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Imágenes de este volumen

Las imágenes generales (tapa, c/tapa y secciones) de este número cinco de la revista nos acercan a los hongos, un reino tan bello como misterioso. La seta como fruto de una especie que no es ni planta, ni animal y que tiene tanta agencia en las funciones vitales y ciclos de la biosfera, y que se ha puesto en la mesa alimentaria como nueva frontera de investigación y creación. Siguiendo el espíritu de estos años acompañando a esta publicación con imágenes sutiles e inesperadas de alimentos vistos (literalmente) desde distintos enfoques visuales, estas imágenes pintan "paisajes" que nos invitan a seguir sorprendiéndonos con la inmensa belleza de la escena comestible.

Matilde Lombardi, septiembre 2024

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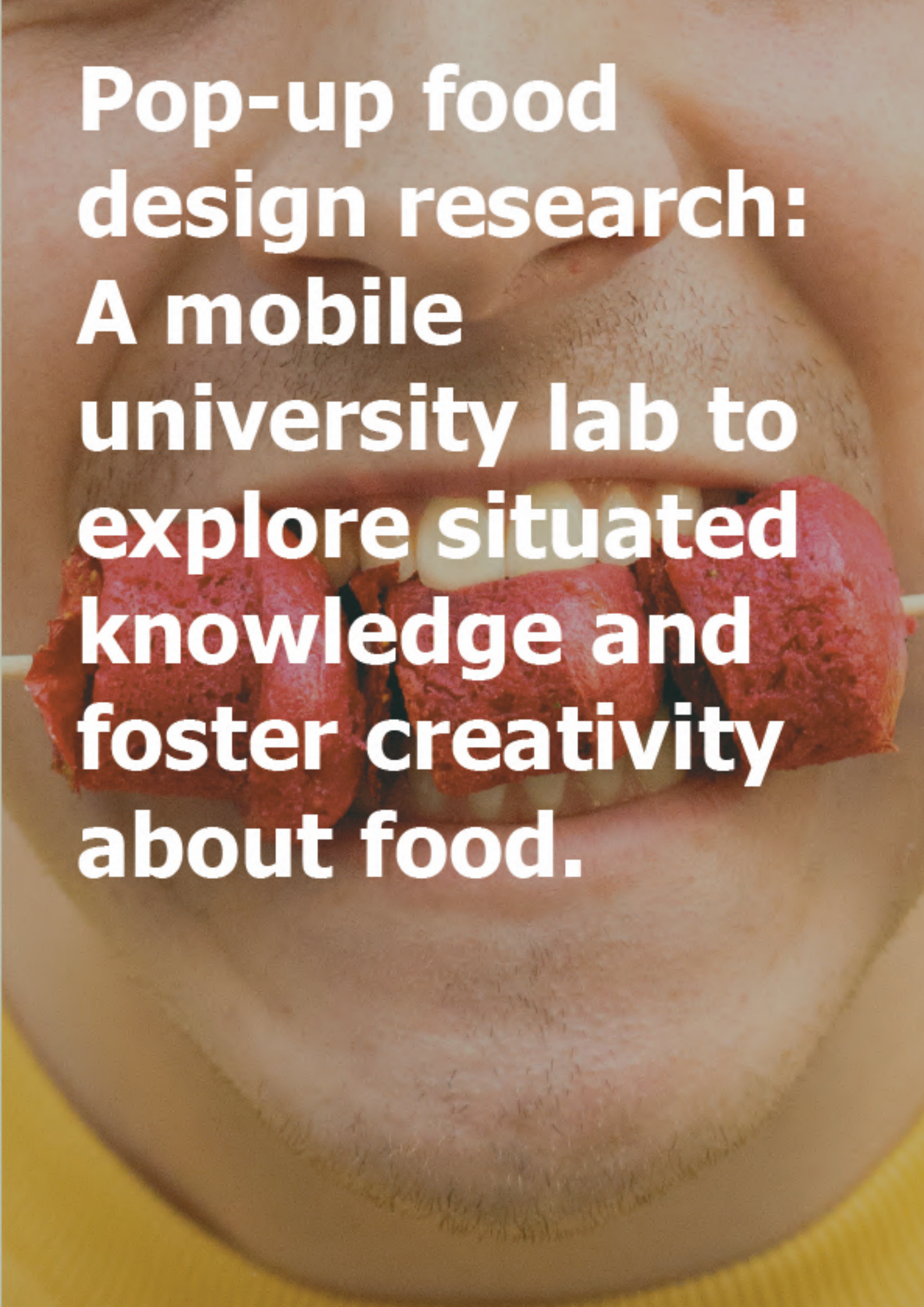
COMES LO QUE ERES



Pop-up food design research: A mobile university lab to explore situated knowledge and foster creativity about food.

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Resumen

El documento reflexiona sobre la importancia de realizar investigaciones sobre *food design* a través de talleres colaborativos situados para desencadenar intercambios generalizados de conocimiento y creatividad relacionados con la comida. Para ello, el artículo presenta el caso del Polito Food Design Lab del Politecnico di Torino (IT). Desde 2016, el laboratorio ha fomentado proyectos de investigación-acción sobre temas de food design. Consistente con la visión del Politecnico di Torino como una universidad comprometida, fue concebido para promover la interacción multidisciplinaria con la comida y la experimentación directa con sus transformaciones, según una perspectiva de economía circular y justicia social, y un enfoque comunitario. El Polito Food Design Lab fue diseñado como un laboratorio “pop-up” o "móvil". El equipo para experimentar con procesos de transformación de alimentos ha sido organizado en kits transportables, que se pueden instalar dentro de la universidad y, sobre todo, en espacios urbanos para activar la riqueza de conocimientos y sensibilidades gastro-creativas de las comunidades. Se ha convertido en uno de los atributos más distintivos y estimulantes del laboratorio, entregando resultados significativos desde el punto de vista de la investigación comprometida, no de la enseñanza formal, y la promoción del rol cívico de las universidades. Así, la dimensión situada y participativa de los laboratorios móviles parece ser una parte esencial de la práctica de los investigadores de *food design* para comprender mejor -y enseñar- los fenómenos relacionados con la comida en su dimensión fáctica, para mejorar el capital social y cultural de los contextos, y para concretar la dimensión relacional de los procesos de diseño.

Palabras clave: Laboratorios móviles, Educación en diseño de alimentos, Taller de diseño participativo, Conocimiento situado, Enfoque comunitario

Resumo

O artigo reflete sobre a importância de conduzir a pesquisa de Design de Alimentos por meio de oficinas colaborativas situadas para desencadear um amplo intercâmbio de conhecimento e criatividade relacionados a alimentos. O artigo apresenta o caso do Polito Food Design Lab do Politecnico di Torino (IT). Desde 2016, o laboratório tem promovido projetos de pesquisa-ação sobre tópicos de food design. Em consonância com a visão do Politecnico di Torino como uma universidade engajada, ele foi concebido para promover a interação multidisciplinar com os alimentos e a experimentação direta com suas transformações, de acordo com uma perspectiva de economia circular e justiça social e uma abordagem comunitária. O Polito Food Design Lab foi projetado como um laboratório "pop-up" ou "móvel". Os equipamentos para a experimentação dos processos de transformação de alimentos foram organizados em kits transportáveis, que podem ser instalados dentro da universidade e em espaços urbanos para ativar a riqueza de conhecimentos e sensibilidades gastro-criativas das comunidades. Isso se tornou um dos atributos mais distintivos e estimulantes do laboratório, produzindo resultados significativos do ponto de vista da pesquisa engajada, não do ensino formal, e promovendo o papel cívico das universidades. Assim, a dimensão situada e participativa dos laboratórios móveis parece ser uma parte essencial da prática dos pesquisadores de Design de Alimentos para entender melhor - e ensinar - os fenômenos relacionados a alimentos em sua dimensão factual, para aprimorar o capital social e cultural dos contextos e para concretizar a dimensão relacional dos processos de design.

