



The hidden arena : prototyping as a political experience of design

Rose Dumesny, Dorian Reunkrilerk

► To cite this version:

Rose Dumesny, Dorian Reunkrilerk. The hidden arena : prototyping as a political experience of design. From Abstractness to Concreteness - experiential knowledge and the role of prototypes in design research, International Conference 2023 of the DRS Special Interest Group on Experiential Knowledge (EKSIG), DRS Special Interest Group on Experiential Knowledge (EKSIG), Jun 2023, Milan, Italy. hal-04232303

HAL Id: hal-04232303

<https://hal.science/hal-04232303>

Submitted on 10 Oct 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

The hidden arena : prototyping as a political experience of design

Rose Dumesny, frogLab, frog (Part of Capgemini Invent)

Dorian Reunkrilerk, Co-design Lab and Media Studies, Telecom Paris (IP Paris)

Abstract

With prototyping, design practice thinks about the shape and environment of many objects that will embody our world experiences. In that, we see this action as eminently political and we ask ourselves along this paper the following question : under what conditions can prototyping be a political experience of design? Based on the analysis of three design use cases that present a prototyping situation, this paper explores ways designers could embody the political dimension of their practice. While observing our use case through a framework built from sociology and political science literature, we are looking for signs of politics in our practices of design. This work, part of a more extensive research, shows that prototyping could be the most adapted situation to experience the political in design because it brings together human and non-human actors into a co-design process where debate is necessarily present.

Debate; Political Experience; Arenas; Trouble; Embodiment

Since the 1960s, theories on democracy have tended to represent it as an experience of politics that organizes the life of a society based on a principle of debate. In that, it becomes possible to discuss which pathways to choose for society. Chantal Mouffe (1993) says that this debate doesn't need to reach the idea of consensus but more the one of dissensus, considered as an antagonism and confrontation state, inherent to the act of living together. In relation to this assumption, the introduction of the book "Making Things Public", wrote by Bruno Latour (2005), asks a fundamental question : how is politics embodied today, beyond the official parliaments that seem insufficient to make visible the many ways in which society orients, discusses, and debates its future? In other words, which are the non-dominant arenas that bring to life the political question? Here, Latour underlines that this question is not only valuable for spaces as parliaments, but also in our daily experience of objects.

In this paper we pursue this idea of an object-oriented democracy and consider prototyping as a possibility for design to find specific forms of political experience. With prototyping, design practice thinks about the shape and environment of many objects that will embody our world experiences. In that, we see this action as eminently political and we ask ourselves along this paper the following question: under what conditions can prototyping be a political experience of design?

We begin this paper with the definition of the conceptual framework that supports our positioning. Then we describe a methodology based on three typical use cases of prototyping in

design (school, public space, design studio). Finally, we analyze them with an analytical grid we build from sociology and political sciences literature. The goal of this analysis is to open perspectives for design practitioners on the political dimension of their practices.

A Political Experience of Design

Since William Morris' thoughts to the Italian Radicals' experimentations, design practices have something to do with politics. But some of them have put the notion of debate at the heart of their practices. Critical Design (Dunne & Raby, 2007) is one of the most famous. This movement, which became Speculative Design later (Dunne & Raby, 2013), carries a critical thinking materially translated by design. The main challenge of this practice is to provoke self-reflexivity about what is self-evident, in order to "challenge narrow assumptions, preconceptions and givens about the role products play in everyday life" (Dunne & Raby, 2007, § 1). The productions of Speculative Design don't come with economically viable solutions but have a role "to act like a mirror reflecting the role a specific technology plays or may play in each of our lives, instigating contemplation and discussion" (Auger, 2012, p. 29).

With other practices, Reflective Design aims to make legible unconscious adoption of object's values and in the meantime engage users to have this same critical thinking (Sengers et al., 2005). Adversarial Design (Carl DiSlavo, 2015) suppose that objects could encourage the identification of society's issues in order to reveal disagreements and allow revendications. Beyond those movements that locate design in a specific field of practices, we would like to observe design politics which describe "ways practices of design and politics, historically and materially, reinforce and legitimize each other" (Keshavarz, 2016, p. 93) in design practices. Keshavarz invites us to work on "ontological conditions of design as an act, and the effects it generates in different environments" (Keshavarz, 2016, p. 86).

This seems to echo the PhD thesis of Max Mollon when he asked: "Hence, if designing is to transform "an existing situation into a preferable one" I wondered for whom are these forms of design preferable? And, how do we enable debate about what is preferable?" (Mollon, 2019, p. 8). His question refers directly to the ways society and politics interfere, and more to the difference between *politics* and *political*. Chantal Mouffe (2005) suggests that the term political refers more to an antagonistic state, inherent to the act of living together. The illusion of consensus needs to be stopped with a new use of debate. Mouffe explains this illusion by the hegemonic position of some stakeholders at the cost of others : "There is no consensus without exclusion of a "third"" (Mouffe, 2005, p. 149). Mouffe also highlights that an antagonistic state could be a possibility of living together by gathering and sharing the conditions of authority. Already in the 14th century, the term debate meant both "to quarrel, to dispute" and "to discuss, to deliberate on the pros and cons of".

It is precisely this question of dissensus that Latour proposes to see as a prerequisite to any thought of politics. To do so, the philosopher calls for an "object-oriented democracy" that questions the way in which political spaces have been organized around objects perceived above all as facts: "For too long, objects have been wrongly portrayed as matters-of-fact. [...] They are much more interesting, variegated, uncertain, complicated, far reaching, heterogeneous, risky, historical, local, material and network" (Latour & Weibel, 2005, p. 9-10). People, or their representatives, gather within official spaces of speech where these facts can be debated from a tacit principle of univocal understanding of the facts. However, if we adopt a principle of pluralism, then emerges the figure of the Ding, or the "thing", and replaces at the heart of

politics the matter which brings people together because precisely this matter divides them while concerning them. It is this idea that was at the origin of many parliaments throughout the world and that Latour proposes to restore: " If the Ding designates both those who assemble because they are concerned as well as what causes their concerns and divisions, it should become the center of our attention " (Latour & Weibel, 2005, p. 13).

