Journal of Visualization and Interaction

Greetings From... A Workshop to Visualise Unexpected Stories of a Place Through Data Postcards

Sofia Cretaio, Chiara L. Remondino

A peer-reviewed publication in the Journal of Visualization and Interaction (JoVI).

This article is an extended version of a publication from the Information+ Conference 2023.

DOI: 10.54337/jovi.v1i1.8416 (the public peer reviews can also be found at this link)

- Submitted: 2024-04-18
- Accepted: 2026-03-25
- Published: 2026-04-10 (version 1)

Publisher

Aalborg University Open Publishing
Kroghstræde 1-3
9220 Aalborg Øst
DENMARK
ISSN: 2794-5502

Greetings From… A Workshop to Visualise Unexpected Stories of a Place Through Data Postcards

SOFIA CRETAIO* and CHIARA L. REMONDINO*, Polytechnic of Turin, Italy

Introduction *Greetings from…* is an exploratory format in which data visualisation becomes a tool for a critical analysis of realities, sounds, scents, and rhythms. Developed within the framework of the Innovation Design Lab in Turin (Italy), the format follows the Systemic Innovation Design Methodology to create a Databook. The methodology transforms data into information, knowledge, and actionable insights for territorial design proposals with an innovative perspective.
Data collection By presenting the workshop *Greetings from Naples*, we present a holistic analysis as a virtuous process of data collection, mapping, and visualisation that describes a context or territory. During a three-day workshop, students with diverse backgrounds challenged themselves to create data visualisations using postcards as a medium. They explored the neighbourhood of Quartieri Spagnoli (Naples), identifying their visual interpretation and collecting as much data as possible through different media.
Data analysis Participants visualized the data on postcards. Different shapes, colours, and graphical representations helped them identify emerging patterns and behaviours.
Analysis results Collecting all the postcards generated a collective databook, where multiple points of view create a sudden and not-so-common vision of the surroundings. We observe the impact of visual components and territorial factors as drivers of visualisation design approaches.
Conclusion We discuss the format's implications and opportunities as a replicable model for exploring and understanding urban contexts and facilitating design strategies through insightful data visualisation.

Additional Key Words and Phrases: Databook, Data Visualization, Territorial Exploration, Systemic Design, Postcard Visualization

ACM Reference Format:
Sofia Cretaio and Chiara L. Remondino. 2026. Greetings From… A Workshop to Visualise Unexpected Stories of a Place Through Data Postcards. 1, 1 (April 2026), 20 pages. https://doi.org/10.1145/nnnnnnn.nnnnnnn

1 INTRODUCTION

Data visualisation is a fundamental component of synthesising contemporary and complex phenomena; data must be interpreted and contextualised to become a visual tool for communicating new knowledge and meanings. This process requires the creation of visual models capable of clarifying information, facilitating its exploration, and enabling the observer to understand the causes and effects of specific choices [8].

In the design field, greater attention is given to the territory as a system of relationships and a driver of innovation [25]. The territory is a place that collects skills, knowledge, culture, historical and environmental heritage [35]. Data are a medium for learning, creating value and sustainably innovating in the relationship between design and territory. However, existing approaches to

*Both authors contributed equally to this research.

Authors' address: Sofia Cretaio, sofia.cretaio@polito.it; Chiara L. Remondino, chiara.remondino@polito.it, Polytechnic of Turin, Corso Settembrini 178, Turin, Piedmont, Italy, 10035.

ACM XXXX-XXXX/2026/4-ART
https://doi.org/10.1145/nnnnnnn.nnnnnnn

territorial analysis primarily focus on measurable factors, such as demographic, social, and economic resources.

In this paper, we present a different perspective based on the assumption that if every individual were asked to describe a territory or a city according to their perceptions and sensations, the data we could gather could be more personal and less linked to factors that are collected by a traditional desk data collection (e.g. demographic data, economic data).

The research question: *"How many ways exist to narrate a city, a neighbourhood, or a context?"* led to the development of *Greetings from…* an exploratory workshop in which participants, even without particular expertise or knowledge in data visualisation, try to explore and analyse a territory under a chosen interpretation to visualise the collected data. The interpretation through visual models aims to communicate opportunities and criticalities that a context offers at a design level; this is due to the ability of data visualization to convey data into information, knowledge, and awareness. According to the DIKW Pyramid [1], data are considered the base level, from which understanding and insight into the world are gained through abstraction (information), processing (knowledge), and cognitive interpretation (awareness) [14]. In the presented workshop, the relationship between data, visualisation, and knowledge is implemented by creating a databook. This artefact transforms information into awareness and guidelines for actions that have a significant impact on the chosen territory.

The format is an experimentation activity within a broader research project by the Innovation Design Lab (Turin, Italy), defined around the first phase of the *Systemic Innovation Design Methodology* (*research*) [10, 11]. This phase focuses on developing a holistic analysis of the domain of action through mapping the resources that characterise it. On a practical level, and compared to the activity proposed in this paper, this phase is structured around the collection, integration, and organisation of existing information in a visual language, namely data visualisation. The result of this first phase is the design of a databook to filter, organise, and relate data for straightforward interpretation. This tool has a multidimensional configuration: the volume and variety of individual entities are correlated to identify multiple relationships. Then, using a visual language, it translates complex issues into an effective graphical representation, offering new insights into the context of interest.