Palavras-chave: Laboratórios móveis, Educação em design de alimentos, Oficina de design participativo, Conhecimento situado, Abordagem comunitária.

Abstract

The paper reflects on the significance of conducting food design research via situated collaborative workshops to trigger widespread food-related knowledge and creativity exchanges. The article presents the case of the Polito Food Design Lab from Politecnico di Torino (IT). Since 2016, the laboratory has fostered action-research projects on food design topics. Consistent with the vision of Politecnico di Torino as an engaged university, it was conceived to promote multidisciplinary interaction with food and direct experimentation with its transformations, according to a circular economy, social justice perspective, and community approach. The Polito Food Design Lab was designed as a “pop-up” or “mobile” laboratory. The equipment for experimenting with food transformation processes has been organized in transportable kits, which can be set up inside the university and in urban spaces to activate communities' wealth of gastro-creative knowledge and sensibilities. It has become one of the lab's most distinctive and stimulating attributes, delivering significant results from the point of view of engaged research, not formal teaching, and promoting the civic role of universities. Thus, the situated and participating dimension of mobile labs appears to be an essential part of food design researchers’ practice to better understand - and teach - food-related phenomena in their factual dimension, to enhance the social and cultural capital of contexts, and to concretize

the relational dimension of design processes.

Keywords: Mobile laboratories, food design education, participatory design workshop, situated knowledge, community approach.

Introduction

The contribution discusses the opportunity of conducting food design research through situated and collaborative workshops to foster widespread exchanges of knowledge and creativity related to food. Specifically, the article focuses on the case of the Polito Food Design Lab (PFDL) at the Politecnico di Torino (Italy), which promotes itinerant design experiences and their ability to engage communities and their contexts.

The first part of the article describes the PFDL, highlighting its history and evolution over time and presenting the collaborative workshop as its primary working tool. The second part of the contribution addresses the relevance of the "pop-up" or "mobile" feature in the action-research activities conducted by the PFDL, situating them within the context of design for social innovation in local environments. In the third section, the PFDL's interpretation of the concept of foodscape is analyzed. To this end, the main dimensions of action characterizing the work of the PFDL are presented, along with a synopsis of representative case studies. The fourth part discusses the relationship between the PFDL and the concept of foodscape, with particular attention to the connection between the "situatedness" that characterizes the PFDL's actions and the contexts that host them, as well as the impacts and role of the PFDL in transforming food systems or foodscapes. The concluding section synthesizes key findings and discusses the work's implications and potential impact.

THE POLITO FOOD DESIGN LAB

Origin and Evolution

The Polito Food Design Lab (PFDL) is the operational tool of the Fighting Food Waste Design focus (FFWD), a project conceived within the Department of Architecture and Design at the Politecnico di Torino. It has been active since 2017 when it was funded by the University's Teaching Improvement Fund.

The PFDL combines practical experimentation with applied research, focusing on multidisciplinary interaction. It provides students and researchers with a range of professional kitchen equipment to experiment with the transformation

processes of food material, which becomes a material for design.

The PFDL is characterized by its “pop-up” nature, as discussed in more detail below: its equipment is organized into mobile kits that can be set up both inside and outside the University, in the city, and within urban spaces, allowing for teaching, public engagement, and applied research within intervention contexts and paying attention to the relational dimension of participatory design processes.

The PFDL’s activities focus on three project pillars: *Education*, *Applied Research*, and *Design-led Co-design Initiatives*.

Education targets students and citizens of all ages and involves practical and engaging experiences in which food is used both as a design material and as the subject of activities. This educational approach has been sustained and strengthened to benefit university students by developing activities that allow them to apply the knowledge learned during their training to real-world problems in the food sector. Additionally, efforts are underway to promote public engagement through design-driven initiatives that raise awareness about the circular economy, food surplus utilization, and food waste reduction.

Applied Research within the PFDL aims to promote the production of new knowledge, adopting the Research Through Design approach. This involves both "*research on design (into) more relevant to design [...] and a type of research for design (for) that produces original knowledge with standards as rigorous as research on design (into)*" (Findeli et al., 2008). Another objective related to this specific area is the development of action-research projects aimed at investigating phenomena such as food poverty, food access, and food literacy, mainly through co-design processes with local entities and organizations.

Design-led Co-design Initiatives represent the third stream of work within the PFDL framework, aiming to establish partnerships with local stakeholders to co-create products and services that effectively address food-related needs. These collaborations embody the principles of technology transfer and open innovation, characterized by horizontal and transdisciplinary dynamics that valorize the expertise and knowledge of all parties involved in developing projects with a transformative impact (Kotter, 1996). The transformative project approach, as outlined by Kotter (1996), serves as a guiding principle for the PFDL's co-design initiatives. This approach extends beyond merely managing or implementing a project, instead aiming to profoundly influence the context in which it is situated. By embracing this transformative perspective, the PFDL seeks to

generate significant and positive changes in organizations, sectors, or communities' structures, processes, or outcomes.

Main activities

Stemming from the three project pillars, a wide range of activities have been promoted and implemented to date, reaching over 1000 students (from both undergraduate and graduate courses at the Politecnico di Torino and secondary schools), more than 400 citizens, and ten project partners. Additionally, these efforts have also facilitated participation in a project focused on developing food products from byproducts within the framework of the National Recovery and Resilience Plan (PNRR).

The activities carried out by the PFLD fall into the following thematic categories:

***Design against food waste*:** socially responsible design workshops for the design of edible food products to contrast the phenomena of waste, food poverty, and food accessibility in contexts of social marginalization, such as shelters for people experiencing homelessness, in collaboration with local CSOs and NGOs.

Learning by food designing: complementary learning initiatives that support the educational curricula at Politecnico di Torino through applied experiences and original educational food design program development.

Food (systemic design driven) innovation: support in developing products, services, and system research for Bachelor's and Master's theses in Design and Communication and Systemic Design Degree at the Politecnico di Torino.

***Food design and applied science*:** experimental activities on processes of transformation and energy recovery of non-edible food material, collaborating with other research groups within Politecnico di Torino.

Public Engagement and Life-Long Learning: raising awareness about food waste through collective, performative, and public actions aimed at citizens on the occasion of public events on the topics of access to food, sustainability, and circular economy applied to food, in partnership with local bodies and associations.

***Product, process, and service innovation*:** collaborations with local stakeholders in practical research activities for Food Product Design, Food Space Design, Food Service, and System Design projects, working on food by-product valorization, social inclusion, and addressing the issue of food poverty.