In this paper, we would like to pursue this thought about a *design for debate* (Mollon, 2019) and investigate design situations perceived as ordinary and non-political, where the political experience and the politics of design are made sensitive through debate. By considering debate as the very result of its practice, design for debate emphasizes the importance of an artifact's discursive properties: either the artifact has an internal narrative and carries elements of controversy, or it is the situation in which the artifact is located that will trigger potential controversial discussions (Mollon, 2016). Mollon thus emphasizes the situated nature of the debate, while showing the ineffectiveness of certain practices, when they are only disseminated by exhibitions which "do not encourage people to meet each other, or to meet the author(s), nor do they encourage debate" (Mollon, 2019, p. 116). Therefore, the author proposes a model to analyze the ways in which a project reaches its audiences by participating in a larger system articulating problems, artifacts, mediums and audiences. This model thus makes visible the different levels of influence of the debate within a given situation: from the problem to be addressed, through the type of more or less familiar artifacts and mediums, to the communication channels and institutions symbolically represented.

If organizing a debate is a systemic design situation, we ask ourselves what other design situations could be the scene of political actions. One of the situations we wish to explore is prototyping. Indeed, due to its capacity to gather different actors, i.e. to maintain a dialogical relation in the project (Yu et al., 2018), there is a relative dimension of debate. A prototype thus represents a potential endless space of exploration allowing to discuss design impediments or opportunities. Here, the act of prototyping is perceived as an open space, where the integration of new ideas, materials, references and knowledge allow new directions in the project.

The notion of prototyping is deeply rooted in the practice of design insofar as, through the prototype, the thought of a designer is embodied in a materially defined situation (Gentès, 2022 ; Koskinen, 2010). The prototype thus reminds us of the fundamentally situated practice of design, in constant dialogue with the material elements of the situation (Schön, 1983). The mediums used by designers seem to offer opportunities for the emergence of ideas or "matrices of emergence" (Gentès, 2022, p.62) that give them "meaning after their work and not by following a predetermined idea that would gradually become embodied in artifacts." This idea echoes Gaver et al. 's (2022) proposal to assume emergence as a potentiality of design research and identify strategies to foster this emergence. *Consider anomalies, seek idiosyncratic examples, tell the full backstory or value agility and responsiveness* are some of the 12 strategies identified, and encourage thinking about the act of design in the making. The notion of emergence seems to us to relate to prototyping as a situation, going further than simply giving shape to imagined objects.

Therefore, we can think of the act of prototyping as the concrete manifestation of the designers' diagrammatic thinking in that it allows us to describe : "What [designers] work on, in the time of their practice, and which is not yet defined since all their work consists in defining this thing: whether it is an object, an image, a device, an interface, etc., only exists first in a virtualized way by a diagrammatic device constituted by these images that are the prototypes, the plans, the sketches, the procedures, etc." (Beaubois, 2015, p. 56). The design activity is thus composed of

a set of interdependent diagrams, or prototypes, which express the object being designed.

Hence, considering a prototype more as a situation than as an artifact makes it possible to extend what the act of prototyping comes to be. Subrahmanian et al. (2003) emphasize that the word prototype can refer to any cognitive structure: verbal, gestural and virtual representations and models, protocols, processes, physical artifacts, etc. This diversity thus leads us to go beyond approaches which describe prototyping as a series of versions whose resolution should be more and more precise (Vinck, Jeantet & Laureillard, 1996).

In this paper, we thus explore what conditions, in a prototype as situation, allows a political experience of design. In other words : what are the conditions that give rise to debate in ordinary design practices, such as prototyping?

The Arena as an Analytical Framework

In order to analyze the conditions of a political experience of design within a prototyping situation, we have voluntarily selected three different situations (Fig.1): a project design course within a design program of a french university (usecase A), a co-design project developed in a neighborhood of a major French city (usecase B) and an ideation workshop in a large company (usecase C). The diversity of these situations allow us to observe different spaces, temporalities, actors, tools, positions and commitments in the designing situation.

Usecase Code	A	B	C
Context	Teaching: project practice course around the notion of translation	Commission: social design project initiated by associations in the Wazemmes district of the city of Lille	Commission : UX design project for a public client by a external design studio
Temporality	12 sessions of 3 hours (50 hours) spread over approximately 8 weeks	3 weeks of immersion in the neighborhood, including a period of preparatory work before the immersion	1 day of workshop (8 hours)
Place	An University	One neighborhood	A company
Participants	5 groups of 2 or 3 third-year design students	Neighborhood citizens, various stakeholders such as elected officials, neighborhood associations	2 groups of 10 employees
Space type	Computer room: lines of non-modular or movable tables, computer stations, whiteboard. No other equipment specific to the practice of the project	The street, the public spaces, a room made available for the project team	A "COMEX" type meeting room, with a big and non-movable table
Prototyping subject	Experimenting with the notion of translation in the project: the subject is to be found by the students	Questioning the feeling of living in the Wazemmes district	Redesigning the client's website
Prototyping activity	Translation of a problematic situation via the creation of 3 mediums exploring differently the situation then translation into a potentially preferable situation by paying attention to the forms of translations to operate	Exploration of the imaginary of the neighborhood (participatory sensitive mapping, interviews, participatory showcase) and potential actions (project sheets, sensitive walk, blank stickers revealing the potential of the neighborhood).	Creation of a functional structure of the future website, from some different functional bricks
Presentation format	2 deliverables: a poster presenting the exploration of the project through the 3 mediums allowing to problematize the subject then, at the end of the course, a file presenting a detailed project proposal	Data collection formats = feedback formats (showcase, project sheet, etc.) but also public exhibition in a neglected area of the neighborhood, meetings with local officials, project booklet available for download	Projection on screen of the functional structure produced during a finale presentation with all participants

Figure 1: Summary presentation of the use cases.

