

Contemporary Design in Quarantine: A Critical Review of Design Responses to Covid-19 Crisis

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ABSTRACT

The following article aims to analyze Brazilian and international cases of design responses to the COVID-19 pandemic related crises. It initiates with reflections about the social and political roles of design, emphasizing the importance of social innovation, design activism, and transition design to contemporary design. The methodological approach adopted is qualitative and quantitative with assessment and selection of data based on the bibliographic, desk, and documentary research methods. The result of 113 mapped cases is presented by graphic synthesis and discussed through the bibliographic research.

Keywords: Contemporary Design, Design Activism, Pandemic, Social Innovation, Transition Design.

INTRODUCTION

We are facing the major global health crisis of the past 100 years: the COVID-19 pandemic. At the same time, the contemporary scenario is the stage of multiple systemic crises - economic, political, social, and environmental -, that are aggravated by the pandemic and can be seen as its cause, as attest several contemporary thinkers (*e.g.*, Davis & Klein, 2020; Mascaro, 2020; Žižek, 2020). Around the world, the current system has been unable to prevent the pandemic and contain the socio-economic damage resulting from it.

On the one hand, some political institutions and people in power positions have responded to the current crises with actions that we can characterize as necropolitics¹, especially in Brazil, where a significant part of the population becomes complicit with the genocide agenda organized by the federal government. On the other hand, researchers and practitioners from multiple areas of knowledge have presented solutions not only to prevent or treat COVID-19 but also to face the pandemic's socio-economic consequences.

The design has made its contribution, but it is necessary to analyze the design's performance to see if it is limited to emergency responses to the COVID-19 health crisis or also consider the systemic crises that the pandemic aggravates. Furthermore, new pandemics may occur in the short or medium future, and we are already facing the first signs of a climate crisis. Therefore, this article aims to analyze Brazilian and international cases of design responses to the COVID-19 pandemic related crises, investigating if the approaches adopted convergences to social innovation, design activism, and transition design, whose importance is explained next.

1. THE SOCIAL AND POLITICAL ROLE OF CONTEMPORARY DESIGN

Contemporary design registers the expansion within humanitarian and sensitive relations. Although the design texts that predicted the future did not point health issues and the necessary strengthening of public policies related to them, the indications of activist, political, social, and transitional actions were already emerging as essential foundations facing crises. For Bomfim (1997), to present solutions to contemporary problems implies the transdisciplinary work of design based on the observation of reality and the application of inductive and experimental methods. Furthermore, contemporary emergencies demand more from design than aesthetic solutions or those that perpetuate dominant ideologies and values. Redig (1978), for example, indicates the importance of the social, environmental, political, and interdisciplinary action of design considering the human being, which was on the design agenda in the last decades (*e.g.*, Löbach, 2000; Bürdek, 2006; Margolin, 2006; Bonsiepe, 2011). With the urgency of the transition to sustainability and questioning the current models of production and consumption, the social and political role of contemporary design becomes increasingly important. The three design approaches presented next are an example of that.

1.1. Social Innovation

The social and political responsibility of designers is not a new topic. Papanek (1971) already defended the social and ecological action of designers. Later, Heller and Vienne (2003) pointed out the need to raise awareness of designers' political and social performance based on critical postures. In the current scenario, the 2030 Agenda (UN, 2015), aligned with Maslow's Theory of Human Motivation (1943), contributes to (re)thinking the contemporary ecosystem in social and environmental terms. Another essential contribution comes from social innovation - SI, which corresponds to new solutions that are more effective than the existing ones to meet social needs and increase citizens' capacity to act when dealing with complex or intractable problems (Santos et al., 2019; Manzini, 2015).

SI emerges from creative communities that work collaboratively to solve everyday problems, often establishing new lifestyles and patterns of production and consumption (Santos et al., 2019). It seeks fairer and more efficient solutions to conflicts presented in contemporary society that reflect guidelines, mindsets, projects, and products that have been inefficient for the promotion of equity and social and environmental justice.

The SI process can be top-down, bottom-up, or hybrid. The first one refers to initiatives that involve experts, decision-makers, or political activists; in the second one, solutions emerge from the community itself (Manzini, 2014). Thereby, SI does not need designers, but they can make significant contributions as professionals (expert designers) dedicated to practice, teaching, research, and extension. However, in the ecosystem of creative communities, subjects are equally important. Even without any training in design, diffuse designers manifest the human capacity of exercising creativity, applying it in a project adapted to the social actors' reality.

To make SI more likely and effective, expert designers can act as facilitators, supporting existing initiatives and participating in co-creation teams. Nevertheless, they can also start the SI process by acting as design activists. In both cases, they join in co-creation processes with diffuse designers. Therefore, designers' role is no longer to design "closed" products

and services, but to expand people's capacities, collaborating in the creation and implementation of new forms of life and action to which the individuals involved attribute meaningful value (Manzini, 2014, 2015).

1.2. Design Activism

One of the first authors to ever deal with design as activism was Papanek (1971), who called on designers to take on a more revolutionary performance related to issues of political, militant, and subversive activities, which increasingly take space in contemporary discussions. Thereby, the term "design activism" was incised in 2004, when the 5th Conference of Pacific Rim Community Design Network defined one of its thematic axes as "citizen movement & design activism" (Hou, Francis, & Brightbill, 2005). Since then, design activism became an emerging narrative in the design field, parallel to the resurgence of social discussion and interest in the design practice.