***Dissemination and talks*:** scientific writing (favoring open source) and organizing exhibitions and talks on PFDL research activities within high schools and local exhibitions.

Methodological framework

According to Jones' (2014) classification of design domains, the PFDL's activities fall into the realms of Design 2.0, 3.0, and 4.0. Design 2.0 encompasses research and design activities where design tools and knowledge form the foundation for developing new products and services to address complex challenges, such as the valorization of food waste and the alleviation of food poverty. Design 3.0, on the other hand, focuses on design for organizational transformation, producing best practices and work processes capable of altering approaches and internal services within the context of intervention. Design 4.0 involves design actions that foster social transformations in contexts dealing with complex and "wicked" problems, with community development policies and interventions as the design goal.

According to Zampollo's classification of food design subdisciplines (2016), the PFDL's activities are linked to Design-With-Food, Food-Product-Design, Food-Service-Design, Food-System-Design, and Food-Space-Design. Within the dimensions of Design-With-Food and Food-Product-Design, food acts as a “simple” design material (Lerma et al., 2012). Through its transformation, experimentation is conducted to develop new edible products that can be produced and marketed within a potentially scalable artisanal production context. Products are designed considering their aesthetic dimensions—shape, color, size, texture, and mode of use—as well as their organoleptic qualities—formulations, taste, and smell.

The PFDL’s Food-Service-Design and Food-System-Design activities draw upon the knowledge of Systemic Design (Bistagnino, 2011), which focuses on sustainability dimensions within a framework of system transformation. This approach values the outputs and inputs of processes, seeking to increase added value and valorize the byproducts generated. Food-Space-Design activities within the PFDL aim at developing food spaces for citizens in conditions of social marginalization. These activities emphasize the welcoming aspects of spaces, focusing on furnishings, decorations, and layouts (Campagnaro et al., 2021).

Furthermore, building on this classification and from a perspective of transformative social innovation (Moulaert, 2018) and Design for Social Innovation (Manzini, 2015), the PFDL's actions explore an uncharted dimension of design practice, which the authors have defined as “Food Social Design'' (Passaro, 2023). This approach addresses topics such as food autonomy and education, food insecurity, the relationship between

health and food, and the connected food policies. More specifically, the term "Food Social Design'' refers to a framework of competencies that belong to the discipline of Social Design—attentive to the needs of individuals, communities, and contemporary social problems, with the intention of promoting changes oriented towards collective well-being—and to the discipline of food design, in which food, food systems, and services become subjects and objects of design processes.

In the PFDL's projects, Design stands, as suggested by Celaschi (2008), "halfway" between the humanities, technology/engineering, art/creativity, and economics/management, a space where different knowledge integrates and where a sensitive, attentive, and capable design culture is nurtured. The resulting transdisciplinary approach underpins the various design activities, and the skills “external” to design are incorporated by collaborating with different actors and experts from both technical and humanistic fields. Over the years, it has been possible to work with sociologists, anthropologists, agronomists, chemists, chefs, and gastronomists, both researchers and professionals, combining practical and theoretical knowledge in the tangible form of projects and research (Campagnaro et al., 2022).

The Food Design Workshop

The various activities described above rely on a common device (Agamben, 2006): the design workshop. This design tool aligns with the "pop-up" nature of the PFDL and the transdisciplinary approach favored for carrying out Design-With-Food and Food-Product-Design activities.

The design workshop is "a form of participatory design that consolidates creative co-design methods into organized sessions, where several participants work with design team members" (Martin & Hanington, 2019). It is a participatory design tool that focuses on creativity and collective skills to support co-design processes, combining the design expertise of designers—who act as tutors and facilitators—with the creative intuitions of participants, translating them into artifacts, services, and concepts (Sanders et al., 2010). In our experience, this device has proven to be an effective and engaging tool for gathering creative input from stakeholders through hands-on activities.

"Although they can take a lot of work to organize and run, design workshops are valuable because of their ability to gather a great deal of information from participants and to secure consensus from team members and clients.

Workshops can also be efficient for participants, as they are often brought to the workplace or held in locations convenient for everyone" (ibid.).

The PFDL's Food Design Workshops are conducted through co-design sessions that explore food by transforming it with kitchen tools, generating new product concepts, and prototyping edible models. Participants, who may include students, citizens, or project stakeholders, contribute to the ideation process by shaping the identified solutions and collectively evaluating the outcomes, actively participating in the iterative process of refining the results (Campagnaro & Ceraolo, 2017).

The "pop-up" nature of the PFDL has made the Food Design Workshop the most widely used tool for teaching, research, and consulting activities. The ability to set up the workspace both inside and outside the university, configuring the organization of the instruments according to the nature of the activities, has led to the identification of different formats of participatory workshops—based on design cycles lasting from a few hours to a few days—through which to investigate various research themes and different urban foodscapes.

Participants in the workshop are usually divided into small, heterogeneous workgroups and guided by the PFDL's research team of food designers through the following workshop phases:

Observation and analysis of the problem: This phase involves the study—physical, perceptual/aesthetic, and organoleptic—of the product or byproduct under consideration, identifying existing data on its properties and possible uses.

Preliminary exploration: The food is processed with the PFDL's tools by subjecting it to different transformations, such as cooking, mechanical processing, gelling, and grinding. This stage allows participants to understand which characteristics interest them and how to enhance them.

Concept generation: Multiple concepts for using products or byproducts to create new edible products are defined. In this phase, participants identify a name, a claim, a target audience, and a description of the characteristics and modes of use that the product must possess.

Prototyping: Edible mock-ups of the new concept are created, with attention paid to the development of the model's aesthetic and organoleptic dimensions. The prototypes act as boundary objects (Caccamo et al., 2023), serving as a meeting point between research and practice and facilitating communication and collaboration with other stakeholders.

Feedback collection: In the final stage of the workshop, the outcomes of the experiments are collectively reviewed, providing insights for future research activities.

The sequential structure of the participatory workshop phases can be adapted based on the specific objectives of the activity, the participants involved, their roles (citizens, professionals, students), and the characteristics of the context. In some cases, all phases are rigorously observed, while in other situations, it may be more appropriate to focus on only some of them, dedicating more time and resources to those that are most relevant. This flexibility allows for an effective response to each workshop's varying needs and objectives, maximizing the effectiveness and efficiency of the resources and tools employed (Fig.1).

Action research

The PFDL adopts an action research approach, a strategy that "*unites the reflective dimension with practice*" (Villari, 2012) and defines research activity as "*systematic investigation conducted through the medium of practical action; calculated to devise or test new or recently imported information, ideas, forms, or procedures and generate communicable knowledge*" (Archer, 1995).

