, the DxIA is discussed as promising for addressing the new emerging inclusion after-pandemic challenges.

Keywords: design for inclusive attitudes; inclusive attitude; design for social inclusion

1 Introduction

The pandemic increased disparities, posed new challenges and exacerbated pre-existing inequalities (OECD, 2021) such as general conditions in labour (Ferreira, 2021) and for people with disabilities in the low- and middle-income contexts (Thompson & Rohwerder, 2023). In OECD countries some minorities are recovering more slowly than other population groups, and "COVID-19 mortality rates for some racial/ethnic minorities have been more than twice those of other groups and, while mental health deteriorated for almost all population groups on average in 2020, gaps by race and ethnicity

are also visible" (Organisation for Economic Co-operation and Development, 2022). Additionally, about the gender gap and its situation after the pandemic, the Word Economic Forum underlined that "across economies, pre-existing gender gaps have exacerbated the asymmetric effect of the pandemic, in terms of employment and labour force participation" (Word Economic Forum, 2021). Also, in Europe people with disabilities suffered more than others from the impact of the pandemic for several reasons such as premature loss and the fact that "the rights of persons with disabilities were not centrally embedded in national disaster or pandemic planning prior to COVID" (European Commission, 2021). The pandemic effects underlined the importance of embedding Inclusion, Diversity, Equality and Accessibility strategies in complex contexts such as in healthcare systems for addressing discrimination (cf. Mullin et al., 2021). Also, attitudinal barriers, such as negative perceptions of a person's disability (Preedy & Watson, 2010) and similar perceptions of other diversity conditions played a central role in the exacerbation of existing inequalities due to Covid-19 (Ito et al., 2020). These phenomena are changing the way we need to consider social inclusion in the contemporary era. I argue working on inclusive attitudes from a design perspective may increase the possibility to develop an inclusive society by following the UN Sustainable Development Goals. Attitudes "are underpinned by values and beliefs" and they help to evaluate certain situations and concepts (cf. UNESCO IBE, 2013). Even if the attitude towards inclusion is widely known and discussed in the educational system (cf. Lautenbach & Heyder, 2019; Monsen et al., 2015; Ewing et al. 2018; Ryan, 2009; Kielblock & Woodcock, 2023; Saloviita, 2015; Koliqi & Zabeli, 2022), this topic also relates to communities and their predisposition towards negative attitudes, stereotypes and discrimination (cf. UNESCO, 2021; Idle et al. 2021). Attitudes are evaluations and they are partially inherited, while other attitudes can be learned through direct and indirect experience (Jhangiani & Tarry, 2022). Attitude has cognitive (beliefs, thoughts, and attributes), affective (feelings or emotions), and behavioural components with respect to an attitude object (see Eagly & Chaiken, 1993; Maio et al., 2019). An inclusive attitude is a positive predisposition towards that object related to inclusion and diversity aspects. Therefore, this paper starts by questioning what kind of design perspective can be assumed to address new social inclusion challenges by addressing the possibility to develop an inclusive attitude through design.

1.1 Design literature perspective

Literature in design mainly provides traditional design for inclusion approaches (cf. Reed & Monk, 2006; Di Bucchianico, 2021) - i.e. Inclusive Design (ID) (see Clarkson & Coleman, 2015; Waller et al., 2015), Design for All (DfA) (see European Institute for Design and Disability, 2004; Bendixen & Benktzon, 2015; Bandini Buti, 2018) including the EN 17161:2019 (European Committee for Standardization, 2019), and Universal Design (UD) (see Story, 2011) including the eight goals (Steinfeld & Maisel, 2012). These approaches are mainly anchored to the design of products, environments, technologies, and digital outputs. Meanwhile, new perspectives and approaches emerged such as the Evolving Inclusive Design model (Loughborough University, 2021), the Inclusive Service Design (Aceves-Gonzalez, 2014; Aceves-Gonzalez et al., 2016), the psychosocially inclusive design (Lim et al., 2021), the design for service inclusion (Fisk et al., 2018), the just design concept (Bianchin & Heylighen, 2018), the Design Justice framework (Costanza-Chock, 2020; cf. also Costanza-Chock, 2018; Huffstetler et al., 2022) the human design for inclusion perspective (Reinert & Ebert, 2021), and the design for an inclusive attitude (DxIA) (Busciantella-Ricci et al., 2022a). The latter follows what is happening in several institutions regarding the framework of Equality, Diversity and Inclusion (EDI) for improving

the experiences of minorities within specific contexts, by also intervening with the ID body of knowledge (see Dong et al., 2023). DxIA has been introduced as a transition design approach to promote positive attitudes towards diversity and inclusion (cf. Busciantella-Ricci et al., 2022a). Firstly, the DxIA has been framed as an approach which differs from the other's design for inclusion approaches because impacting the attitudes towards inclusion and diversity by leveraging cognitive, affective, and behavioural components (see Eagly & Chaiken, 1993; Maio et al., 2019). Indeed, DxIA mainly focuses on cultural barriers rather than physical and cognitive barriers. Secondly, DxIA not only focuses on empowering the conditions of potentially excluded people; DxIA addresses the challenge of taking care of the attitudes of those that create exclusion conditions in several relevant contexts for the diversity aspects. For instance, DxIA means taking care of the male chauvinist attitude through design for improving the gender gap against woman's conditions in a context (cf. Kimmel, 2009; Essig & Soparnot, 2019). As highlighted in the previous paragraph, discrimination and exclusions phenomena have routed causes that need systemic interventions. For this reason, the DxIA is based on transition design (Irwin, 2015; Irwin et al., 2020). Indeed, the DxIA theoretical framework (see Busciantella-Ricci et al., 2022a) is based on a theoretical framework that proposes to compare it with the logic of the transition design framework. In this logic, design disciplines that are used for the built world and the design of services correspond to the traditional design for inclusion approaches and a few emerging ones (such as inclusive service design, and service inclusion). Similarly, the design for social innovation in the continuum of the transition design framework corresponds to the design for social inclusion according to the DxIA perspective. Finally, DxIA corresponds to transition design and focuses on radical change through design for addressing diversity and inclusion issues. The DxIA framework is described in a paper that positions the original idea of the DxIA without providing any case or applications. However, this paper assumes the perspective of the DxIA (cf. Busciantella-Ricci et al., 2022a). I argue this approach can challenge the exacerbation of exclusion phenomena after the pandemic. However, the DxIA, which is essentially a conceptual and theoretical framework, lacks a set of design principles for the practice. And this is the aim that follows this paper. For applying a design approach, clarifying these aspects may inform how to make the practice (cf. Steinfeld & Maisel, 2012). Consequently, they are useful elements to know how the DxIA can contribute to the contemporary design culture.