Design activism indicates thought, imagination, and practice applied knowingly or unknowingly to create counter-narratives promoting changes in social, institutional, environmental, or economic spheres. There are multiple instances of design activism, ranging from cultural to social and environmental agendas, converging to social impact, public service systems design, broad proposals for social organization, and questions about consumption and aesthetics. So design activism acts as a general concept that incorporates many design approaches and other connections between actions (Thorpe, 2009; Fuad-Luke, 2009).

In short, design activism can be defined as a social movement linked to social change processes. Activism aims to challenge the dominant patterns of power in favor of social improvements, which is why it has its importance in developing design theories and practices, which can expose visions of a better and fair present and future. Contemporary design distances itself from the production of artifacts and presents increased possibilities of action, differentiating itself from practices linked to consumerism and ephemeral society. Therefore, new design initiatives are required – as the interrelation with other areas of knowledge - in the search for more sustainable scenarios through transition design.

1.3. Transition Design

Facing the current system's inability to deal with the COVID-19 emergency and the demand to restructure our way of life indefinitely, many people question the contemporary economic, political, and social system, a fact that leads to the need for changes. As Mascaro (2020) argues, it is impossible to overcome the multiple contemporary crises through the same system that created them. We need radical and systemic transformation, which will not happen spontaneously due to the pandemic since the trend of the post-pandemic natural change is the maintenance of the current system (Davis & Klein, 2020; Harari, 2020; Mascaro, 2020; Žižek, 2020).

Positive change demands organization and will not occur quickly, but gradually (Santos, 2020; Davis & Klein, 2020), as a lengthy transition process, which may have a more active contribution from the design field. More specifically, from the transition design, term incised by Irwin (2015), as attest Gaziulusoy and Houtbeckers (2018). Transition design focuses on radical and systemic changes in different levels: cultural, institutional, organizational, social,

and technological. It develops and analyses place-based scenarios for sustainable futures based on theories and ideas from social sciences, humanities, and engineering that deal with social and technological change. The long-term vision is not the single focus of transition design since the scenarios developed inform and inspire the design of short and mid-term solutions (Ceschin & Gaziulusoy, 2016; Gaziulusoy & Öztekin, 2019; Gaziulusoy & Houtbeckers, 2018; Irwin, 2015).

In a post-pandemic perspective, transition design can help to build a new and more sustainable world, reinforcing the need to implement change by design and not by disaster. Of course, the design for disaster approach is vital to face the health crisis, but we highlight the need to focus more on possible transition design contributions. We are facing a dystopian scenario that we have not yet learned to deal with (Dunker, 2020). Nonetheless, experts have pointed out the possibility of a pandemic for years, and we are likely to face others in the future, besides an imminent climate and environmental crisis (Harari, 2020; Santos, 2020; Žižek, 2020). We have to act now and change by design to prevent these crises from happening and prepare ourselves to face them. Once positive changes demand organization and a clear horizon (Davis & Klein, 2020), the COVID-19 pandemic responses can teach us how (not) to deal with a crisis and inform what world we should build.

2. METHOD

To analyze design responses to the crisis triggered and aggravated by the COVID-19 pandemic, it was undertaken exploratory and inductive research adopting a mixed approach - quantitative and qualitative - with assessment and selection of data based on the bibliographic, desk, and documentary research methods. First, the narrative literature review allowed the exploration of contemporary design's social and political roles in a scenario of emergencies. The second part of the research was identifying and systematizing the design responses. The identification occurred until July 14, 2020, through desk research, as described in Figure 1. Due to the vast number of initiatives regarding the pandemic, we settled the selection criteria shown below. Because of the need for a filter, many social innovation cases were not included for not having proof of designers' participation. Moreover, similar solutions were grouped as a single case. Thereby, the collection of cases did not intend to represent the whole, but the variety of experts and diffuse designers' solutions.

DATA SOURCES	SELECTION CRITERIA
Design websites and blogs (e.g., Dezeen, AIGA Eye on Design, What Design Can Do, Design Week);	Cases with solutions that fit into traditional design segments (e.g., product and graphic design) or into new segments relevant for the discussion proposed (e.g., transition design);
United Nations and Global Compact database;	Social innovation cases with the participation of expert designers.
Social media;	Solutions with significant differentiation in the artifact, its production or distribution.
E-mails of an international group of design researchers.	

Figure 1. Data sources for content and selection criteria for the research

The analysis of cases was based on Gibbs (2009). It occurred through documentary research, with consultation on websites, social media profiles, blogs, images, and documents available online of each case identified. All the data collected were registered in a spreadsheet for comparative analysis, in which we used categories and codes that emerged from the data. Figure 2 shows the correspondence between them, where it is seen that some codes do not apply to all categories. As the solutions of “analysis for post-pandemic transformation” are not physical products, they can not be manufactured. “Design contests and challenges”, in their turn, are often broad, embracing different design segments, solutions types, and targeted audiences, which are difficult to account.