Food Design Workshop model by Polito Food Design Lab

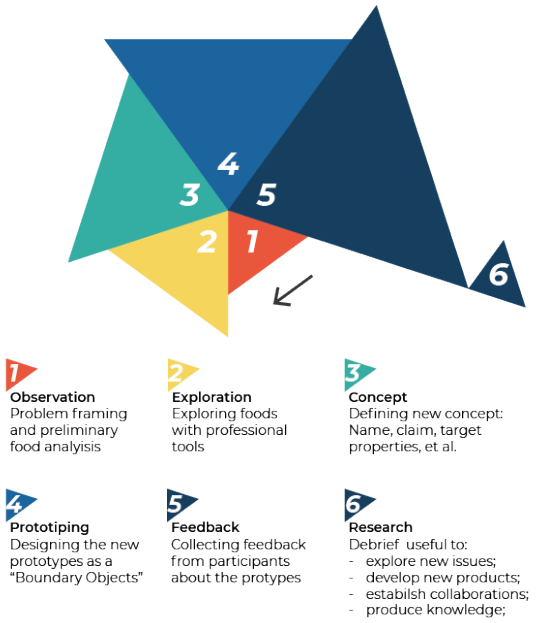

Figure 1. Food Design Workshop model by Polito Food Design Lab. The five sequential phases of the workshop and the sixth phase of back-end content reprocessing. Image by authors.

In our experience, the practice-led research dimension (Rust et al., 2007) is aligned with the transformative purpose associated with individual projects. This approach combines theoretical reasoning and reflection, characteristic of academic inquiry, with practical experimentation, typical of applied research. In this sense, projects are meant as opportunities to contribute to producing knowledge not only about design but also about the *real world* (Papanek, 1971) and the possible connections between the two. According to this approach, the project is both a research tool and an agent of change. Through the project, actions

stimulate (and renew) the contexts of intervention, offering, on the one hand, a new perspective on those same contexts and, on the other, the possibility of learning new information that could not have been inferred without the transformative actions taken (Campagnaro & Ceraolo, 2022).

Moreover, practicing food design with an action research approach influences the development of disciplinary research methods and tools, offering contexts in which to push methodological reflection toward "new" possibilities. Through design (or "by design") (Cross, 1999), the authors have been able to verify, discover, and explore: verifying, in each experience, their status, positioning, and design according to the perspective of new inputs from the field; discovering "new" needs and requirements of known problems, which arise in reaction to the transformations proposed by the project; and exploring new audiences and questions, stemming from the inclusivity of the participatory approach.

What the PFDL does and how it does it always arises from the circular relationship between practice in the field and theoretical reflection, in a dynamic of reciprocal influence and critical rereading (Schön, 1993; Campagnaro & Ceraolo, 2022). These dynamic increases awareness of the discipline (about food design), strengthens design capacity (for food design), and restores meaning to human experiences and how they unfold (through food design). In this sense, the PFDL's research approach is strongly oriented towards producing outcomes that generate both change and knowledge about specific food-oriented topics. It integrates other skills into the processes and makes use of participatory tools to favor the experimental and experiential dimensions, placing emphasis on the action, on the dialogue between participants, and on the practice and learning process (Passaro, 2023).

The PFDL's approach is rooted in three fundamental principles that align with the tenets of action research:
Connection between theory and practice: Theoretical hypotheses are tested through experiments, the outcomes of which reinforce knowledge in the theoretical field of inquiry, in this case, relating to design for/about/with food. Activities aim to understand and solve practical problems that arise in well-defined contexts (Archer, 1981; Cross, 1999; Swann, 2002).
Collaboration and participation: The design process at the PFDL is inherently interdisciplinary, drawing upon diverse skills and perspectives from various stakeholders, including practitioners, institutions, and end-users. As action research fosters collaboration among diverse actors who share their unique knowledge, so

does the Lab's design approach through co-design activities (Ehn, 1992) and participatory design initiatives (Sangiorgi, 2011).
Reflective attitude of actions: The reflective dimension of the Lab's approach mirrors the cyclical nature of action research. The design process generates a body of knowledge that is continuously refined and reinforced through iterative cycles of action and reflection (Jonas et al., 2015). This reflective practice allows the PFDL to constantly learn from its experiences and adapt its approach to better address the evolving challenges and opportunities in food design.

POP-UP FOOD DESIGN

In light of its action research approach, the research group designed the PFDL as a "pop-up" laboratory. The mobile units allow research to extend beyond the typical university context and into the field, among communities, bridging the gap between the public and scientific research.

By nature, "pop-up" initiatives are temporary, "*[appearing] for a period of need or opportunity, then disappearing again*" (Toomey et al., 2019). Unlike traditional laboratories, a "pop-up" laboratory can "happen" in a place close to a population, which can be involved in research, dissemination activities, and informal education for defined periods of time. In scientific research, the "pop-up approach" concept has gained significant traction (Teal & French, 2016). This approach holds particular relevance in design research, offering a valuable tool for engaging "*members of the public who would not normally take part in research*" (ibid.). By establishing temporary research spaces in various locations, the "pop-up" approach facilitates the involvement of citizens and stakeholders, fostering meaningful engagement and collaboration.

Researchers have found the "pop-up" approach particularly well-suited for the initial stages of the design process. During these early phases, when broad topics are being explored, and new design concepts are being defined, the "pop-up" approach provides an effective platform for gathering feedback from diverse perspectives. Moreover, participants' active involvement in mobile activities serves as an effective recruitment strategy for subsequent research endeavors. In their work, Maxwell et al. (2013) highlight the dynamic role of the researcher in "pop-up" design research. They emphasize that researchers must be adaptable and capable of seamlessly transitioning between various roles, including expert, researcher, participant, observer, and facilitator, depending on the specific context and activities at hand. Pandey and Srivastava (2016)

further emphasize the role of “pop-up” spaces in fostering creativity among participating communities. Their research demonstrates how hands-on activities, the availability of materials for experimentation, and the creation of an open and welcoming environment can lead to valuable creative outcomes, even among participants with no prior experience in the subject matter being explored. Gierdowski and Reis (2015) offer valuable insights into mobile makerspaces, delving into the makerspace movement and highlighting the significance of physical spaces that foster interdisciplinary learning (Colegrove, 2013) for hands-on practice, research, and experimentation. Their work details the construction of a “pop-up” Mobile Makerspace accessible to students and citizens, aiming to promote self-construction activities using rapid prototyping tools, craftsmanship, and electronics.
The literature references cited above help to frame the PFDL as an innovative laboratory that embodies the concept of a "pop-up" design space. Unlike traditional laboratories with fixed locations and equipment, the PFDL is designed for flexibility and adaptability, allowing it to be transformed into a functional food design workspace in various settings. Within Politecnico di Torino’s experience, the PFDL stands out as a pioneering example of a “pop-up” design laboratory, seamlessly blending functionality and adaptability to empower food design exploration in diverse contexts. Unlike traditional laboratories confined to fixed spaces, the PFDL embraces mobility and versatility, allowing it to transform into a fully equipped food design workspace wherever needed (Fig.2).

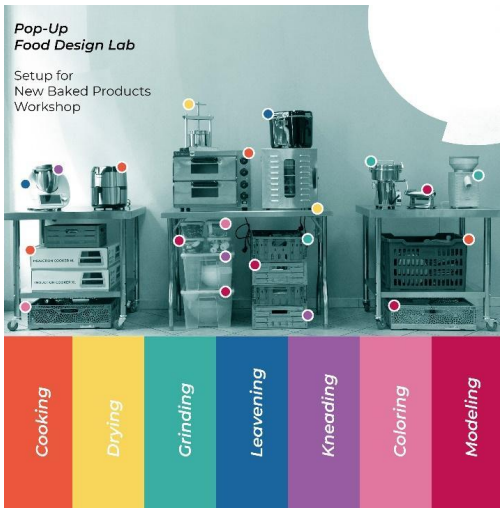

Figure 2. A “pop-up” Food Design Lab. Some of the tools used to set up workshop spaces. In the picture, the setup for workshops on making new baked goods using fruit by-products. Image by authors.