Our analytical framework is based on a two-step process. In the first step, we conducted field observations by focusing on issues raised by Bruno Latour and described earlier. Indeed, pluralism, in terms of viewpoints, actors and their interests, requires considering how an assembly could be constituted. Matters of concern can't be understood, described and debated in the same way in different assemblies. According to Latour, to "speak well of the things" (Latour, 2022) that concern us, involves adopting a triple representation principle: first, to represent the issue that justifies the existence of an assembly. Here, we observed in the situations of prototyping how the first issue raised by the project was materially represented, debated and how it changed according to new issues raised during the situation. Second, to guarantee that the assembly is made up of people who are themselves representative. We mapped all the stakeholders of the situation according to their status outside and inside the situation. Finally, to materially build the assembly that embodies the public emerging from this

concern. We observed all the material properties of the situation that allowed actors in the situation to discuss, debate and decide.

In the second step, we analyzed all the collected data in relation to the notion of arena. An arena can be defined as a collective mobilization that emerges when members of an unlabelled group feel concerned by a trouble (Harraway, 2016), define it as a problem and resolve it by taking action (Cefaï, 2016). Using the notion of arena allowed us to refine our analysis from a political perspective. Therefore, this perspective allowed us to analyze data from three different points of view. First, we analyzed what allows a group of people to feel concerned, both collectively and individually by a trouble. We thus seek to grasp the conditions determining both the participants' access to the situation and what they can express themselves on. Second, we analyzed the situations from the point of view of the problem that the public defines collectively. Here, we try to grasp the conditions relative to the mode of confrontation between participants and the material properties of this mode. Finally, collected data were also analyzed from the point of view of what the group agrees to make visible. We seek to capture the conditions of access for other audiences as well as the discourses produced.

Therefore, our two-step analytical framework is built by crossing the conditions of the creation of an assembly and the emergence of an arena (Fig. 2).

Being concerned by a trouble	Defining a problem	Being visible
	Representing the matter of concern	
	Guaranteeing the representativeness	
	Building the assembly	

Figure 2: Analytical framework based on a two-step process.

The thematic and comparative analysis of all data we collected through this framework allowed us to grasp the material, spatial, temporal and social properties of prototyping situations from a political point of view. It is important to say that the conditions we describe in the following section were not observed explicitly in all the situations: it is precisely the point of a comparative analysis to be able to bring out more explicitly important elements of analysis.

Emerging Conditions of a Political Experience of Design

In this section we present all the conditions we grasped through our analysis. These emerging conditions can be seen as concrete means of action for designers to develop a political experience within a prototyping situation. They thus underline the importance of being fully conscious of the debate emerging in any prototyping situation and the potential of the emergence of an arena.

As described earlier, this emergence is characterized by the sharing of an experienced trouble, the definition of a problem and the visibility of the constituted arena around this problem. In order to detail them in relation to our field observations, we designed three scenarios (Fig.3, 4, 5) representing these characteristics (through three colors background, more or less present according to our observations) as well as the most important steps of each situation (drawings thus evoke important moments of our observations). The numbers allow us to associate a specific moment we observed with a specific condition.

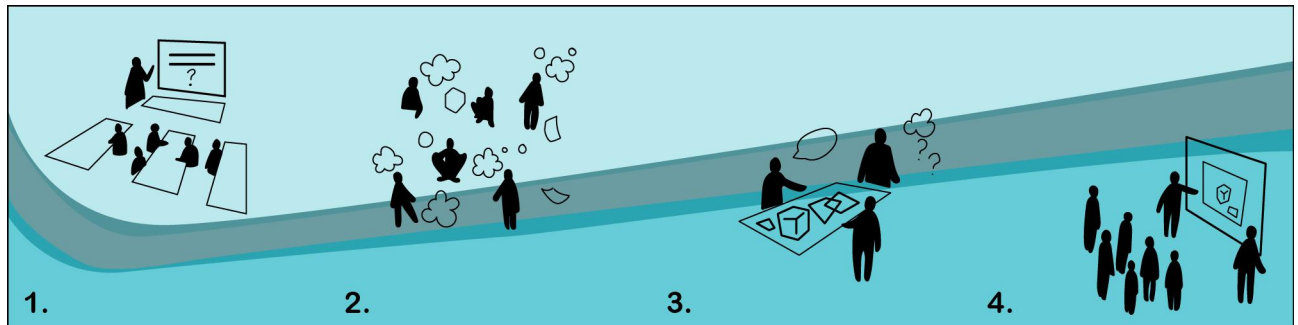


Figure 3: Use case A

1. Beginning of the project: Students are asked to answer individually to a question (Have you observed or had experiences that you would have wished to translate?) by drawing on their personal experience.
2. Divided into groups, students must then collectively find common points to formulate a trouble represented through three specific mediums.
3. This trouble is then translated into a problem and explored outside of class time. The time spent with the teacher is used to report on the work done.
4. Each group gives a presentation in the classroom to the teacher and the other groups.