CATEGORIES	CODES							
	Country	Cocreation & Open Design	Digital Manufacturing	Design Segment	Kind of Solution/Artifact	Expert or Diffuse Designer Solution	Universities Enterprises or Public Power Participation	Targeted Audience
Analysis for post-pandemic transformation	✗			✗	✗	✗	✗	✗
Solutions for social and economic assistance	✗	✗	✗	✗	✗	✗	✗	✗
Design contests and challenges	✗	✗	✗			✗	✗	
Prevention Solutions	✗	✗	✗	✗	✗	✗	✗	✗
Treatment Solutions	✗	✗	✗	✗	✗	✗	✗	✗

Figure 2. Correspondence between analysis categories and codes

The categories and codes allowed the quantitative analyses of the cases, while the narrative literature review grounded the qualitative approach. The next section presents the results and discussion that focused on the social and political roles that designers are taking over - or should take over - during the pandemic considering the need for systemic transformation to prevent or face future economic, environmental, health, political and social crises.

3. RESULTS AND DISCUSSION

After the desk and documentary research, we selected 113 cases. Figure 3 shows their distribution in each category. Since there are many prevention solution cases (68%), we divided them between personal protection equipment - “PPEs” (42,5%) and “others” (25,7%). There are fewer treatment solutions (12,4%), probably because of the complexity and expertise of this category and the more significant concern with preventing contagion. The smallest representation of the “social and economic assistance” category (9,7%) solutions does not mean there was no concern to face these particular pandemic consequences and the actions for social distancing. There are social innovation - SI initiatives around the world dealing with this question, but we did not find many with expert designers.

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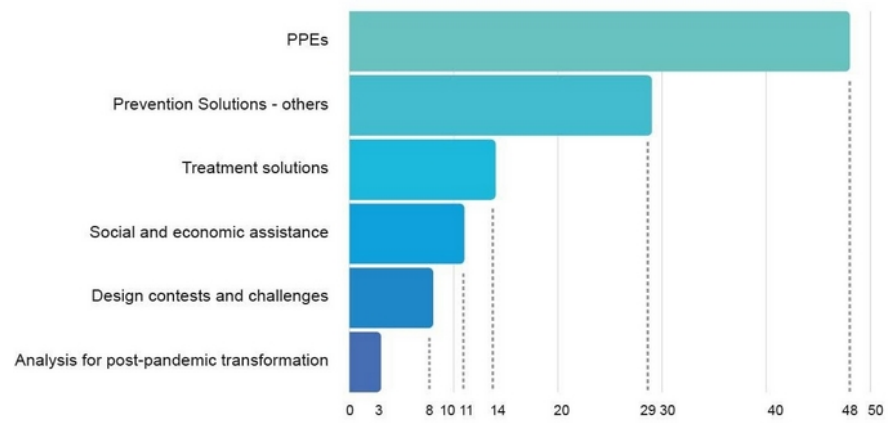


Figure 3. Number of cases per analysis category.

Figure 4 presents the global distribution of the selected cases, whose quantitative analyses are representative and not intended to be absolute. The collection of cases is not a faithful portrait of the design activities during the pandemic across the globe but reveals their variety. Therefore, Figure 2 shows most cases are from Brazil (34,5%), which does not mean the country is a leader on design responses for COVID-19, but that its article had more contact with Brazilian cases, the focus of the article's context, despite the international approach of the survey and analysis of cases.

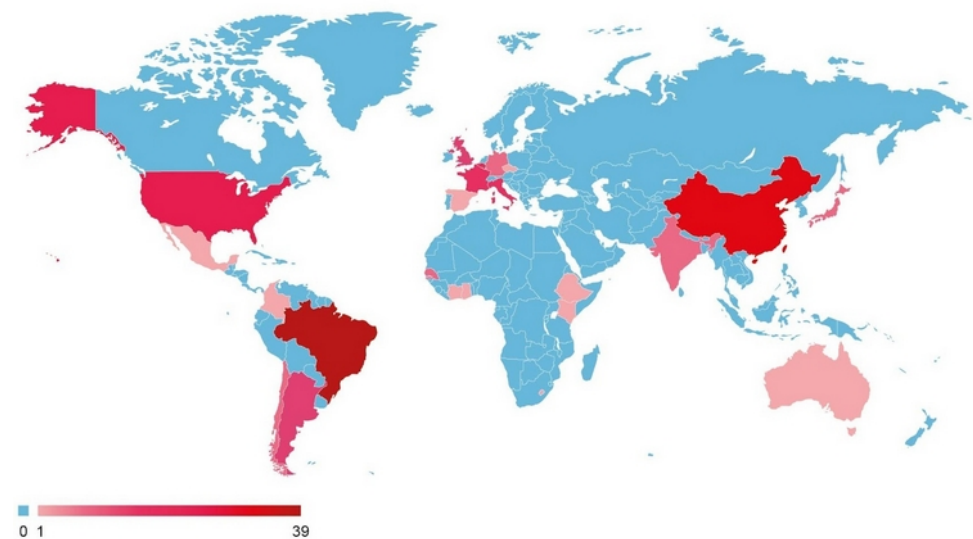


Figure 4. Global distribution of the cases

Some cases (20%) are not from a particular country but widespread solutions (*e.g.*, industrial conversion and social distancing wayfinding), global design contests and challenges, or solutions by multinational institutions (*e.g.*, WHO² video that pedagogically explain the coronavirus). There are many solutions from China (11,5%), which was expected considering the COVID-19 emergency initiated there. From African countries (6,2%) – Ethiopia, Ghana, Kenya, Ivory Coast, Lesotho, and Senegal -, it was identified only prevention solutions, most of them hand washing equipment (5,3%) for places without piped water. One example is the creation of a Ghanaian diffuse designer: a solar-powered hand-washing sink with a motion sensor (Awal, 2020). There are also solutions from Argentina, Australia, Belgium, Chile, Colombia, Czechia, France, Germany, India, Italy, Japan, Mexico, Spain, United Kingdom, and the USA.