PFDL AND THE THREE DIMENSIONS OF FOODSCAPES: CASE STUDIES FROM THE FIELD

PFDL and foodscapes

Examining the activities of the PFDL, particularly its capacity to "pop-up" and engage with contexts and communities outside the university, reveals its deep relationship with the territories that host the food design

projects. The inherent variability of each project is emphasized, as they are conducted in diverse contexts with various actors and stakeholders.

To delve deeper into these reflections, it is helpful to refer to Arjun Appadurai's seminal work, *Modernity at Large* (1996), which laid the foundation for the concept of foodscapes. Within the context of this paper, Appadurai suggests that the suffix "-scape" indicates that a landscape is not a static set of predefined and objective relations, but rather a dynamic and constructed set of relationships. The suffix "-scape" thus reveals relationships: a constructive and complex togetherness of elements.

In this sense, the PFDL's understanding of foodscapes aligns with the notion that "*the complexity of the food system, from micro-scale individual practices to the global food regime*" (Vonthorn et al., 2020) underscores how the various dimensions of food around us are not solely objective realities but also subjective and contextual, constituting a "*deeply perspectival construct*" (Appadurai, 1996). Furthermore, in their literature review, Vonthorn, Perrin, and Soulard (2020) highlight a second significant concept for this article in order to reflect on PFDL's multidimensional influence on foodscapes. Vonthorn and colleagues assert that foodscapes can be examined through three distinct analytical perspectives: *Social Justice*, *Public Health*, and *Sustainability of Food Systems*, at various scales ranging from the micro (regional, city, neighborhood) to the global.

The framework of Social Justice encompasses spatial and sociocultural interventions related to food security, defined as "physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996). This perspective draws attention to the structural inequities of food systems in specific social contexts.
The perspective on *Public Health* focuses on the impact of food environments on food security in terms of health, appropriate dietary regimes, and the promotion of correct eating behaviors and food education.

Finally, the *Sustainability of Food Systems* framework concerns approaches that criticize the unsustainability of "*global corporate food regimes*" and promote "*food relocalization, alternative food networks, tourism, heritage*" (Vonthorn et al., 2020) based on local, ethical, and sustainable principles.

The following sections present examples from the PFDL's practices

that correspond to each of these perspectives on foodscape.

Field Examples: PFDL's Initiatives Through the Lens of Foodscapes

The three key analytical frameworks for foodscapes proposed by Vonthorn, Perrin, and Soulard (Social Justice, Public Health, and Sustainability of Food Systems) offer a valuable lens for examining the nature of the PFDL's situated interventions (Fig. 3). This tripartite approach allows for critical reflection on how the "pop-up" dimension of the PFDL contributes to:
Promoting participatory, sensitive, and situated gastronomic experiences: The PFDL's activities foster engagement with local communities and food cultures, encouraging participants to explore and appreciate the unique culinary landscapes of their surroundings.
Impacting and transforming relationships between people and matter: The PFDL's interventions challenge conventional food practices and encourage a deeper understanding of the connections between food, people, and the environment.

To illustrate these concepts, the following sections present three representative case studies of PFDL initiatives, one for each foodscapes domain: *Social Justice*, *Public Health*, and *Sustainability of Food Systems*. These case studies provide a comprehensive overview of the activities undertaken, the overall objectives, the communities involved, and the outcomes and outputs achieved.

Social Justice: Food Poverty and Homelessness

Since 2016, the PFDL has collaborated with the City of Turin, three social cooperatives, and six shelters to address the food poverty experienced by homeless individuals. In Turin, food poverty among the homeless people was acknowledged but not prioritized within city policies, where the primary approach relied on residual strategies such as soup kitchens and food distribution (Campagnaro et al., 2023).

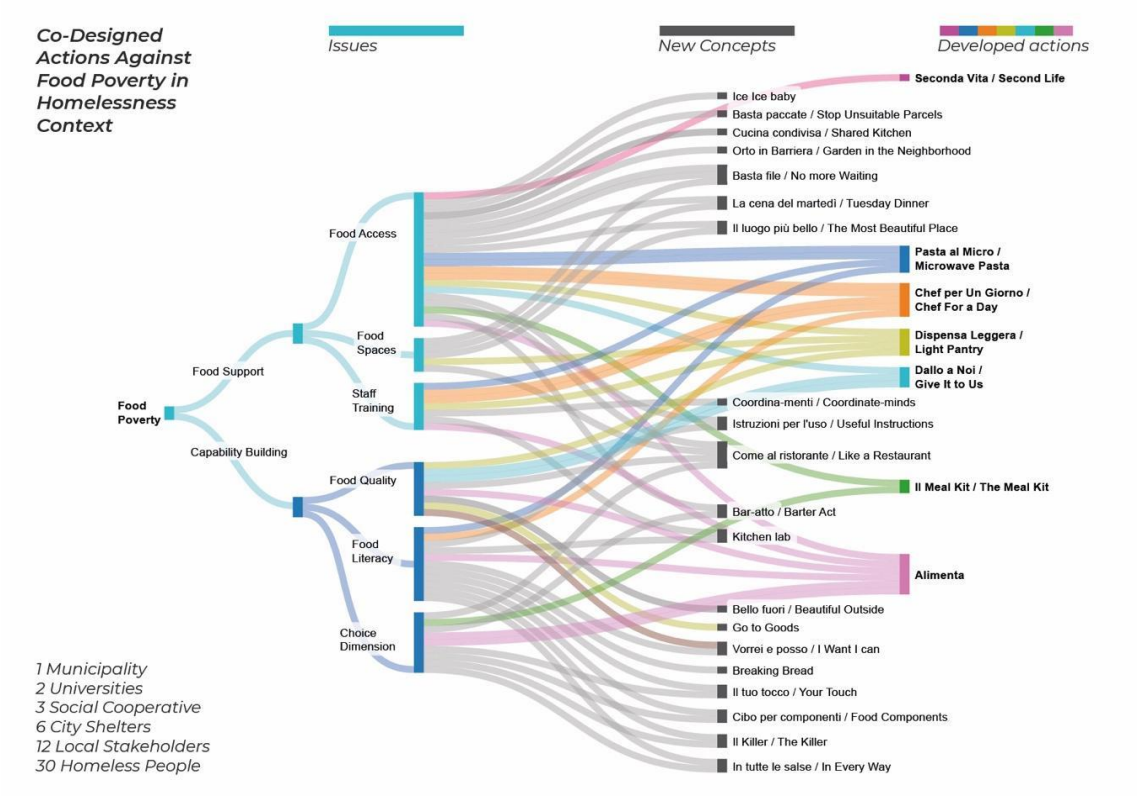

Figure 3. Actions co-designed to combat food poverty in the context of homelessness. Active actions in the Turin area were co-designed with stakeholders and users of the homeless shelter system. Image by authors.

In contrast, the PFDL places the user and the cooperatives managing the shelters—on behalf of the municipality—at the center of the design process. Together with these actors, various interventions have been co-designed over the years, addressing issues of food access, quality, quantity, literacy, and the appropriateness of tools for food transformation and consumption (Passaro, 2023).