1.2   Design principles of the DxIA and the attitudes change perspective

In looking for DxIA principles from design literature, only ID (Commission for Architecture and the Built Environment, 2006) and UD (Story, 2011) can contribute with an architectural and build environment perspective. In the meanwhile, several organizations are suggesting and adopting Inclusion, Diversity, Equity & Accessibility (IDEA) (cf. Baker & Vasseur, 2021a; 2021b; Tan, 2019) frameworks for improving diversity issues. Education and research contexts are pioneering on these topics. For instance, the Athena Swan Charter Principles (AdvanceHE, 2021) (Figure 1) support gender equality to transform higher education and research contexts. Similarly, a few studies are focusing on suggesting frameworks for Equity and Inclusion in Curriculum Design within the education contexts (see Alozie et al., 2021) (Figure 2). In parallel, a few organizations created guidelines, principles, and committees to assure inclusion values are systematically applied. This is the case of the IDEA framework as provided by the Indiana Arts Commission (n.d.; Mullin et al., 2021) and the Infectious Diseases Society of America (IDSA) (2018) (Figure 3). Also, the principles and core values for strengthening the culture of Diversity & Inclusion in the company, provided by the UN Global Compact Network (2021), sign

systematic attention in thinking about the growth of the workplace through the value of diversity culture. This organizational perspective may significantly contribute to understanding possible DxIA principles. Also, they can be interpreted as strategic processes to impact attitudes toward inclusion and diversity. In contrast, a few studies are proposing alternatives to IDEA frameworks through Belonging, Dignity and Justice principles (Davis, 2021). However, the DxIA has the ambition to create principles to be adopted both in organizations and informal communities. In this sense, the Design Justice principles (Costanza-Chock, 2018; 2020) (Figure 4) can help with this scope. In addition, because the DxIA aims to impact society's attitudes it is necessary to reflect on contemporary inclusion needs based on intersectional perspectives. For this purpose, the 8-Inclusion Needs of All People (Wilson, 2023) (Figure 5) offers a framework that may influence the building of the DxIA principles.

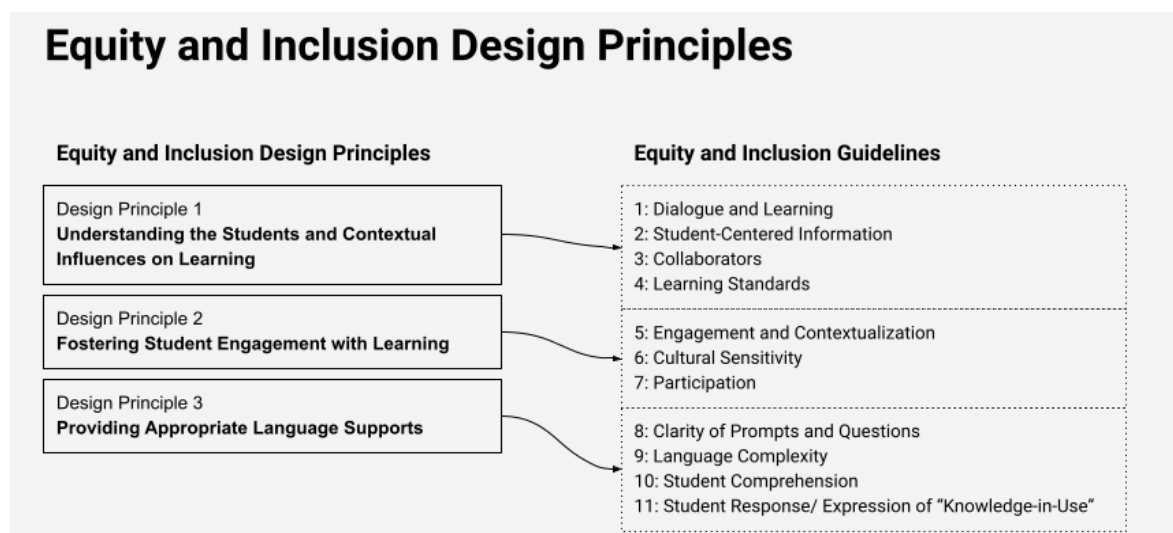*Figure 1. Athena Swan Charter Principles. Adapted from AdvanceHE (2021).*

Figure 2. Equity and Inclusion Design Principles. Adapted from Alozie et al. (2021).

IDEA guidelines and principles: examples for organizations

What can be done as an Individual Practitioner?

- Learn - participate in trainings, read books, and actively listen
- Seek support from colleagues who are in the process of creating change within their institutions.
- Be committed to a lifelong process of learning and change.
- Be available to your peers as a resource.
- Conduct data analysis on your own portfolio to identify where dollars are going and opportunities for change.
- Use inclusive and welcoming language in your external communications.
- Seek research and data about equity to present to leadership.
- Learn the history of local African, Latino/Hispanic, Asian, Arab, and/or Native American communities and become familiar with leaders. Attend their public events, and develop relationships.