Figure 5 presents the design segments associated with the solutions of each analysis category. Some cases fit in more than one, so the sum is higher than 100%. Most of them are product design results (65,5%), especially in the treatment and prevention solution categories, where there is a more significant variation of similar results (*e.g.*, masks and face shields). Visual communications (14,2%) and information design (12,4%) perceive all categories and are essential for spreading knowledge about the COVID-19 disease. Their representation is lower because their solutions are very similar and troublesome to categorize, although they are widespread like social distancing wayfinding, awareness videos and graphic images, or do-it-yourself (DIY) manuals to manufacture protection products.

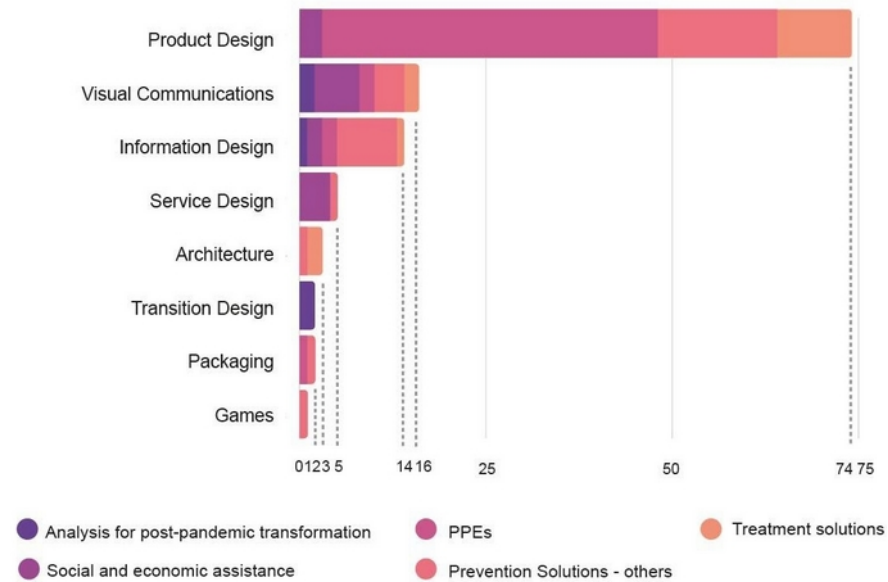


Figure 5. Design segments.

Service design solutions (4,4%) are often information design as well, like apps and platforms. One example is brochures for printing and distribution to inform about social distancing and fill in with contact details of volunteers willing to assist vulnerable people (Wong, 2020a). Architecture contributions (2,6%) are micro residences for quarantined COVID-19 patients and emergency hospital intensive care units, like the Italian project Connected Units for Respiratory Ailments – CURA³, which uses shipping containers to deploy Intensive-Care Units in cities around the world quickly. Only two cases are transition design ones, both in the “analyses for post-pandemic transformation” category. One of them is a project led by Terry Irwin at Carnegie Mellon, in which researchers developed a systemic problem map that identifies system failures that helped the virus spread in the USA and the interconnected problems that the virus has exposed (Peters, 2020).

There are different kinds of solutions (Figure 6). The main product results are PPEs - masks (24,8%), face shields (12,4%), and hospital uniforms (7%). There would be more cases like that if one of the selection criteria did not establish the need for significant differentiation in the artifact, its production, or distribution. This high amount reflects the demand for protective equipment. Before the pandemic, few enterprises in the world centralized the production of these items and other essential to COVID-19 treatment. The increased demand forced national businesses and designers, diffuse or experts, to create ways to achieve a distributed production. Because of that, respirators or ventilators (8,8%) are also between the most designed products.