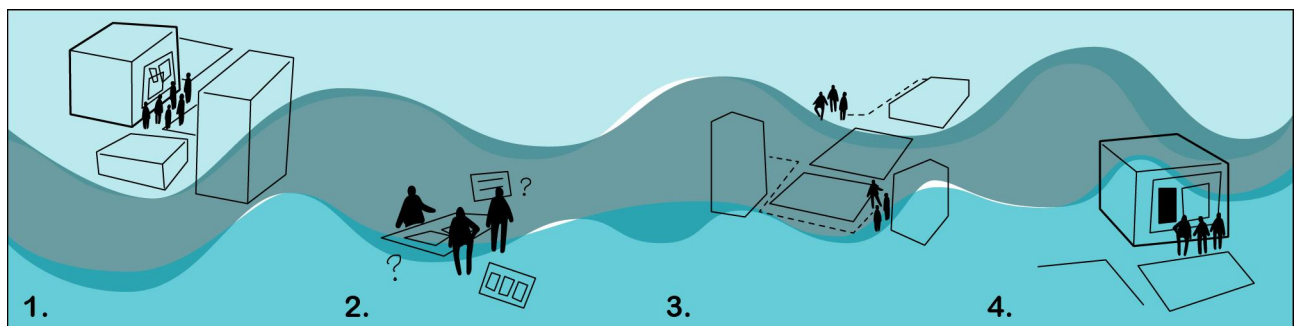


Figure 4: Use case B

1. A space dedicated to the project is found in the neighborhood. This space allows to propose workshops (but also in other places) inviting inhabitants to express themselves on their perceived images and habits of the neighborhood.
2. Ideation workshops are carried out with inhabitants: project templates are distributed in order to collect ideas on possible transformations of the neighborhood.
3. Tours of the neighborhood are organized in order to identify places to be changed: stickers are stuck on them by the inhabitants indicating the possible evolutions.
4. The data collected is then presented to the inhabitants, directly in the public space, as well as to the local elected officials.

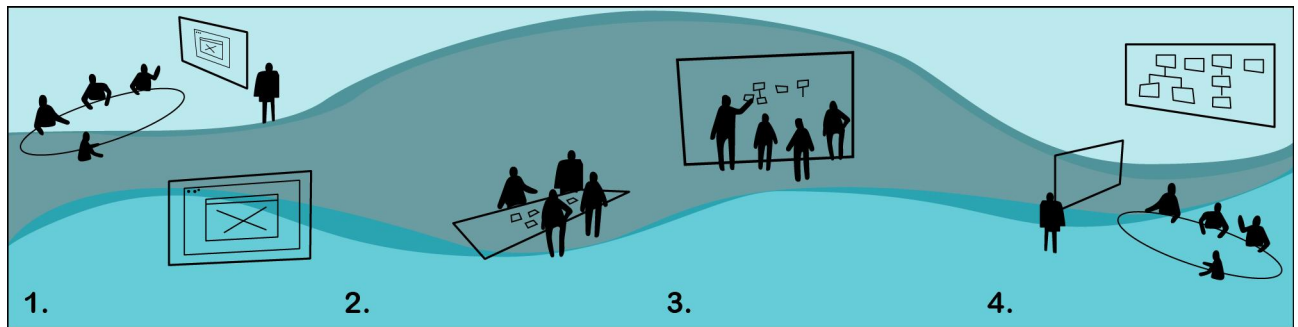


Figure 5: Use case C

1. Presentation of the brief and the audit carried out beforehand by the design teams on the current website: first brainstorming on the principles of experience that the participants think are the most adapted.
2. The imagined functionalities are then materialized collectively in the form of paper "functional bricks".
3. These functionalities are then composed in the form of a tree structure, in group, then presented to be annotated by the participants.
4. The work done during the workshop is then presented to the workshop participants.

Being concerned by a trouble: curating the concern

Our comparative analysis highlights three conditions in the emergence of a shared trouble within a prototyping situation (Fig.6): visualizing a situated and dynamic antagonism, considering all the voices of people and using space as a designing background. These conditions inform us about levels of action for curating a concern.

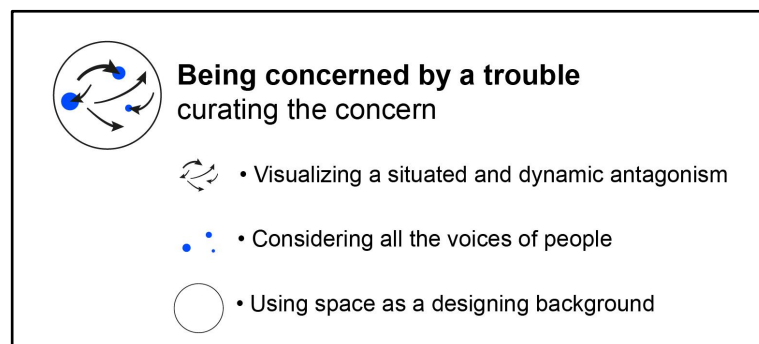


Figure 6: Three conditions for the emergence of a trouble within a prototyping situation (in the form of pictograms).

First of all, it seems essential that a prototyping situation always starts from a commission that makes a project dependent on a field, ready to be explored (Frodon, 2022). Working from existing situations (seen as design materials) allows the formulation of a trouble, more or less experienced by actors, through formats which are sufficiently plastic to maintain a plurality of perceptions around this trouble. Without this situated aspect of prototyping, the trouble cannot be grasped in all its diversity: managing to map this plurality makes the formulation of a trouble visible without being too prescriptive or unequivocal, as it supports a collective formulation of the trouble during all project stages. At the same time, it makes it possible to keep track of the project, to understand which issues need to be discussed at which times and to make visible how the group works dynamically on a trouble.