What can be done in your Institution?

- Provide opportunities for board and staff to learn about or attend trainings on implicit biases and historical perceptions of disability.
- Assure that an equity lens informs all decision-making, programs, policies, and procedures.
- Establish an equity advisory committee or working group of colleagues that will inform programming direction and guide institutional change.
- Use inclusive and welcoming language in your external communications.
- Advocate research and data collection that accurately represents the demographics served by and serving in arts organizations and foundations.
- Intentionally consider, select, and support board and staff who value equity.
- Intentionally consider, select, and support diverse candidates for board and staff.
- Collaborate with other organizations working in IDEA to provide resources and share best practices to create equity.

Source: Inclusion, Diversity, Equity, and Access (IDEA) (Indiana Arts Commission, n.d.)

Principles approved by the IDSA Board on December 6th, 2018

We are committed to build a Society based on the principles of Inclusion, Diversity, Access, and Equity (IDA&E). To achieve this, we will intentionally:

- *Cultivate a welcoming environment where differences are embraced, valued, and respected.*
- *Ensure that processes, policies, and practices foster fairness, belonging, equity, and reflect the views and values of our Society.*
- *Guarantee transparency to promote fair treatment and access to opportunities for all members within all levels of the organization.*

Source: Guiding principles of the Inclusion, Diversity, Access, and Equity (IDA&E) Task Force of the Infectious Diseases Society of America (IDSA)
(Infectious Diseases Society of America (IDSA), 2018)

Figure 3. Examples of how to develop IDEA and DEI principles and guidelines for organizations. Adapted from Indiana Arts Commission (n.d), and Infectious Diseases Society of America (IDSA) (2018).

Design Justice Principles

1. **Principle 1 We use design to sustain, heal, and empower our communities, as well as to seek liberation from exploitative and oppressive systems.**
2. **Principle 2 We center the voices of those who are directly impacted by the outcomes of the design process.**
3. **Principle 3 We prioritize design's impact on the community over the intentions of the designer.**
4. **Principle 4 We view change as emergent from an accountable, accessible, and collaborative process, rather than as a point at the end of a process.**
5. **Principle 5 We see the role of the designer as a facilitator rather than an expert.**
6. **Principle 6 We believe that everyone is an expert based on their own lived experience, and that we all have unique and brilliant contributions to bring to a design process.**
7. **Principle 7 We share design knowledge and tools with our communities.**
8. **Principle 8 We work towards sustainable, community-led and -controlled outcomes.**
9. **Principle 9 We work towards non-exploitative solutions that reconnect us to the earth and to each other.**
10. **Principle 10 Before seeking new design solutions, we look for what is already working at the community level. We honor and uplift traditional, indigenous, and local knowledge and practices.**

Figure 4. Design Justice Principles. Adapted from Costanza-Chock (2020; also cf. Costanza-Chock, 2018).

8-Inclusion Needs of All People

1. **Access -** Ensuring all people can see and hear, or understand via alternatives, what is being communicated; and physically access or use what is being provided.
2. **Space –** Ensuring there is a space provided that allows all people to feel, and are, safe to do what they need to do.
3. **Opportunity –** Ensuring all people are provided opportunity to fulfil their potential.
4. **Representation –** Ensuring all people can contribute and are equally heard and valued.
5. **Allowance –** Ensuring allowances are made without judgement to accommodate the specific needs of all people.
6. **Language –** Ensuring the choice of words or language consider the specific needs of all people.
7. **Respect –** Ensuring the history, identity, and beliefs of all people are respectfully considered.
8. **Support –** Ensuring additional support is provided to enable all people to achieve desired outcomes.

Figure 5. 8-Inclusion Needs of All People. Adapted from Wilson (2023).

In addition, references from social psychology contribute to understanding principles by considering how shaping attitudes and providing interventions, that are DxIA scopes. Among these, Maio et al. (2019; Maio & Haddock, 2007) described four basic principles to shape attitudes i.e., influence by "silly things", influence by motivation and ability, and influence by a common language. Similarly, Idle et al. (2021) described evidence about policies and interventions that changes attitudes towards disability in communities by basing their work on the Behaviour Change Model Wheel (Michie et al., 2011) (Figure 6). Also, Randle and Reis (2019) provided recommendations for social marketing to influence community attitudes toward disability (Figure 7). These references create a theoretical background and a conceptual framework for understanding how to frame DxIA studies for letting principles emerge. In addition, all the reported frameworks, principles and recommendations describe a fragmented structure that the DxIA may combine with a set of principles.

Types of intervention / policy for attitudes change

Interventions

1. Education,
2. Training,
3. Modelling,
4. Persuasion,
5. Environmental restructuring,
6. Enablement,
7. Restriction,
8. Coercion,
9. Incentivisation

Policies

1. Communication/ marketing,
2. Guidelines,
3. Fiscal,
4. Regulation,
5. Legislation,
6. Environmental/ social planning,
7. Service provision

Figure 6. Types of intervention / policy for attitude change. Adapted from Idle et al. (2021).

Social marketing recommendation to influence community attitudes

1. Co-creation of campaigns;
2. Multifaceted campaign strategies (promotional campaigns alongside contact between key target groups and people with disabilities);
3. Strategic selection of target audiences (segmentation of the market);
4. Positive framing of messages (e.g. "focus on ability rather than disability");
5. Depictions of interactions between people with and without disabilities;
6. Strategic selection of spokespeople;
7. Effective campaign evaluation.

Fig. 7. Social marketing recommendation to influence community attitudes. Adapted from Randle and Reis (2019).