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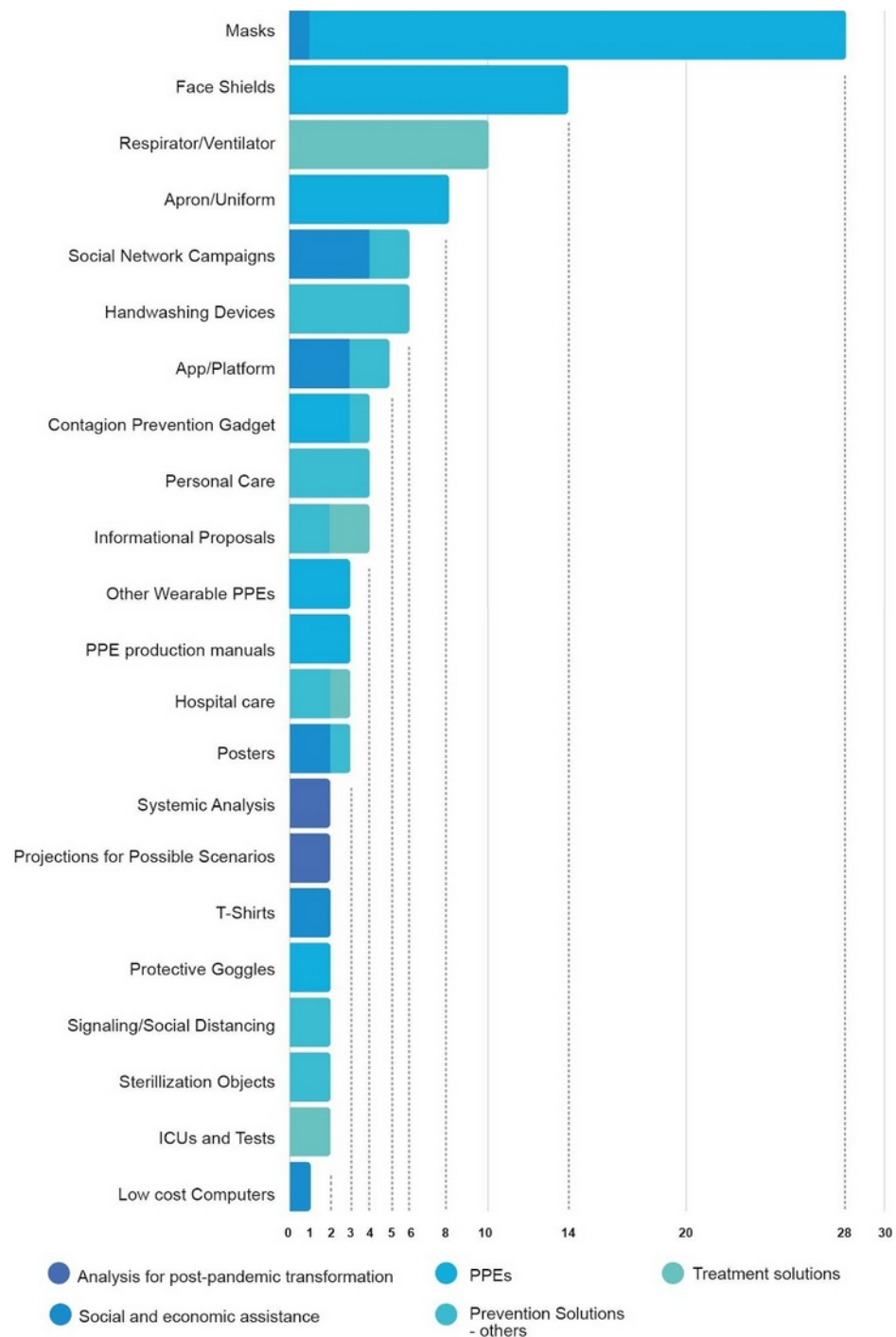


Figure 6. Different kind of design solutions.

Regarding PPEs, designers have been innovating materials (e.g., antiviral technological fabrics⁴), models (e.g., face shields with extra coverage on top of the head⁵), manufacturing technologies (e.g., 3D printed masks⁶), and distribution (e.g., SI projects to connect fashion industries and independent or amateur seamstresses for the production of masks and hospital uniforms to local health unities⁷). Besides the variety of solutions, female healthcare professionals have issues with poorly fitting PPE, according to Wong (2020b), which indicates that designers do not necessarily consider women as first responders in the fight against the COVID-19 pandemic, as affirms Santos (2020).

Social media campaigns (5,3%) are the most numerous visual communication results. They encompass prevention solutions (e.g., images or videos about the coronavirus and how to prevent the contagion) and socio-economic assistance (e.g., campaigns to raise money for facing the pandemic or its consequences⁸). Apps and platforms (4,4%) provide solutions for

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socio-economic assistance (e.g., linking local and small businesses to designers⁹ or customers¹⁰) and for prevention (e.g., interactive map¹¹ showing the hospitalizations for severe acute respiratory syndrome in São Paulo, Brazil).

Other products are contagion prevention gadgets (e.g., keyring¹² to avoid the use of hands on the doors) and personal care objects (e.g., soap packaging that indicates the time of hand-washing¹³). “Informational proposals” include an infographic¹⁴, a children’s game¹⁵, and an informational guide about COVID-19¹⁶. The analyses for post-pandemic transformation results are systemic analysis (information design) and scenarios projection (transition design).

Figure 7 presents the mapped cases’ targeted audience. Most of them (54%) are for the public in general (e.g., post-pandemic proposals and some prevention solutions) or address more than one segment. The primary specific audience is health professionals (31,8%) and COVID-19 patients (12,4%), especially in the PPE and treatment solution categories.