Then, although the trouble is expressed in a collective way, the prototyping situation should allow each participant, not only designers but all the people involved in the formulation of a trouble (users, clients, etc.) to describe individually the way they perceive it. Thus, the prototyping situation should provide subspaces where personal expression is possible

throughout the project (Thoring et al., 2018) making visible all the potential places associated with the trouble. These places expand the scope of the field exploration, allowing the prototyping situation to be situated in different places, each time involving specific formats, with the objective of considering all the voices concerned by the trouble in question. Consequently, it seems important that a preliminary work is done with a panel of actors, representative of the plurality of the trouble in order to pluralize the places where the prototyping situation could occur and the trouble could be formulated.

Finally, to support the collective formulation of a trouble, the situation should consider the possibility of spatializing data involved in this formulation. Space can become a designing background for the trouble (Keller et al., 2006). Forasmuch as the prototyping situation is not situated in a single place, each space should make sense for actors by facilitating a work of composition, hanging, collage and juxtaposition of data. Curating the concern should also consider the explicitation of a valid type of speech: informing, instructing, persuading, criticising. Describing which type is used allows for a better positioning of actors in relation to what is said. The prototyping situation should thus be able to make people aware of the plurality of ways of expressing themselves within and on a project.

Defining a problem: building a public

Our analysis highlights two conditions that contribute to the definition of a problem through a work of investigation within a prototyping situation (Fig.7): labelling a thing and using the space as a parliament. These conditions seem to support the transformation of a group of people (concerned by a trouble) into a public whose objective is to characterize a trouble by a problem.

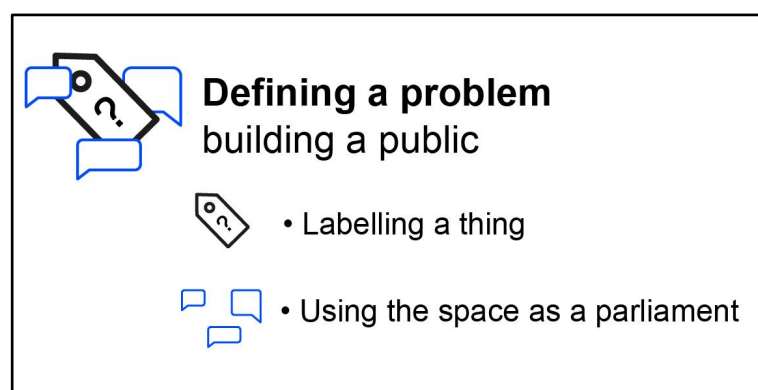


Figure 7: Two conditions for the definition of a problem (by a public) within a prototyping situation (in the form of pictograms).

First, the prototyping situation can be seen as the material translation of a trouble in terms of causes, factors and liabilities (Mollon, 2019): through data collection formats, more or less participative, the goal is to identify which elements allow the group to define the trouble as a problem. Therefore, it seems necessary that these formats make visible, at different places and times, the potentiality of a data to be part of a wicked problem (Rittel & Webber, 1973). Here prototyping is thus considered as a way of labelling a thing or Ding (Latour & Weibel, 2005) into a problem which reveals the invisible forces and political tensions at work in a trouble. To do so, the prototyping situation should support the documentation of all the labellisations of the thing and the definitions of the problem in order to keep track of the many possibilities for a public to justify its existence.

Second, defining a problem within a project requires to take into account the spatial properties of the prototyping situation which allow to discuss around collected data. The space should thus be modular enough to produce different types of physical and discursive confrontation: semicircle, circle, horseshoe, classroom, opposing-bench, etc. (XML, 2016). By diversifying the ways in which speech is materially produced, the work of problematization is fed by the many points of view that these types bring out (Luck, 2010). Space thus becomes a parliament, a place where the definition of a problem is realized. But beyond space, it is also the relationship to time that should be considered. The prototyping situation encourages a total immersion, over short or long periods, from which key moments emerge, helping to develop the problem more precisely.

Being visible: opening new project paths

Finally, the comparative analysis highlights three conditions that shed light on operations involved in the visibility of a project carried out by a design project-team (Fig.8): searching for a common horizon, adapting communication modes, and building the space as an exhibition. Here, the act of prototyping requires us to think the communication's project as a way to design. Therefore, each moment of public presentation, not only at the end of a project, potentially creates new design paths and opens up the scope of the project.



Figure 8: Three conditions for the visibility of an arena within a prototyping situation (in the form of pictograms)

First of all, the communication of a project should be adapted according to audiences in order to potentially involve them in the project and make them feel concerned by the problem (and the trouble) formulated by the team. From this point of view, it seems essential to pluralize the formulations of the problem and identify issues at stake for each audience in order to adjust the discourse as best as possible. Previous conditions we described earlier play a key role here. Therefore, communicating a project is not only a matter of providing information but also generating agency within the audiences to continue building the project.

Thus, seeing communication's project as the potential emergence of agency within an audience makes it possible to extend the scope of project's visibility from its beginning (Ricci, 2022). There is a challenge of adapting the modes of communication according to the situation of communication: the creation of formats informing on the project while allowing audiences to participate is a goal that any situation of prototyping can take into account. Participative design tools of observation and ideation should therefore also facilitate communication of the project and its issues. This goal of mediation is fundamental because it demonstrates the potentiality for

communication to spark a trouble within the audiences and offer new paths of action and reflection to the project.

Finally, the prototyping situation can be seen as an exhibition space (Mabi & Monnoyer-Smith, 2012) where the project is both a communication situation and a design situation (Gentès, 2022). Considering these two sides allows for the arena to make itself visible to other audiences. To do so, the visual identity of the project should be built at the same time as the project as long as it reflects the different perceptions around the trouble. This supposes that the space properties should take into account different types of speech, according to the stakes of communication and the material properties at disposal.