2   Methodology

Cases were selected with the aim to understand how to address inclusive attitude issues from a design perspective and extrapolate insights for DxIA principles. Regarding the data collection, among the six sources of evidence discussed in Yin (2018), documentation, and preliminary data from interviews, focus groups, and direct observations were adopted. Specifically, I used (cf. Yin, 2018) emails, memoranda, diaries, notes, reports of events (including informal interviews with academic experts and representatives of the third sector) and research project proposals (including literature research) used for building the theoretical background of a research project namely "DesIA - Designing for an Inclusive Attitude" funded by NextGenerationEU funding (DesIA, n.d.). Contextually, I also collected data through the documentation used to design and develop fieldwork (i.e., user research, surveys, focus groups, semi-structured interviews, and co-design workshops) for the DesIA project. In addition, cases were also selected by the documentation and reports provided through the early literature research process for the DesIA project. Indeed, during the preliminary research a series of examples emerged by searching studies, grey literature, and practices related to attitudes towards inclusion and diversity on Google, Google Scholar, Scopus, Web of Science, CORDIS, ChatGPT, and by also searching European online newspaper, as well as by following social media (Facebook, Instagram, Linkedin) accounts related with inclusion and diversity. This set of information was also used to corroborate (cf. Yin, 2018) both data collected during an action research project where the author was engaged to understand how to design healthy and inclusive neighbourhoods (Busciantella-Ricci et al., 2022b). From the direct observation of several local communities and the third sector, a series of inclusion practices were collected as consistent with the DxIA approach. Finally, I integrated data collected during semi-structured interviews (n=5) and two focus groups (n=30 participants) developed during the early fieldwork activities of the DesIA project.

In order to select the cases, I adopted a typical-case approach that is based on an inductive approach (Gerring, 2006). Also, due to the DxIA does not have a comprehensive definition yet, the framework provided by Idle et al. (2021) was assumed by collecting examples that at least cover one of the sixteen typologies described by the Behaviour Change Model Wheel (Michie et al., 2011). In addition, I based

the selection of the cases on the Multicomponent Model of attitude (Eagly & Chaiken, 1993; Maio et al., 2019) where cognitive, affective, and behavioural components are those that affect the shaping of inclusive attitudes. The choice of the case was also determined by the framework of the thirteen individual identities that also contribute to intersectionality (Wilson, 2023). Priority has been done to identify cases that can cover multiple aspects of diversity. Consequently, I defined the following criteria for selecting the typical cases i.e.:

- It potentially provides attitude change impacts;
- It focuses on diversity and it has social inclusion implications;
- It is an inclusive output;
- It presents disruptive features or creative solutions.

To analyse the cases, I adopted a framework (fig. 8) made by the nine types of interventions, the seven types of policies, and the five levels of intervention for changing attitudes as adopted by Idle et al. (2021) and based on Michie et al. (2011). In addition, I considered the ways for interventions i.e., information-based cognitive interventions, practical field experience, and combination of information and experience as analysed by Idle et al. (2021) and introduced by (Lautenbach & Heyder, 2019). Also, for understanding how to relate these references to the multiple perspectives of diversity, I integrated into the framework the thirteen individual identities in diversity and the 8-Inclusion Needs as introduced by Wilson (2023). Finally, a design research lens was embedded in the framework to analyse the cases with orders of design (Buchanan, 2001; Mortati, 2022); design contents (Young, 2008); design domains (Jones, 2014). However, the cases are still not representative of a comprehensive set of design knowledge. Therefore, I only adopted the design domains (Jones, 2014) perspective, and the related involved design disciplines.

I used the cases as data to define useful insights for reflecting on possible design principles of the DxIA interpreted as "actionable, forward-looking prescriptive statements" (Kumar, 2012).