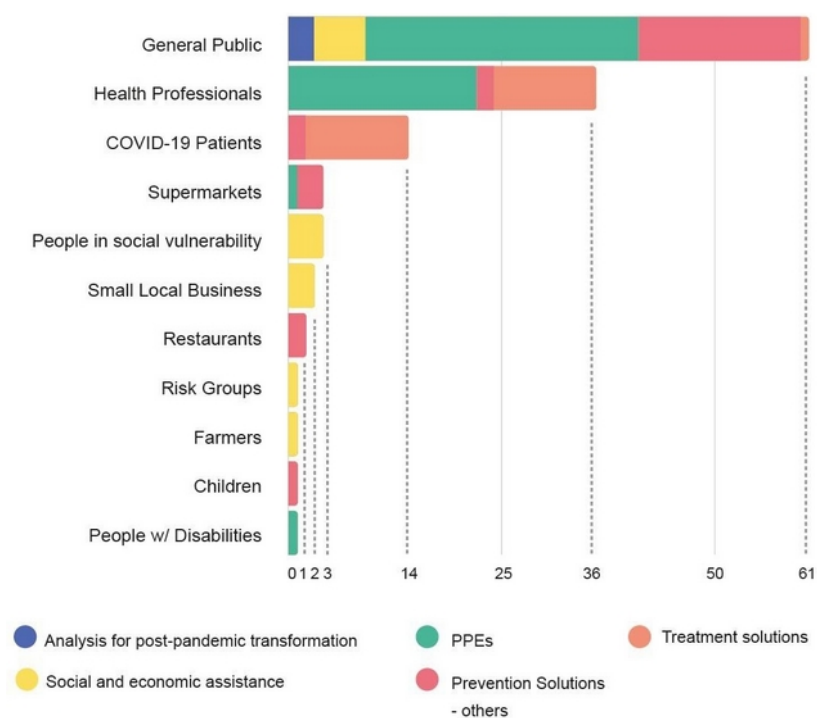


Figure 7. Targeted audience.

Figure 8 shows the involvement of universities, private companies, and government offices, which are more expressive on prevention solutions and “design contests and challenges” categories, representing respectively 81,8% and 87,5% of these cases. Solutions for social and economic assistance have less institutional collaboration (27,3%), reinforcing the need for SI, which often occurs when neither the government nor the market provides adequate solutions, as Manzini (2015) proposes.

The short participation of the government offices confirms the political inefficiency to fight the pandemic and its socio-economic consequences. Over the last decades, neoliberal politics have dismantled the State and its public health and social services, without which many governments around the world, especially in Brazil, cannot respond effectively to the present crises (Davis & Klein, 2020; Mascaro, 2020; Santos, 2020). Some Brazilian cases show the collaboration between municipal health departments, universities, and enterprises, but the only one resulting from a national public policy is the SUS app¹⁷.

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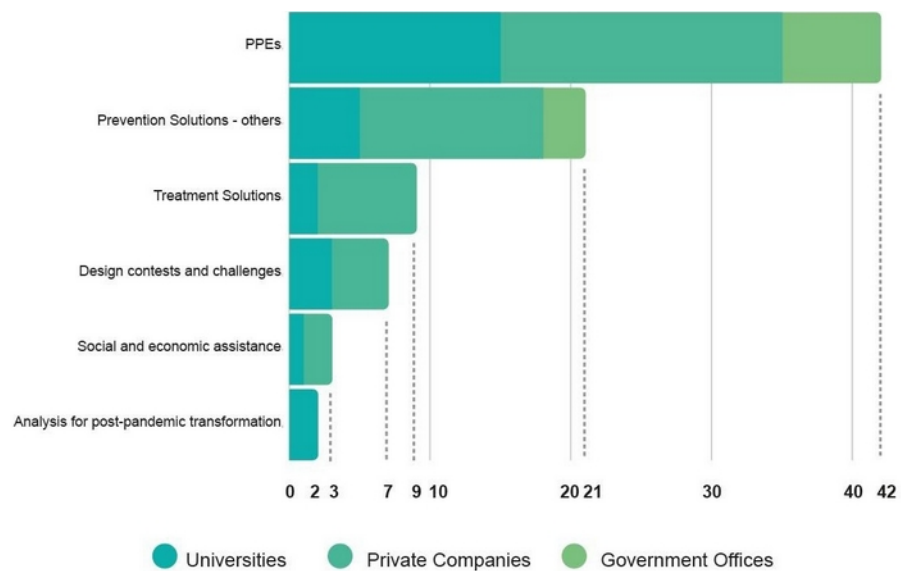


Figure 8. Universities, enterprises, and government offices involvement.

Universities lead part of the cases (24,8%), especially in Brazil, where public universities head scientific research. Design companies (23%) have also been involved, sometimes needing to adapt their design and production activities. However, most of the cases analyzed are independent, while Brazilian and international design associations have not been actively involved in the fight against the pandemic.

Expert designers are responsible for developing most solutions considered here (64,6%), as Figure 9 shows, but the selection criteria may have influenced this result, especially regarding SI cases. Nevertheless, diffuse designers play a fundamental role in facing the pandemic, either alone (14,3%) or co-creating with expert designers (19,5%). Proportionally, diffuse designers are more expressive in the “solutions for socio-economic assistance” and “design contests and challenges” categories, while expert designers are essential in the “treatment solutions” one.