The analysis of three prototyping situations allowed us to identify various conditions for the emergence of an arena. Our goal is to point out how a prototyping situation can be experienced as political, beyond a functional approach. Indeed, if we consider prototyping as a space of deliberation, then the transition from one prototype to another should not be based on the criteria of resolution allowing to reject or validate hypotheses (Vinck et al., 1996). This way of reasoning forgets that each prototype is a world in itself that does not communicate the same issues for the project and for the life experiences it addresses. To consider an MVP (Minimum Viable Product) as the only valid version of a project is to consider design in a linear way. A prototype is therefore not only a static means of translating an idea but also a breaking point in terms of representation which influences the understanding of a project, particularly in a collective design situation. In this way, prototyping makes it possible to grasp different levels of agreement, even partial, on how to build a project (Subrahmanian et al., 2003). This last comment is essential because it considers a prototype as a boundary object whose primary role is to bring together actors from different discourse communities (Krippendorff, 2012). A prototype thus serves here as a deliberation space allowing debate around project's stakes and the most adapted ways to pursue them (Fig. 9).

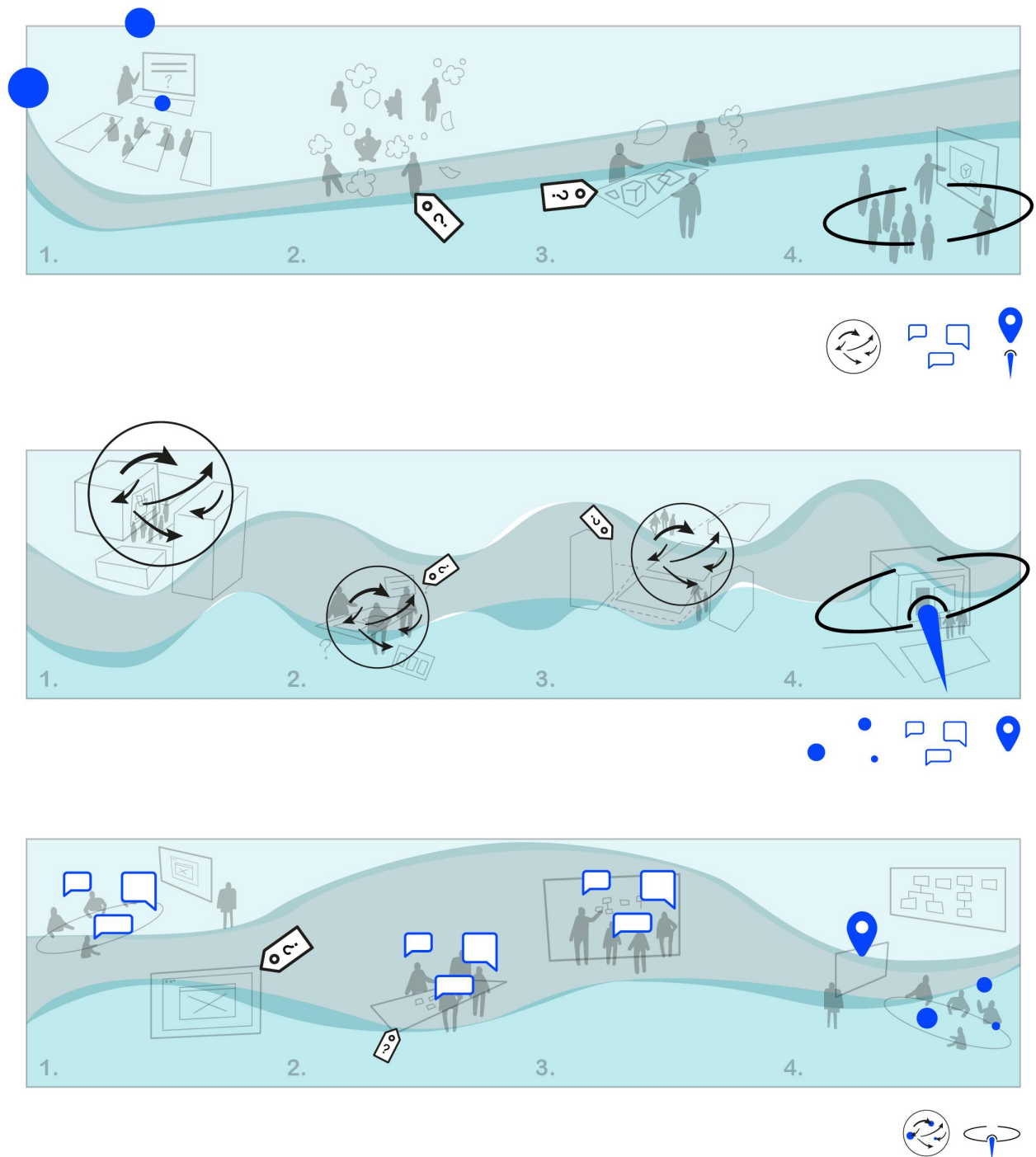


Figure 9: Visualizations of the missing conditions for each of the prototyping situations. Each missing condition is located at the bottom right of the strip.

For example, on one hand, situation A allows a personal formulation of a trouble through a question (considering all the voices of people). On the other hand, the collective formulation of the trouble is less present because the properties of the space do not allow the visibility of the many points of view around the trouble (visualizing a situated and dynamic antagonism). The work of problematization, in spite of imposed formats of exploration (labelling a thing) could not be completed because the project exists outside a concrete commission and a real field of exploration. Therefore, the project is limited to the space of the class. By working the prototyping situation as a communication space (using space as a designing background), the

situation could have better situated each of the project group in a real field of exploration with stakeholders while allowing for a collective construction of a problem (searching for a common horizon).