Additionally, artificial intelligence (AI) chatbots were used with the aim to understand how to explore the same concepts with machine-learning-connected instruments that access huge datasets. Indeed, AI chatbots start to be recognised as AI instruments to also "provide an overview of the current state of the field" (Salvagno et al., 2023) in scientific research. They are growing as freely online available instruments trained with a huge amount of data (cf. Caldarini et al., 2022). Indeed, if they are taken as a partner to brainstorm on a topic, they are able to produce more ideas and with more diversity than traditional brainstorming with a human being (cf. Wieland, 2022). All these aspects contribute to making these instruments time-savers for contributing to the research processes (cf. Salvagno et al., 2023) and broaden the horizon of the possibilities of discussions on a topic. These are the reasons why AI chatbots are also adopted in this work. Therefore, open AI instruments i.e., ChatGPT (OpenAI, n.d.), GPT-3 Playground (Platform.openai, n.d.), YouChat (YouChat, n.d.) were used as the most accessible on the WEB. All the AI instruments use datasets provided prior to 2021, therefore, i.e., before the first article on DxIA in 2022. All the instruments were used according to the default settings of every platform. They were accessed through a VPN system connected from the United States to avoid law interference with other countries.
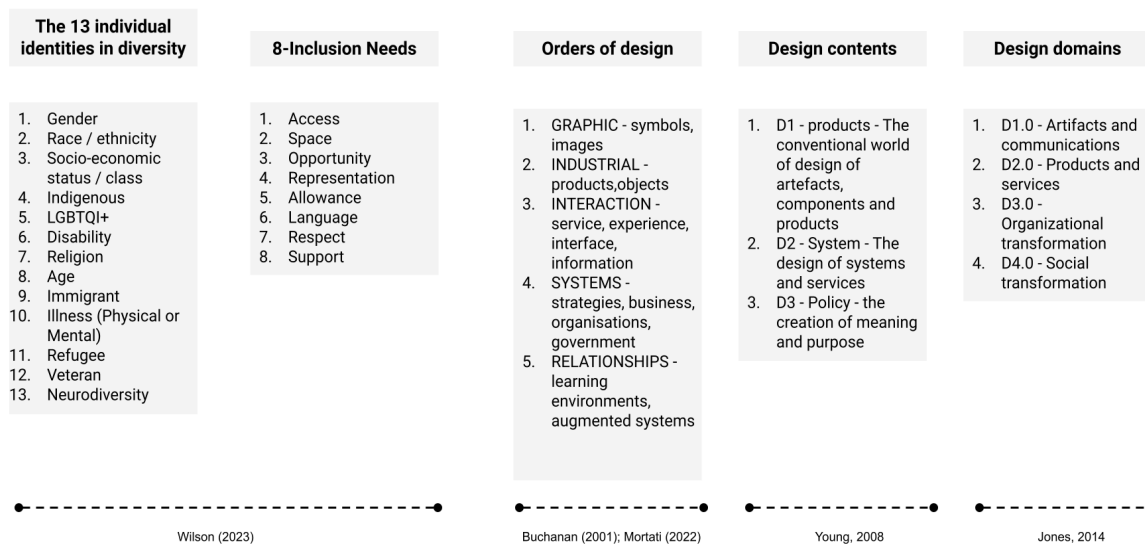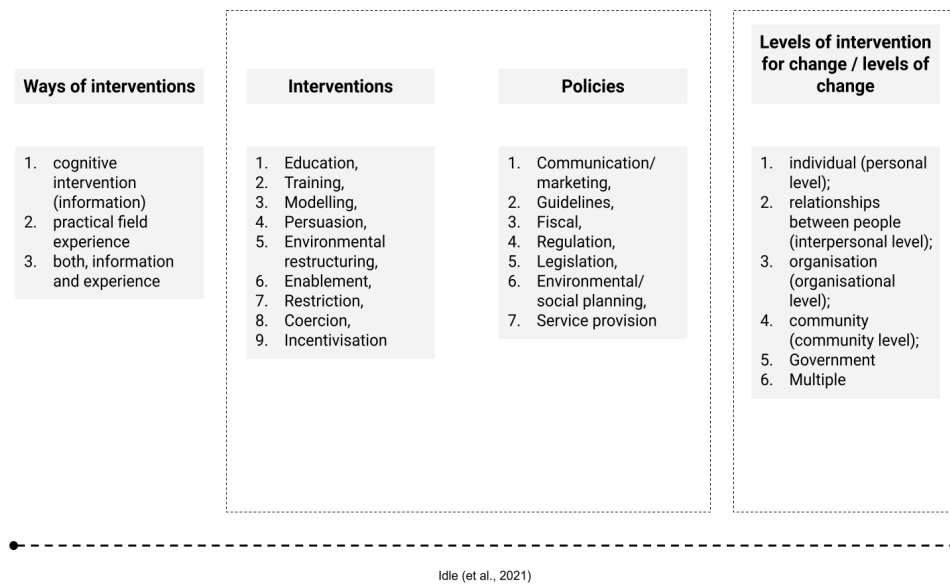
Ways of interventions

1. cognitive intervention (information)
2. practical field experience
3. both, information and experience

Interventions

1. Education,
2. Training,
3. Modelling,
4. Persuasion,
5. Environmental restructuring,
6. Enablement,
7. Restriction,
8. Coercion,
9. Incentivisation

Policies

1. Communication/marketing,
2. Guidelines,
3. Fiscal,
4. Regulation,
5. Legislation,
6. Environmental/social planning,
7. Service provision

Levels of intervention for change / levels of change

1. individual (personal level);
2. relationships between people (interpersonal level);
3. organisation (organisational level);
4. community (community level);
5. Government
6. Multiple

Idle (et al., 2021)

The 13 individual identities in diversity

1. Gender
2. Race / ethnicity
3. Socio-economic status / class
4. Indigenous
5. LGBTQI+
6. Disability
7. Religion
8. Age
9. Immigrant
10. Illness (Physical or Mental)
11. Refugee
12. Veteran
13. Neurodiversity

8-Inclusion Needs

1. Access
2. Space
3. Opportunity
4. Representation
5. Allowance
6. Language
7. Respect
8. Support

Orders of design

1. GRAPHIC - symbols, images
2. INDUSTRIAL - products,objects
3. INTERACTION - service, experience, interface, information
4. SYSTEMS - strategies, business, organisations, government
5. RELATIONSHIPS - learning environments, augmented systems

Design contents

1. D1 - products - The conventional world of design of artefacts, components and products
2. D2 - System - The design of systems and services
3. D3 - Policy - the creation of meaning and purpose

Design domains

1. D1.0 - Artifacts and communications
2. D2.0 - Products and services
3. D3.0 - Organizational transformation
4. D4.0 - Social transformation

Wilson (2023) Buchanan (2001); Mortati (2022) Young, 2008 Jones, 2014

Fig. 8. Visual representation of the used framework to analyse the cases.

The AI chatbots were used to brainstorm on the general aspects of the DxIA, and on possible insights for the DxIA principles. The following questions were used with the aforementioned chatbot:

1. What is an inclusive attitude?
2. How would you describe the design for an inclusive attitude?
3. What is the design for an inclusive attitude?
4. What are the indicators of an inclusive attitude?
5. What are indicators of the design for an inclusive attitude?
6. What are examples of design for an inclusive attitude?
7. What are the cases of designing for an inclusive attitude?
8. What are the principles of the design for an inclusive attitude?
9. Does design for an inclusive attitude exist?
10. Why is the design for an inclusive attitude important?

A second session of questions was also used to better focus on (i) the relationship between attitude change and design, and (ii) how to concept design services that can promote inclusive attitudes. The questions were:

11. How would you describe the design for the attitude change towards inclusion?
12. How would you describe designing for attitudes change towards inclusion?
13. What is the design for the attitude change towards inclusion?
14. How does designing for attitudes change towards inclusion?
15. Could you design a service that respects the principles of the design for an inclusive attitude?
16. Could you design a service that respects the principles of designing for attitude change toward inclusion?

The results from the AI instruments were analysed with a qualitative approach through the analysis of the contents (cf. Yin, 2018).