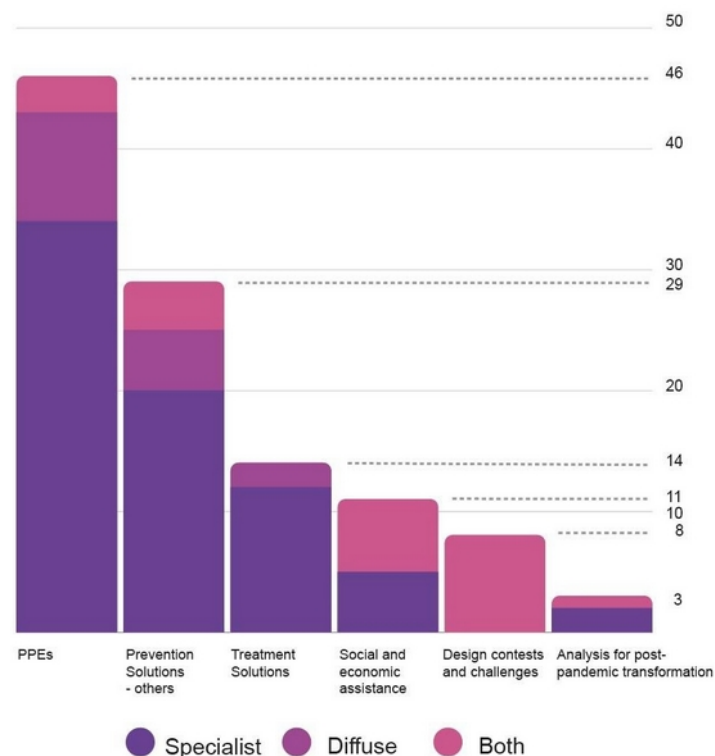


Figure 9. Expert and diffuse designer’s participation.

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Diffuse designers usually solve problems not considered by experts. For example, a college student of education developed a mask with a plastic window that allows lip reading by the deaf and hard of hearing (Kopsky, 2020). Furthermore, part of the diffuse designers' responses is from the maker movement. As Figure 10 shows, digital manufacturing is essential to develop prevention and treatment solutions, representing 36,6% of them, while co-creation (37%) and open design (35,4%) rise in all the categories considered in this graph.

What defines open design is the creator's permission to freely distribute their project blueprints, allowing modifications and derivations (Abel, Evers, & Klaassen, 2011). In general, open design cases are also co-creation ones. They are essential facing the pandemic since the creator democratizes the project results, usually in the form of do-it-yourself - DIY manuals or downloadable files for digital manufacturing (*e.g.*, 3D printing).

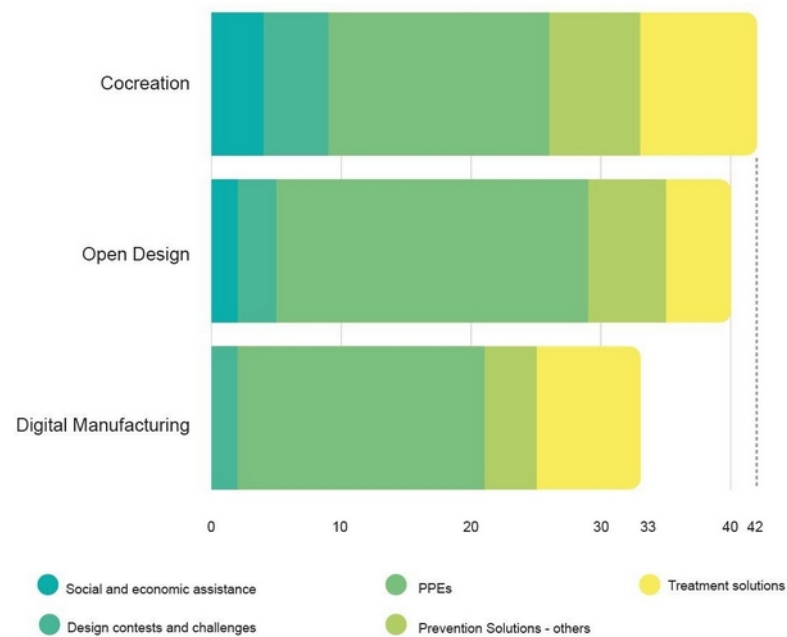


Figure 10. Co-creation, open design, and digital manufacturing solutions.

Open design combined with digital manufacturing can trigger SI, as Manzini (2015) attests, which demand new economic and productive models, like distributed economies. As indicated before, the pandemic shows failures within the current centralized economy. Now, when people need a quick supply of PPE and treatment devices, the maker movement has developed globally open source products for local production, often through digital manufacturing technologies. One example is *Diseñadores sin Fronteras*¹⁸, an Argentinian network of designers who collaboratively developed and shared DIY manuals to locally produce masks, face shields, and hospital uniforms and beds.

A significant part of the design activism cases – 35,4% (Figure 11) are also open design and digital manufacturing. Graphic and information design also contribute to the transmission of messages and acknowledgment, in either DIY manuals or awareness and guidance pieces. Thereby, design activism reinforces its contemporaneity and designers' citizen awareness. Activism within the Organized Civil Society, public institutions, and community spaces for cultural knowledge production are of great importance for developing products, processes, and design services. The overlap of these agents creates a practical, digital, social, and technological network of a locality, enabling community articulation to prevent and fight the

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pandemic through SI or social design initiatives (13,3%) whose actions propose a social value to attend basic needs demanded by the community. One of these cases is the movement Free the Future¹⁹ that proposes a post-pandemic world of social and environmental justice. It is one of the only two transition design cases identified.