The “pop-up” nature of the PFDL has facilitated co-design with those experiencing food poverty and those addressing it daily, at different times and in various locations. Food poverty has thus been approached from multiple aspects and perspectives. Collaborating with the cooperatives at the Food System Design level, the project "Alimenta" (Campagnaro et al., 2015) was designed as a flexible economic measure aimed at ensuring the continuous presence of quality food in shelters. This project has supported access to food for over 170 homeless individuals per year and the preparation of around 60,000 meals annually. Its mobile nature has allowed the implementation of cooking tools in the shelters according to a needs-specific and site-specific logic, fostering the creation of three

permanent cooking workshops. These workshops, held between two and five times a week in three shelters, involve homeless people in food transformation, promoting the transmission of practical and theoretical skills on the correct use and consumption of food, tailored to the most appropriate technologies and practices in each location.
Through a co-designed process with homeless individuals, six micro-services have been conceived, tested, and operationalized since February 2022 within the shelters. These services, developed through participatory "pop-up" activities, combat food poverty in terms of access, quality, literacy, and social stigma, employing Design-With-Food, Food-Service-Design, and Food-Space-Design interventions (Passaro, 2023). The "pop-up" feature of the laboratory has also impacted the characteristics of the knowledge produced (Cruciani, 2017), the well-being of participants in the local interventions, and the potential for integrating the processes promoted by the PFDL with existing initiatives in the territories, fostering synergy.

Sustainability of Food Systems: Valorization of Fruit Supply Chain By-Products

Since October 2022, the PFDL has been conducting research activities that intersect with the theme of sustainability in local food systems and the enhancement of local resources. As part of the PNRR NODES Project—North West Digital and Sustainable—aimed at increasing the competitiveness of the local agro-industry, the PFDL has focused on the valorization of by-products from the fruit sector, specifically apples. This initiative adopts a transdisciplinary approach, engaging local bakers and fruit growers, and is grounded in the principle of "making the most of food" (Ellen MacArthur Foundation, 2018). Through this collaboration, it was possible to identify new uses for apple pomace (Vidovic et al., 2020) in the formulation of 7 new bakery products with increasing technological maturity. Apple pomace, which constitutes 25-30% of the fruit's weight, is typically composted or discarded by small local producers. However, research has demonstrated that apple pomace is safe for human consumption, rich in fiber and micronutrients, and valuable for adding nutritional properties to food. It also presents a potential source of income for producers.

The co-design process involved an organic juice and cider producer, a family-run dried fruit company, and a social bakery. The researcher from the PFDL and the stakeholders identified a strategy for valorizing this by-product by transforming it into new processed foods. These new foods incorporate varying percentages of apple pomace

into their formulations, resulting in seven new bakery products with increasing levels of technological maturity (Fig. 4).

The mobile nature of the PFDL facilitated co-design activities both within the bakery and in university spaces. These sessions, which involved researchers, students, and professionals, focused on concept generation and prototype production. They allowed for the identification and testing of different apple pomace processing techniques, such as fermentation, drying, and grinding, as well as the design of formulations along with the aesthetic and organoleptic characteristics of the products.

The PFDL's work exemplifies how local foodscapes can be observed and influenced through sustainable and participatory interventions that valorize territorial resources, promote food system sustainability, and adhere to the principles of the circular economy as applied to food. As previously introduced by Appadurai (1993) and elaborated earlier, the concept of foodscape reflects the idea that food landscapes are dynamic constructs emerging from interactions between various elements. The PFDL's work aligns with this perspective, as its co-design activities respond directly to the immediate needs of local actors. For fruit producers and processors, this experimentation represents an opportunity to valorize their waste—still safe and edible—into a new source of income. For bakers, it provides an opportunity to market new "circular" products, exploring a commercial strategy focused on sustainability. Additionally, the integrated and participatory approach has fostered new collaboration opportunities among the actors involved, who are now experimenting with the creation of a short supply chain for the systematic recovery and use of apple pomace. This initiative contributes to shaping a more equitable and sustainable local foodscape for the community involved.

Public health: collective actions to raise awareness of food waste and food education for citizens

Aligned with the promotion of social responsibility in design and the perspective of the third mission, the PFDL actively promotes awareness of food waste and healthy eating principles through public engagement initiatives (Fig.5). These actions leverage the PFDL's itinerant equipment to offer creative and collective experiences that attract public participation and promote public health and sustainability through innovative practices.

Figure 4. New baked products from fruit by-products. On top, fresh apple pomace, a by-product of fruit is processed into juice. In the center, the prototyping activity of the new products. On the bottom, three new baked products with different percentages of dried apple pomace. Image by authors.

The core objective of these activities is to create "extraordinary" experiences where the PFDL's group cooking activities act as attractors, drawing the public into processes that communicate essential messages about sustainability and healthy eating. The premise is that engaging participants in a fun and participatory manner can make them more receptive to information on sustainability and healthy food, which might otherwise be less appealing. The products created during these workshops serve as prototypes that challenge the often unnoticed, taken-for-granted aspects of everyday life. This approach can be likened to the concept of "provotyping," where the system developer acts as a provocateur, provoking discrepancies in the concrete, everyday practice and creating ambiguous situations that stakeholders must interpret and make sense of (Mogensen, 1992).

Since its inception, the PFDL has conducted approximately 50 workshops, both inside and outside the university, involving more than 1,400 participants, including students and citizens. These workshops focus on raising awareness about food waste, food poverty, and the circular economy as it applies to food.

Among the most representative experiences are public events where participants learn and practice cheesemaking using expiring milk; a Halloween workshop within a shared space that houses social housing paths and social inclusion initiatives, aimed at children and their families to make homemade candies from fresh waste fruit; and creative workshops at civic centers designed to promote intergenerational exchange and raise awareness about the importance of a healthy diet that balances low environmental impact with a high degree of satisfaction and creativity.

Figure 5. Snapshots from community workshops on food waste awareness and food surplus reuse. Image by authors.

RESEARCH QUESTIONS AND DISCUSSION

Given the premises laid out, which made it possible to approach how the different projects of the PDFL relate to the various dimensions that compose a foodscape, this section of the article delves into analyzing the relationship between the PFDL's actions and the contexts in which they occur, with particular attention to the contributions made by the PFDL's mobility.

The discussion then shifts focus to the impacts generated by the PFDL on transforming the food systems and foodscapes within which it operates.

Situatedness and Relationships with Involved Communities

The PFDL's experiences are marked by their strong situational component, where the PFDL acts as a transformative device. This transformation extends beyond the physical food products to encompass the intangible elements of foodscapes, such as social capital (Bourdieu, 1986), cultural imaginaries, and the relationships among actors involved in the projects.

Donna Haraway's concept of "Situated Knowledges," as articulated in her essay "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective" (1988), provides a relevant framework for understanding the relationships that characterize the PFDL's actions—especially its workshops—and the communities and contexts that host them. Haraway critiques the notion of a neutral, disembodied knowing subject. The concept of “situated knowledge", indeed, highlights that all knowledge is produced by specific individuals or groups of individuals situated in particular social, cultural, historical, and material contexts. According to this perspective, (food-related) knowledge, as interpreted by the PFDL, is never entirely neutral or objective but is shaped by the positions and perspectives of those who produce it.