3   Results

Two sets of results emerged; (i) the selected cases; (ii) the analysis of the texts about the answers from the AI chatbots. Both provide insights for the DxIA principles as discussed in paragraph 4.3.

3.1   The selected cases and their specificities

The selected cases are reported in Table 1. For each case, I highlighted types and levels of change as discussed in Idle et al. (2021), aspects of diversity and the '8-Inclusion Needs' (Wilson, 2023), design domains (Jones, 2014), and the related design disciplines. This aspect has been deliberately determined according to the possibility to frame what kind of design disciplines can be involved in the case of reproducing the selected case. The proposed table reports the most promising cases to reflect on the DxIA. Additional cases are already taken into consideration as will be described in the following paragraphs.

Specifically, regarding "education" I selected the Inclusive Service Blueprint which is a tool for designing services with the Inclusive Service Design approach (Aceves-Gonzalez, 2014). Regarding "training", I selected the Diversity Thumball that helps groups of employees to assume inclusive attitudes in workplaces (Thumballs, n.d.). Regarding "modelling", two cases were selected. The first is the 'Maschile Plurale' (Plural masculine) (Maschile plurale, n.d.) which is a voluntary association of men members mainly that provides cultural activities to overcome the patriarchal and male chauvinist attitudes in communities. The second is Riace's model (cf. Driel & Verkuyten, 2020; Ranci, 2020). It was an immigrant integration model combined with the revitalisation of a small village in the south of Italy that increased the attitude of the local people with respect to the hospitality of the coming people. Regarding "persuasion" I selected the Nanjing Project which is a house to do an experience for assuming the perspective of an old person (Inclusive Design Research Center, 2014). About "environmental restructuring" I selected the role of the diversity manager as a good practice to promote an inclusive attitude among organizations (cf. Martens & Dehaes, 2003; Hera Group, 2021; Enel Group, 2019). About "enablement", I selected the Lovegiver project (LoveGiver, n.d.) which is an Italian voluntary association and project engaged in promoting, supporting and creating the design, service, and political condition to obtain sexual assistance for disabled people. Regarding "restriction", the Single Guarantee Committee (that substitutes the Equal Opportunities Committee and the Anti-

mobbing Committee) of the National Institute of Health in Italy (Istituto Superiore di Sanità, 2020) was selected. Regarding "coercion", I selected the Italian anti-homophobic law proposal bill presented in 2018 by a group of Italian parliament members (DDL N. 2005, 2020). Regarding "incentivisation", I selected the Italian Gender Equality Certification System (Certificazione della parità di genere, n.d.) which allows enterprises to obtain a certification if they promote gender equality conditions. Regarding "communication and marketing", I selected the CoorDown Campaign (CoorDown, 2023) made by a series of videos about the "Ridiculous excuses" that people with Down syndrome and their families get by facing ordinary life experiences of exclusions. In the same category I also selected the Our Watch campaign "Doing nothing does harm" (Our Watch, n.d.) related to disrespect towards women. Regarding "guidelines", I selected the "APA - Equity, Diversity, and Inclusion" guidelines, which provide suggestions on how to use inclusive language in writing (American Psychological Association, 2021). Also, the "Audiences and Inclusion: A Primer for Cultivating More Inclusive Attitudes Among the Public" (Wilkening, 2021) of the American Alliance of Museums was selected. It provides an evidence-based approach to "guide museum-goers along a path of inclusive attitudes and values". About "fiscal", I selected the Italian super bonus for eliminating architectural barriers (Agenzia entrate, n.d.). Regarding "regulation", I selected the EU Anti-racism Action Plan (2020-2025) (European Commission, 2020). Regarding "legislation", I selected a regional bill for sexual assistance for disabled people proposed by a Tuscany regional counsellor (Mozione 1228, 2023). The bill formulates a proposal for a legislative framework for activating a service - at regional and national levels - for giving people with disability the opportunity to access a sexual assistance service. This kind of service potentially impacts the attitude toward people with disabilities as a whole (cf. Limoncin & Jannini, 2018). Regarding "environmental/social planning", I selected the ungendered bathroom. It is a general example to impact attitudes towards diversity in organizations by addressing different ways of living as related to the usage of public bathrooms (cf. Chaney & Sanchez, 2018). Finally, regarding "service provision", I selected the IncludeAbility (n.d.) project. It is a service that provides both inclusion conditions and training activities for disabled people and promotes systems and resources for improving employers' attitudes. In this type, I also selected the service concept M-Eating, a Horizon 2020 subgrant project that developed a product-service system to let immigrants and culturally different people meet in a public space by sharing culinary experiences (cf. Rinaldi & Kianfar, 2022).

Table 1. Selection of the cases for reflecting on the DxIA.

Case name	Types of intervention/ policy	Levels of change	Aspects of diversity	8-Inclusion Needs	Design domains	Design disciplines
Inclusive Service Blueprint	Education	Multiple	Age Disability	Access, Space, Opportunity, Representation	D2	Service design, Strategic design
Diversity Thumball	Training	Organisation	Gender, Race / ethnicity, Socio-economic status / class, LGBTQI+,	Language, Respect, Support	D1 / D2	Product design, Interaction design, Service design

			Disability, Religion, Age, Immigrant, Neurodiversity			
Maschile Plurale (Plural masculine) Association)	Modelling	Organisation	Gender	Language, Respect	D2 / D3	Strategic design, Service design, Systemic design
Riace Model	Modelling	Community	Race / ethnicity, Socio-economic status / class, Religion, Immigrant, Refugee	Access, Space, Opportunity, Respect, Support	D2 / D3 / D4	Serive design, systemic design, design for policy
Nanjing Project: An Experience House for Being Old	Persuasion	Individual (personal level);	Age	Access, Space, Opportunity	D1 / D2	Product design, Communication design, Service design
Diversity manager (e.g. Gruppo Hera company)	Environmental restructuring	Organizations	Multi-options	All the 8 needs	D3 / D4	Organizational design Service design
LoveGiver project	Enablement	individual (personal level)	Disability	Opportunity	D2 / D3	Service design Design for policy
The Single Guarantee Committee (CUG) (Anti-mobbing committee) of the National Institute of Health in Italy	Restriction	Community	Gender, Race / ethnicity, Disability, Age	Support	D2 / D3/ D4	Policy design Service design
Italian anti-homophobic violence bill	Coercion	Government	Gender, Race / ethnicity,	Language, Respect, Support	D4	Policy design