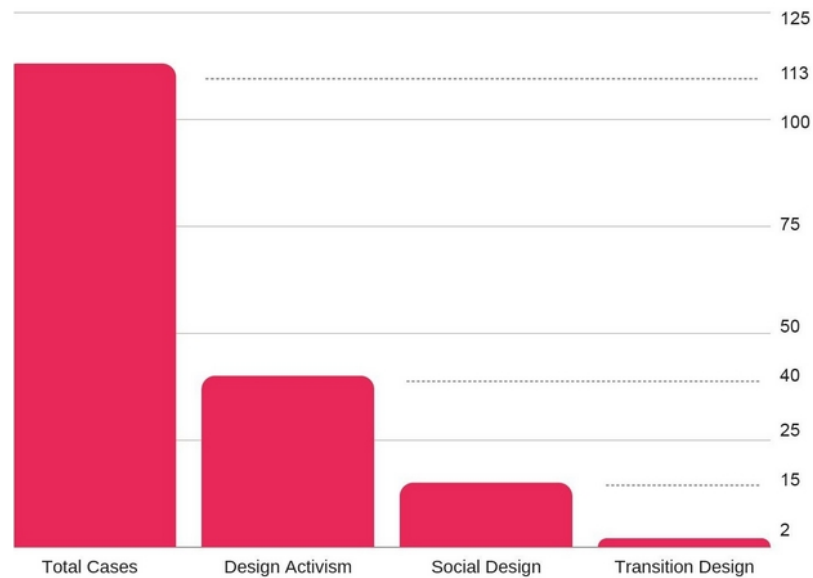


Figure 11. Social design and design activism cases proportion.

Although design has shown its relevance towards facing the health crisis, its performance could go beyond. Most of the analyzed cases (96%) focus on the period during the pandemic, not considering the future. Moreover, only three cases are solutions developed before the COVID-19 crisis. These facts suggest that the design field was not prepared to face a pandemic, acting mostly according to the design for disaster's approach. As Dunker (2020) declared, global society is a beginner facing the pandemic, evolving to create solutions and deal with unforeseen effects. It is necessary to coop with the health emergency faced now. However, it is also essential to consider the pandemic's socio-economic impacts and "the unintended consequences of the solutions and innovations that are being hastily implemented", as Terry Irwin attested to Peters (2020, para. 5).

Probably the future will bring other pandemics, environmental degradation, climate crisis, and increased social inequality. Designers need to be more prepared for this than they were to face the COVID-19 emergency, which can teach valuable lessons, such as the importance of interdisciplinarity and collaboration with professionals and researchers from other areas of knowledge. If health sciences, engineering, and technology are now essential, designers need to get closer to the social, biological, and climate sciences to prepare themselves for the next global challenges.

4. FINAL CONSIDERATIONS

This article presented a critical analysis of 113 Brazilian and international cases of design responses to the systemic crises related to the COVID-19 pandemic. First of all, it is necessary to recognize its limitations. It is not possible to collect and analyze all existing cases in which diffuse or expert designers are active, which is why it was necessary to establish sometimes restrictive selection criteria. Furthermore, due to the large number of identified cases, it was not possible to contact those responsible for each solution to collect additional information

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that would benefit the analysis. Finally, the pandemic was ongoing while this article was written, so solutions continued to be developed and implemented.

Despite these limitations, the identification and analysis of cases allowed us to obtain a framed picture of design responses to the health, social, and economic crises faced. The analysis suggests that designers recognize the importance of their social and political role as citizens. However, they were little involved in SI initiatives focused on social and economic issues linked to the health crisis. They also neglected the transition design approach in favor of design for disaster's one. Immediate solutions are essential when responding to emergencies. However, this pandemic is unlikely to be an isolated case in the history of current generations, who must face many other economic, environmental, health, and social crises.

The COVID-19 crisis probably will have a profound impact on the practice and teaching of design in the upcoming years, reinforcing the social and political role of design and the importance of some approaches (e.g., interdisciplinarity, social innovation, distributed economies, open design, co-creation, and transition design). Design needs to help portray new visions of the future, starting from the difficulties of the present. New ways of thinking and acting become urgent, making it necessary to put social and environmental issues in the foreground, where they should have always been.

ACKNOWLEDGMENTS

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ENDNOTES

¹ Necropolitics, derived concept from biopolitics, limits life to the administration of populations. In practice, this policy denies or makes access difficult to the necessary conditions to maintain people's lives considered "unproductive" or less important to the current socio-economic system (Dunker, 2020).

² <https://bit.ly/3j0lg6w>

³ <https://curapods.org/>

⁴ <https://bit.ly/3gO1WYi>

⁵ <https://bit.ly/307TRGZ>

⁶ <https://bit.ly/3211ZqF>

⁷ <https://bit.ly/32dvYk1>

⁸ <https://bit.ly/3iZ3Qaq>

⁹ <https://bit.ly/3gTj0vY>

¹⁰ <https://bit.ly/2OIN1lv>

¹¹ <https://bit.ly/2Wgf00S>

¹² <https://bit.ly/2DFU4d5>

¹³ <https://bit.ly/32dUIhF>

¹⁴ <https://bit.ly/38V9q99>

¹⁵ <https://bit.ly/32f7SFN>

¹⁶ <https://bit.ly/3epXttf>

¹⁷ <https://bit.ly/2ATNyOK>

¹⁸ <https://bit.ly/2WcSfuw>

¹⁹ <https://bit.ly/2ZnYftg>

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