The PFDL's “pop-up” practices can be seen as co-production activities that blend knowledge, products, and meanings with a strong relational focus. Following Haraway (1998), several characteristics of "situated knowledge" can be identified in these practices. First, knowledge is always influenced by the specific context in which it is produced. In the case of food, this includes cultural background, personal experiences, socio-economic conditions, historical contexts, and the stories of each context. In the food sector, every experience, every gesture, and every inspiration, including those of food designers, represents a partial and limited contribution. However, these perspectives offer a unique view that can enrich the overall understanding and participatory development of gastronomic products and experiences.

Secondly, the co-design experiences in the food sector promoted by the PFDL highlight how situated knowledge challenges the idea that scientific or academic knowledge can be completely objective and universal (Heller et. al., 2015). The Food Design Workshops demonstrate that the knowledge of researchers and participants, rooted in personal experiences and their respective universes of meaning, is equally valid.

Thirdly, as each perspective is partial, the concept of "situated knowledge" underscores the significance of incorporating diverse voices and viewpoints to achieve a more comprehensive and nuanced understanding of the food world. This approach is evident in the diversity of actors engaged by the PFDL, which promotes epistemic diversity and acknowledges the value of knowledge produced by traditionally marginalized groups.

To claim that design, specifically food design, is situated is to emphasize the interactions and interdependencies between designers, projects, design methods, and the context of use with its actors, activities, structures, details, and broader context (Simonsen et al., 2021). Situated design recognizes the work of adjustment and negotiation involved in designing tangible and intangible things and making them work as intended. Bjögvinsson et al. (2012, p. 102) point out that designed "things" are not simply objects: "A key challenge for designers and the design community is to move from designing 'things' (objects) to designing Things (socio-material assemblages)."

The situated nature of the PFDL's actions allows for a focus on the role of social capital in design practices, attributing value to the creativity embedded within communities and the relationships that harness this creativity for collective goals (Adler & Kwon, 2022). Within the PFDL

framework, social capital refers to the stock of goodwill, trust, and reciprocity available to individuals or groups. This capital arises from the structure and content of social relations and offers benefits through the information, influence, and solidarity it facilitates. Adapting Piselli's ideas (1999), the PFDL views social capital as a dynamic outcome of interactions between actors with diverse, food-oriented objectives, shaped by an institutional context that offers both opportunities and constraints. Consequently, social capital can lead to varied outcomes depending on the context.

These concepts are applicable across all PFDL design practices, according to different intensity. The practices interact with the territory and the -scapes in which the projects are embedded,adding new characters, which we proceed to list below:

Matter and needs at the heart of the creative process: Each project is shaped by the available raw materials, the expression of needs, and the technologies at hand. Seasons, locations, tools for design activities, and particularly the needs and desires expressed, influence and shape the final project.

Collective creative experience with strong social value: As demonstrated in the three described case studies, workshops are the primary device for PFDL's activation and research. In all projects, the group workshop dynamic is used at some point, and the mobile nature of the PFDL is an indispensable attribute. This approach fosters the emergence of gestures, knowledge, preferences, and skills relevant to the project's development. Design facilitates the transformation of individual contributions into a collective "thing" in which all participants can recognize themselves. This "thing" is refined through stages of experimentation, ideation, naming, validation, and tasting—each becoming a collective experience of negotiation and choice. For workshops involving marginalized individuals, the project's emphasis on personal resources (e.g., skills, preferences, memories) creates opportunities for well-being, self-confidence, and self-determination.

***Co-design of 'thick' gastronomic objects and release of new contributions to the foodscapes*:** Given their relational and situated nature, PFDL products can be considered "thick" (Geertz, 2008) gastronomic objects. In anthropology, a thick object is a cultural artifact rich in meaning, encompassing multiple layers of interpretation. Such objects are more than physical items; they symbolize values, beliefs, practices, and social relationships within a culture. Drawing upon Geertz's work (2008), PFDL products, as cultural objects, derive their significance not from intrinsic meaning but from their contextual use and interpretation. It is essential to

observe the meaning of a thick object, a gastronomic product, within its social and cultural context. This context proves crucial in understanding the "whys," the "hows," and, more generally, the underlying meanings of what emerges from the PFDL. From this perspective, new gastronomic products become speaking protagonists that integrate into and contribute to shaping foodscapes. Their presence bears permanent witness to the relationships, exchanges, and processes that led to their creation, even after the “pop-up” experience has concluded.

Dimensions of Impact on Foodscapes

PFDL is a transformative force in local food systems**.** By fostering collaboration and uncovering hidden needs and resources, it catalyzes positive change. PFDL's ability to connect actors, needs, and resources allows it to adapt to various contexts, occupying the most suitable space and contributing to systemic transformations in food, society, and culture. The extent of PFDL's impact varies depending on specific circumstances and the resources available to actors. However, certain transformative features consistently emerge, which we will describe below.

Producing knowledge by highlighting latent needs and resources: One of PFDL's critical roles is to uncover latent needs and resources within food systems that may otherwise remain hidden. Through continuous interaction with a diverse range of stakeholders—including social services, local enterprises, and community organizations—the PFDL identifies gaps and untapped potentials. This discovery process is vital for generating new knowledge and developing innovative solutions that address the real needs of communities. By bringing these latent elements to the forefront, PFDL fosters a deeper understanding of the foodscape, paving the way for more responsive and tailored interventions.

Stimulating new imaginaries and relationships: The creative dimension of PFDL is instrumental in cultivating new imaginaries and relationships within the foodscape. Through workshops and collaborative projects, the PFDL encourages the emergence of innovative ideas and alternative visions of food and its societal roles. This creative process not only influences how food is perceived and utilized but also fosters new social connections. The relationships formed within the PFDL framework create a network of actors who are interconnected and motivated to collaborate, driving forward collective

change and enriching the cultural fabric of the foodscape.

Empowerment of actors and promotion of collaboration: PFDL's impact extends to the empowerment of the actors involved in its processes. By fostering a sense of belonging to a shared network, the PFDL encourages streamlined collaboration among participants. The physical and conceptual flexibility of PFDL allows it to adapt to the needs and availability of each participant, enabling them to assume roles in which they are most comfortable and engaged. This inclusive approach promotes active participation, empowering individuals and groups to contribute meaningfully to the project's success. The awareness of being part of an interconnected network enhances cooperation, leading to resource sharing and the creation of synergies that amplify the impact of the initiatives.

Fostering long-term change: Although PFDL is relatively young, it has already demonstrated a significant capacity for fostering long-term change, particularly in the areas of food poverty and social inclusion through food-related experiences. The innovations developed within PFDL projects have the potential to be scaled up and replicated in different contexts, promoting sustainable and inclusive practices. Moreover, the network of actors activated by the PFDL serves as a platform for the dissemination of knowledge and skills, further extending the impact of PFDL's initiatives. This long-term influence contributes to the broader transformation of food systems, aligning with the goals of social innovation and systemic change.