			LGBTQI+, Disability, Age			
Gender Equality Certification System	Incentivisation	Government	Gender	Support	D3 / D4	Policy design Strategic design Service design
Our Watch (nation-wide Respect campaign) - doing nothing does harm	Communication/ marketing	Intrapersonal	Gender	Respect	D1 / D2	Communicaion design Interaction design
CoorDown Campaign	Communication/ marketing	Intrapersonal	Disability	Respect	D1	Communication design
APA - Equity, Diversity, and Inclusion: Inclusive language Guidelines	Guidelines	Multiple	Age, Race / ethnicity, Gender, LGBTQI+, Socio-economic status / class	Language	D1	Communication design Strategic design Policy design
Audiences and Inclusion: A Primer for Cultivating More Inclusive Attitudes Among the Public	Guidelines	Community Government	Multi-options	Language, Respect, Support	D1 / D2	Communication design Strategic design Service design Policy design
Italian super bonus for eliminating architectural barriers	Fiscal	Government	Disability	Access, Space	D3 / D4	Policy design
EU Anti-racism Action Plan (2020-2025)	Regulation	Government	Race / ethnicity	Respect	D4	Policy design Strategic design Service design
The regional bill for	Legislation	Government	Disability	Opportunity,	D4	Service design,

Sexual assistance for disabled people (Italy - Tuscany Region)				Representation, Respect, Support		design for policy, systemic design
Gender-Inclusive Bathrooms	Environmental / social planning	Community	Gender, LGBTQI+	Access, Space, Representation	D1/ D2/ D3	Product design, communication design, service design, strategic design
IncludeAbility	Service provision	Organization	Disability	Access, Space, Respect, Support	D2 / D3	Service design, Strategic design
M-eating	Service provision	Community	Race / ethnicity, Religion, Immigrant	Access, Space, Opportunity, Support	D2	Product design Communication design, Service design, Strategic design

3.2 The AI answers

Most of answers of the chatbots were not inspirative enough for the purpose of this study. The most consistent are questions 1 (Q1), 3 (Q3), and 8 (Q8) and from 11 (Q11) to 16(Q16). About Q1, all three platforms provide a general overview of the meaning of attitude toward inclusion as a mindset to address diversity. About Q3, ChatGPT provides a DxIA definition similar to ID or UD approaches. YouChat provided the ID approach definition. In contrast, GPT-3 Playground provided the most significant DxIA definition: "a design process that takes into account diversity, equality, and accessibility, while avoiding any language or symbols that could be seen as exclusive or discriminatory. It is a design process that is mindful of potential biases or stereotypes, and that considers cultural and linguistic diversity. Additionally, it should also strive to create an environment where everyone is welcome and respected". About Q8, YouChat admitted that "there may not be a set of specific principles for design for an inclusive attitude", and ChatGPT provided very general guidelines for designing for inclusion. The most interesting aspect is that ChatGPT suggested "sustainability" (eco-friendly) and "co-design" as DxIA principles. From Q11 to Q14, YouChat provided similar answers that focus on defining the design for attitude change toward inclusion as an activity that "involves creating and implementing interventions aimed at promoting positive attitudes and behaviors towards marginalized groups". GPT-3 Playground on Q11 emphasized that the design of the attitude change towards inclusion "should focus on creating a culture of acceptance and respect, where everyone is valued and given equal opportunities regardless of their background, race, gender, or identity". About

Q12 and Q14, GPT-3 Playground emphasises the importance of assuming a creative approach. In contrast, ChatGPT provides a different answer for each question. For Q11, it answered that "design for attitude change towards inclusion involves several key components" i.e. Education and awareness, Communication, Policy and practice, and Community building. Q12 and Q14 described a general (not significant) planning process. While for Q13 defined that designing for attitude change towards inclusion "involves creating intentional strategies and interventions that promote positive attitudes and behaviours towards diversity and inclusion" and this involves graphic design, UX/UI design, environmental design, and product design. Regarding Q15 and Q16 GPT-3 Playground provides similar, not significant, answers that described very general aspects of designing a service for DxIA. YouChat provides a not significant answer to Q16. While for Q15 it emphasizes that "designing a service that respects the principles of designing for attitude change toward inclusion would involve creating a culture and environment that values and respects diversity, and continuously working towards creating and maintaining an inclusive environment". It also provided stages for designing it related to understanding the attitudes of the target audience; developing interventions to promote diversity; providing an inclusive service for all; reinforcing the culture of inclusivity and diversity by providing ongoing education and training for staff; fostering a continuous learning and communicative environment. Finally, ChatGPT provided the most detailed information for designing a service with DxIA principles. Regarding Q15 it conceptualized a service namely "Community Language Exchange" which is a free language exchange program to "connects people who want to learn a new language with native speakers who are willing to teach them". Regarding Q16 ChatGPT also designed a DxIA service namely "Inclusion Education Program". It is "an online learning platform that provides educational resources and tools for individuals and organizations to promote attitudes change toward inclusion". In this case, the proposed principles of the designed service appeared to be more interesting for the DxIA paradigm. Indeed, it defined that "Principles of Designing for Attitude Change toward Inclusion" are: (i) Audience-Centered Design; (ii) Evidence-Based Design; (iii) Emotionally Engaging Design; (iv) Action-Oriented Design; (v) Evaluation and Feedback Design.