On the contrary, situation B put the emergence of collective trouble at the heart of the project. The personal experience of the trouble is captured through various participative design tools (labelling a thing). This approach also allows them to communicate differently about the project and to engage new audiences but not collectively (adapting communication modes). It also shows a light participation from actors because the personal experience of the trouble is collected without being followed by a deep exploration of it (considering all the voices of people). By designing tools that facilitate the sharing of the trouble more profoundly, the work problematization would have allowed actors to discuss more (using the space as a parliament) and would have opened the project to more appropriation.

Finally, situation C engages stakeholders with an already formulated trouble. Therefore, space becomes only a place for building a problem (using the space as a parliament) but in a collective way (labelling a thing). By focusing more on formulating the trouble (visualizing a situated and dynamic antagonism), the prototyping situation would have gained in plurality, allowing to reinforce the commitment of actors (building the space as an exhibition). Indeed, even if the prototyping situation has brought out new subjects of discussion during the restitution, this does not mean that the problematization work has allowed us to explore all dimensions of the trouble (considering all the voices of people and searching for a common horizon).

Our comparative analysis between various elements shows how these conditions could be brought out of functional approaches of prototyping. In this respect, prototyping situations we have analyzed could be seen as a political experience but it seems that their conditions do not vary enough to really bring out arenas. Envisioning prototyping as a situation was the first step of a consideration about the conditions needed to make a political experience happen. It could be interesting to use the framework sketched in this paper to analyze more prototyping situations but also to create new ones. Thus we could vary the many different forms of arenas allowed by prototyping and pursue the study of the political in the ordinary practices of design.

Informing Design Practices through the Political

This paper can be considered as a first step of a more extensive research about the way a political experience of design could occur within design practices. It provides tools for designers and design practitioners to think about prototyping as a situation, and notably a political one. The graphic work we designed has two interests. On the one hand, it gives an analytical framework for any prototyping situation allowing designers to understand moments of emergence (or not) of a political experience. On the other hand, it gives a tool for setting up a prototyping situation, based on political experience conditions, and thus leaves the possibility for an arena to emerge.

More generally, what we are trying to emphasize is the reflexive dimension of design practice that pushes the practitioner to think, beyond the emergence of ideas, about the material conditions of the emergence of political arguments that can forge and build a political arena. Therefore, this research is trying to explore ways of making the practitioner feel concerned (producing matter of concern from the designer and the participants), by being a complete actor in the project for which he or she is responsible. In this sense, we come close to some activist practices in design (Bieling, 2019), in which the personal interest of the project for the designer

is a corollary to its application. This way we question the working environments of designers and the habits that are forged there over time: from the moment that a designer fixes his or her practices in a specific environment, how can he or she guarantee a political experience of this environment? Or, on the contrary, when the designer is not aware of the classification systems of a situation, how can he or she work on the conditions for questioning these systems? And, on a more general level: in what ways designers could embody the political dimension of their practice knowing that they participate in a material culture of which we are aware of its limits today?

This article brought a series of questions we could explore by engaging a more extensive research on how prototyping could be the most adapted situation to experience the political in design because it brings together human and non-human actors into a co-design process where debate is necessarily present. In his compositionist manifesto, Bruno Latour calls for thinking politics as the progressive composition of a common world. Pluralism should be the primary material from which it becomes possible to come together, to deliberate: "if we put aside what separates us, there is nothing left for us to put in common" (Latour, 2022, p. 14).

Thinking from the point of view of pluralism means accepting that the political can emerge as much from parliaments as from: "Scientific laboratories, technical institutions, marketplaces, churches and temples, financial trading rooms, Internet forums" (Latour, 2022, p. 21). All of these places show different material properties inducing different ways of speaking, ways of coming together, of raising a concern, of deliberating, of designing.

References

- Auger, J. (2012). Why Robot? Speculative design, the domestication of technology and the considered future.
- Beaubois, V. (2015). *Ethnographies du design : Vers une diagrammatisation de la conception*. Techniques & culture, 64, 48-63. <https://doi.org/10.4000/tc.7558>
- Cefai, D. (2016). *Publics, problèmes publics, arènes publiques... : Que nous apprend le pragmatisme ?* Questions de communication, 30, 25-64. <https://doi.org/10.4000/questionsdecommunication.10704>
- DiSalvo, C. (2015). Adversarial design. *The MIT Press*.
- Dunne, A., & Raby, F. (2007). *Critical Design FAQ*. Dunne & Raby. <http://dunneandraby.co.uk/content/bydandr/13/0>
- Dunne, A., & Raby, F. (2013). *Speculative everything : Design, fiction, and social dreaming*. The MIT Press.
- Frodon, J.-M. (2022). *La commande comme dispositif actif, les commandes comme réalités multiples*. In F. Aït-Touati, J.-M. Frodon, B. Latour, & D. Ricci (Éds.), *Puissances de l'enquête : L'École des Arts politiques. Les Liens qui libèrent*. <https://hal.archives-ouvertes.fr/hal-03776222>
- Gaver, W., Krogh, P., Boucher, A., & Chatting, D. (2022). *Emergence as a Feature of Practice-based Design Research*. 517-526. <https://doi.org/10.1145/3532106.3533524>
- Gentès, A. (2022). *Pour une théorie " média-centrée " du design*. Approches Théoriques en