CLOSING REMARKS

The case of the PFDL presented in this article illustrates a conscious and self-reflective approach to food design research. The findings highlight the value of mobility—both physical and conceptual—as a resource for fostering change that is rooted in local and situated contexts. The concept of mobility, as described here, operates on two levels: the physical adaptability of the PFDL's structure and technologies, which allows for easy transportation and setup in diverse locations, and the cultural and critical flexibility of the PFDL's approach, enabling it to adapt to different social and cultural contexts. In other words, the PFDL's approach can be tailored and adapted to different social and cultural contexts.

Pop-up Food Design and Inclusion

Mobility, the ability to connect with diverse actors and landscapes, and the emphasis on situated practices and knowledge are crucial dimensions of the food design process from a social impact perspective. This process

involves highlighting the interconnections between these subjects and fostering reciprocal, connected, and plural transformations.

PFDL's action research in food design, characterized by its distinctive "pop-up" method, draws participants from a wide range of backgrounds, enriching the research process. The involvement of stakeholders from various sectors—such as students, high school students, university students from all over the world, homeless people, elderly population, community volunteering, policymakers, research teams belonging to different disciplinary fields, food professionals, farmers, traders, and wholesalers —facilitates the creation of new collaborative relationships around food issues. Contact with these categories of stakeholders, which took place in the places of their expert work (Manzini, 2015), allowed the creation of new collaborative relationships on food issues that would not have been explored otherwise, making it possible to understand more, learn a lot, and transform better.

Pop-up Food Design for Context Enhancement and Innovation

In addition to their participatory nature, these on-site initiatives benefit from the Lab's performative aspect and unique setup. The "pop-up" kitchen's appearance in the heart of communities, the presence of food designers around the equipment and food, and the experiential nature of the workshop activities create a distinctive and engaging experience. These attributes attract audiences and draw their attention to a relatable theme, inviting everyone to contribute, even in small ways, through tasting, smelling, and providing feedback (Campagnaro & Ceraolo, 2022).

From the perspective of food design and design in general, this type of operation enhances creativity, local materials, imagination, and diffused design skills (Manzini, 2015). It aligns with the discourses of Design for Social Impact and Social Innovation.

Pop-up Food Design for Understanding, Researching, and Teaching Foodscapes

Furthermore, PFDL offers intensive design opportunities that complement academic programs. This combination fosters the development of knowledgeable and socially aware (food) designers. Students and participants in PFDL immerse themselves in an environment that promotes hands-on learning and continuous innovation. Through participation in authentic, immersive, and situated projects, they develop technical and creative skills and a deep understanding of the social dynamics related to food. This holistic training prepares future designers to become

agents of change and to develop the skills necessary to work in complex social contexts (Campagnaro & Ceraolo, 2022).

In conclusion, PFDL's most significant impact on the foodscapes lies in its ability to forge connections and pathways, bridging the gap between spaces, resources, and knowledge. It rediscovers a landscape of foods, gestures, and needs as interconnected, an integral part of a network that, when properly traversed, designs new geographies of relationships, productions, and knowledge.

While PFDL primarily operates within the Italian context, particularly in the Piedmont region, it may not fully capture the specificities of other territories. Therefore, adapting and differentiating design actions in other contexts, both in Europe and Latin America, is necessary to effectively address diverse social and cultural dynamics.

PFDL explores, travels, maps, and tells stories, leaving behind narrative products and meaningful experiences. It often returns to places that have hosted projects and research to monitor progress and welcomes new stimuli to flourish, thanks to its ability to adapt to landscapes and become an active part of them.

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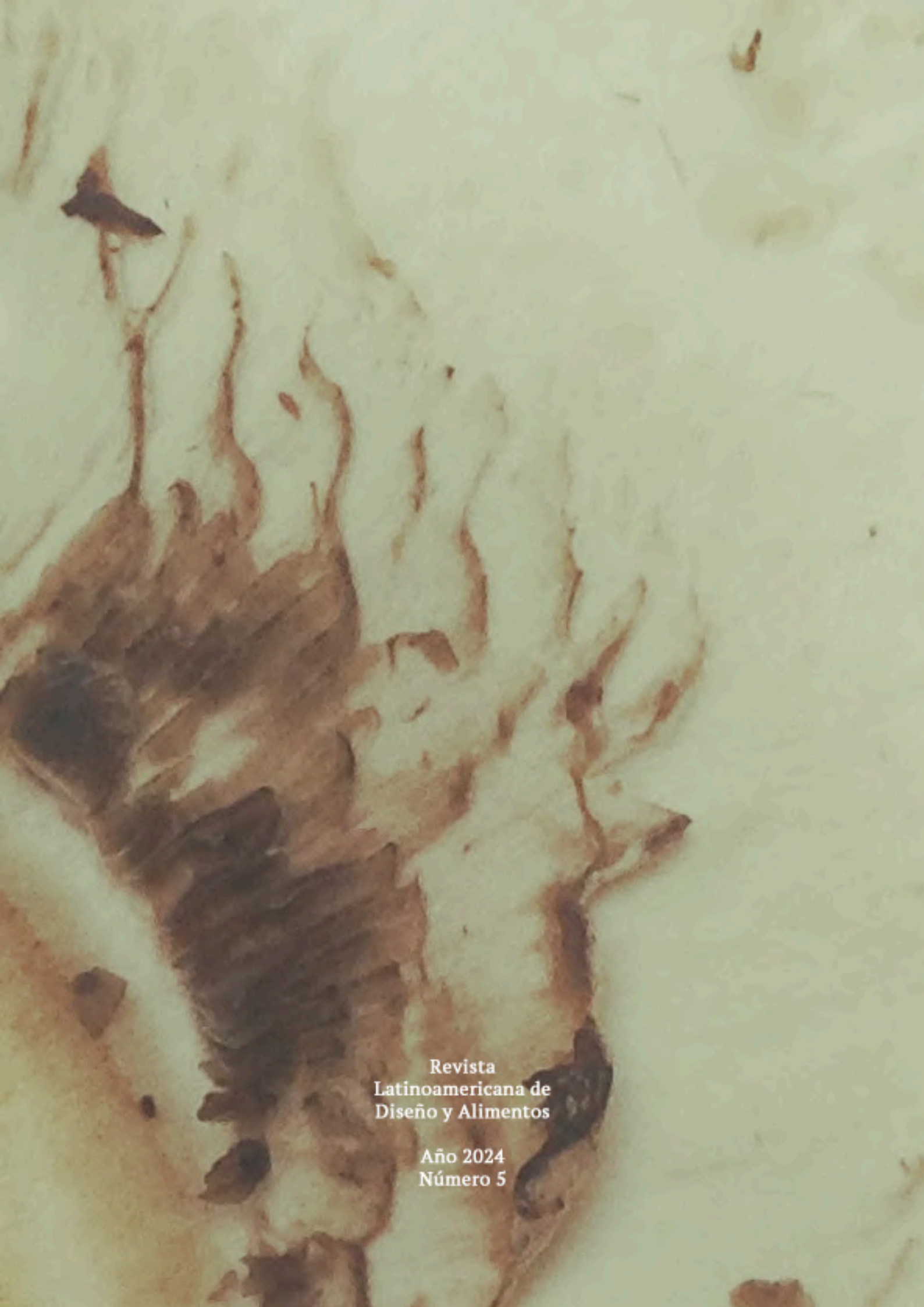

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