4   Discussion

4.1   Discussion about the cases

The selected cases are mostly related to the disability, gender and race/ethnicity aspects of diversity. It was difficult to identify cases for each of the thirteen individual identities in diversity. However, they might give an overview of what designers can do with the DxIA. Most of the cases refer to the D2 design domain, while D1, D3, and D4 are approximately homogeneous. It means DxIA can leverage "design for value creation" (Jones, 2014) where service design, product innovation, and user experience contribute to promoting inclusive attitudes in organizational transformation (D3) and towards complex social transformations (D4). It was easier to find cases about marketing and communications, education, strategies, guidelines, persuasions, and aspects related to the policies such as regulations and guidelines. It was more difficult to find services and environmental/social planning cases and demonstrate how they can promote inclusive attitudes. In contrast, it is easy to understand how designers can promote inclusive attitudes by designing educational artefacts such as training or educational programmes, or even a campaign; as well as services that include these kinds of outputs. Consequently, by analysing the cases I confirmed that outputs created by a presumed DxIA approach should be inclusive artefacts (mainly services, strategies, and processes) that promote

inclusive attitudes by directly exposing the users to reflective or persuasive messages, educational programmes, disruptive practices and services that apply policies related to the diversity issues. These artefacts should assume the role of the collaborative device to stimulate a cultural encounter between the dominant thoughts and the individual identities that shapes the diversities. Through the analysis of the cases emerges non-homogenous perspectives in addressing diversity and inclusion. The DxIA may offer a framework to address intersectional and the multiple dimensions of the diversity spectrum.

Also, the analysis of the cases highlighted that the DxIA can use the 8-inclusion needs, and the thirteen individual identities in diversity (cf. Wilson, 2023) as driving references for understanding how to move towards the inclusion issues. Similarly, the analysis emphasizes that the interventions and policies presented in the Behaviour Change Model Wheel (cf. Idle et al., 2021) work as typologies of outputs to be designed. Therefore, designers can refer to this framework to co-create outputs with the DxIA approach. In terms of design disciplines, service design, design for policy, strategic design and systemic design are the most relevant design resources for applying the DxIA. Specifically, systemic design and design for policy contribute to envisioning cultural changes to promote positive attitudes towards diversity and inclusion. While, strategic design and service design, by also embedding traditional and emerging design for inclusion approaches, work as a connector to find practical solutions for the previously mentioned issues through participative methodologies. As expected, co-design describes the main design attitude to adopt the DxIA.

4.2   Discussion about the AI answers

Just a few answers from the AI platforms were really inspirational for understanding insights for the DxIA principles. However, most of the answers are affected by definitions and principles of traditional design for inclusion approaches, and they are mostly correlated with language and education issues. The AI gives inspiring answers for defining the DxIA only if the requests are correlated with the attitude change towards inclusion. In general terms, data from AI chatbots still lack inspirational and complex definitions that can describe the idea behind the DxIA. However, the chatbots were useful to provide time-saving brainstorming on the main topics. This process helped to better frame the difference between traditional design for inclusion approaches and the DxIA. The most inspirational answer was that related to the design of the services as described by ChatGPT. The response to the Q16 is inspirative in terms of giving intrinsic value to the principles of the DxIA.

4.3   Insights for the design principles of the DxIA

The following are insights that can influence the future definition of the DxIA principles. Therefore, DxIA:

- Works at the systems level for challenging systemic biases and discriminations; by referring to transition design, it applies both traditional design for inclusion approaches as touchpoints of complex systems, and approaches based on systemic design and design for policy for promoting inclusive attitudes;
- Produces design outputs that embed strong messages to disrupt dominant beliefs and thoughts on crucial inclusion needs (Wilson, 2023);
- Assures scalability and longevity; the designed outputs focus on giving a long-term impact on people's attitudes by focusing on systemic changes; It means, the design outputs are

designed to serve both as catalysts for starting a transformation and to be monitored and modified along the time of the transformation;

- Contrasts inclusion-washing actions (inspired by Busciantella-Ricci et al., 2022a) by also leveraging on participation and co-design as the unique way to address every design action;
- Embrace different levels of design domains and requires a designerly resilience to adopt different skills based on the complexity of the context that requires a change of attitude towards inclusion and diversity;
- Considers diversity as the link between design and the natural world; it embraces sustainability in terms of focusing on diversity as a natural value unique to take care of;
- Deals with finding creative solutions for addressing attitude change challenges towards multiple dimensions of the diversity spectrum.

5 Conclusion

The DxIA differs from traditional design for inclusion approaches because both empower people at risk of exclusion with inclusive design outputs and provide cultural experiences for changing the attitudes of those who are experiencing difficulties in looking at diversity as a resource. As analysed through the cases, DxIA can be applied in several ways and levels of change such as through the individual, or personal level, the interpersonal level; the organisational level, the community level, and the Government. I argue DxIA should be primarily experimented with in outputs such as communication activities (e.g. campaign and persuasions), education activities in the design education system, and service design activities by ideating a new typology of services that are able to both provide an inclusive space for all and, at the same time, promoting the inclusive attitude among the participants. As well as environmental/social planning experiments should be a field of early applications for the DxIA. In this way, the aforementioned insights may also serve as design principles for the DxIA. In general terms, the DxIA can be a design approach related to social inclusion issues, and specifically related to those intangible outputs, contents, and domains that the traditional approaches in design for inclusion hardly address. This is a promising approach for addressing new inclusion challenges that emerged after the pandemic. Also, inquiries through the AI platform for the DxIA may serve as a brainstorming space at the moment. However, it is expected that future upgrades of the AI databases will provide more opportunities to use chatbots for simulating concepts designed with the DxIA approach. As limitations of this work, as well as a future step for this research, it is relevant to integrate indicators, or scales for measuring the output of the DxIA.

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