- Information-Communication (ATIC), 4(1), 51-71. <https://doi.org/10.3917/atic.004.0051>
- Haraway, D. J. (2016). *Staying with the trouble : Making kin in the Chthulucene*. Duke University Press.
- Keller, A., Pasman, G., & Stappers, P. J. (2006). *Collections designers keep : Collecting visual material for inspiration and reference*. *Codesign*, 2, 17-33. <https://doi.org/10.1080/15710880600571123>
- Keshavarz, M. (2016). *An Inquiry into Passports, Camps and Borders [Thèse de doctorat, Malmö University]*. <https://www.diva-portal.org/smash/get/diva2:1404323/FULLTEXT01.pdf>
- Koskinen, I. (2010). *Two Solitudes : Design as an Approach to Media Studies*. *Nordicom Review* Vol. 27(2), Nov. 2006, pp. 35-47.
- Krippendorff, K. (2012). *Le discours et la matérialité de ses artefacts* (A. Bahroun, Trad.). *Communication & langages*, 173(3), 17-42. [Cairn.info. https://doi.org/10.4074/S0336150012013026](https://doi.org/10.4074/S0336150012013026)
- Latour, B. (2022). *Pour une école des arts politiques, Manifeste Compositionniste*. In F. Aït-Touati, J.-M. Frodon, B. Latour, & D. Ricci (Éds.), *Puissances de l'enquête : L'École des Arts politiques. Les Liens qui libèrent*. <https://hal.archives-ouvertes.fr/hal-03776222>
- Latour, B., & Weibel, P. (Éds.). (2005). *Making things public : Atmospheres of democracy*. MIT Press ; ZKM/Center for Art and Media in Karlsruhe.
- Luck, R. (2010). *Using objects to coordinate design activity in interaction*. *Construction Management and Economics*, 28(6), Art. 6.
- Mabi, C., & Monnoyer-Smith, L. (2012). *Les arènes du débat public. Comprendre les logiques de mobilisation des différentes arènes de discussion par les acteurs d'un débat public. Communiquer dans un monde de normes. L'information et la communication dans les enjeux contemporains de la " mondialisation " .*, 281. <https://hal.univ-lille.fr/hal-00826084>
- Mollon, M. (2016) *Dissensus : For a situated critical design*, out of museums.
- Mollon, M. (2019). *Design pour débattre : Comment créer des artefacts dissonants, et leurs situations de communication, afin d'ouvrir des espaces de contestation mutuelle (agonisme) et d'expression des voix marginales (dissensus) [Phdthesis, Université Paris sciences et lettres]*. <https://theses.hal.science/tel-03120398>
- Mouffe, C. (1993). *The return of the political*. Verso.
- Mouffe, C. (2005). *On the political*. Routledge.
- Ricci, D. (2022). *Des exercices*. In F. Aït-Touati, J.-M. Frodon, B. Latour, & D. Ricci (Éds.), *Puissances de l'enquête : L'École des Arts politiques. Les Liens qui libèrent*. <https://hal.archives-ouvertes.fr/hal-03776222>
- Rittel, H. W. J., & Webber, M. M. (1973). *Dilemmas in a general theory of planning*. *Policy Sciences*, 4(2), 155-169. <https://doi.org/10.1007/BF01405730>
- Schön, D. A. (1983). *The reflective practitioner : How professionals think in action*. Basic Books.
- Sengers, P., Boehner, K., David, S., & Kaye, J. " Jofish ". (2005). *Reflective Design. Proceedings of the 4th Decennial Conference on Critical Computing: Between Sense and*

Sensibility, 49-58. <https://doi.org/10.1145/1094562.1094569>

Subrahmanian, E., Monarch, I., Konda, S., Granger, H., Milliken, R., Westerberg, A., & Thendim group. (2003). *Boundary Objects and Prototypes at the Interfaces of Engineering Design*. *Computer Supported Cooperative Work (CSCW)*, 12(2), 185-203. <https://doi.org/10.1023/A:1023976111188>

Thoring, K., Desmet, P., & Badke-Schaub, P. (2018). *Creative environments for design education and practice : A typology of creative spaces*. *Design Studies*, 56, 54-83. <https://doi.org/10.1016/j.destud.2018.02.001>

Vinck, D., Jeantet, A., & Laureillard, P. (1996). *Objects and Other Intermediaries in the Sociotechnical Process of Product Design : An exploratory approach*. In V. (Dominique) PERRIN (Jacques) (Éd.), *The role of design in the shaping of technology* (p. 297-320). *Directorate General Science, R&D*. <https://shs.hal.science/halshs-00273425>

XML. (2016). *Parliament. XML*.

Yu, F., Pasinelli, M., & Brem, A. (2018). *Prototyping in theory and in practice : A study of the similarities and differences between engineers and designers*. *Creativity and Innovation Management*, 27(2), 121-132. <https://doi.org/10.1111/caim.12242>

Rose Dumesny

Rose Dumesny, PhD in Information and Communication Science with a specialization in Design. Trained in product design at ENSAAMA-Olivier de Serres, she works as a researcher and experience designer on the links between digital and tangible devices. She defended her thesis in 2019 on mediation through design of complex systems, such as data or AI. The projects she is developing focus on understanding the impact of AI on new services or on design professions in order to develop methodologies to adapt to it.

Dorian Reunkrilerk

PhD in Design sciences and Information-Communication sciences and designer (specialized in service and graphic design). He worked for 4 years for museums and design events in curating and cultural mediation. Through his design practice, the research works he conducts explore modes of mediation between design cultures within organizations from the point of view of objects and their media properties. He's also a research fellow at the Panthéon-Sorbonne University (in the "Design, Arts, Medias" research group of the ACTE Institute) and at Strate, school of design (in the Strate Research group).