This contribution aims to validate the application of the research phase of the *Systemic Innovation Design Methodology* and explore the modularity of the databook through a case study of *Greetings from Naples*. During a three-day workshop, students with mixed backgrounds challenged themselves for the first time with the practice of data visualisation. By exploring Quartieri Spagnoli, a vibrant district in Naples, they had to observe a context, collecting data to be visualised and shared with a *personas* of their interest. Instead of working on multiple visualisations and gathering them into a single support, participants were asked to visualise their data on a postcard, a small rectangle traditionally used to send holiday greetings to close friends and family. This approach has combined the emotional value of the postcard with the strategic meaning of visual representation.

Collecting all postcards generated a collective databook, where multiple points of view create a sudden community vision of the surroundings. However, the visualisation exercise is not an end in itself; it aims to introduce a new perspective on data visualisation, strengthening its role as a tool to comprehend a specific territory and guide project actions for its improvement.

2 RELATED WORK

The relationship between design and territory and design education and data visualisation is not new. However, research on these fields is still limited to approaches where the relationship between the community and the territory becomes an integral part of the design process.

2.1 Design for the territory

Design's interest in the territory is strongly oriented to the relationship with end-users and the dimensions of social and cultural sustainability [26]. The level of user involvement varies depending on the approach: design *in, for,* or *of* the territory [25]. While the first two approaches are oriented towards the territory as an object of design, the third approach views the territory as a relational system, highlighting the proactive and generative role of new practices in innovative processes. It is crucial to fully understand the natural, social, economic and cultural components of the context to act innovatively [35]. This type of information, also referred to as *urban data,* is typically generated by the activities of citizens living in the territory [38], and they should be involved as active participants in design processes.

2.2 Data literacy and experiential learning

Visual representation has always been a transversal cognitive tool based on the natural ability of a human being to perceive structures of phenomena by organizing them formally [28]. The effectiveness of visual representation requires individuals to know primary data and information literacies [3]. Wolff et al. [38] define data literacy as:

> "the ability to ask and answer real-world questions from large and small data sets through an inquiry process, with consideration of ethical use of data. It is based on core practical and creative skills, with the ability to extend knowledge of specialist data handling skills according to goals. These include the abilities to select, clean, analyse, visualise, critique and interpret data, as well as to communicate stories from data and to use data as part of a design process."

Even if the research community agrees that the foundation for creating a data-literate society should be established in school [3, 38], it remains unclear when and how students should be introduced to it. While some disciplines include data analysis in their curricula, it is suggested [34, 36] that data and their representation should be considered a cross-curricular subject involving social, economic, and cultural disciplines. Nowadays, several approaches and online platforms are available to inform and support the learning of data literacy. This paper explores the potential of the workshop format as a way to integrate data visualization into designer education. The term workshop, "a place where things are done" [7], refers to a collaborative setting where students acquire new knowledge, improve their skills, and solve context-specific issues with innovative and creative solutions. Our research views the workshop as a laboratory for extemporaneous experiential learning [15]. In this process, knowledge is created through the perceptual act, personal interpretation of practical experimentation, and understanding of meanings gained through observation.

2.3 Explorative studies on data visualization: visual literacy and data sketching

The relationship between the territory, its users, and its visual representation requires considering the methods and tools by which information in a given context can be translated into visual stimuli. If we consider the citizen as an active user and creator of data visualization, then we need to think not only about their level of data literacy, but also about their visual literacy: the ability to find, interpret, evaluate, understand, and create meaning through visual stimuli [2, 13].

The design of visualisations is often entrusted to digital tools, such as closed or open-source software. RAWGraphs, Flourish, and Tableau are some of the tools that allow users to create visualisation models from databases and Excel files fairly intuitively. However, for non-experts in the field, so-called "visualisation novices", these tools can be complex and not immediate. This gap allows experimentation with more tangible and spontaneous approaches. In this context, the

scientific community has been experimenting with sketching to create visualisations, generating visual systems that amplify cognition [29, 37]. As Walny et al. [37] state, adopting a *data sketching* approach is significant because sketches or drawings can be seen as spontaneous visualisations created to represent internal thought, promoting innovation, creativity and thinking. The act of sketching represents a rapid and low-barrier approach to entering the field of data representation. It can be freeform and doesn't require particular drawing ability.

Sketching helps novices quickly transition from textual data to quantitative analysis to a visual representation of a story based on what they observe in the data [2]. Our workshop adopts an exploratory format for territorial data visualisation, drawing on prior work on the potential of sketching to create physical artefacts that represent mental concepts, stimulating interaction and dialogue [2]. Previous experiments, such as the *Five Design Sheet* (FdS) *methodology* [29], utilise sketching as a collaborative low-fidelity process to explore multiple design options before converging on the final information visualisation. Our research positions the sketch not merely as an intermediary tool, but as the principal outcome of the visualisation process, one that is intrinsically linked to data collection activities aimed at broadening participants' perceptual and cognitive engagement with their environment.

3 DATA AS A TERRITORIAL RESOURCE: THE SYSTEMIC INNOVATION DESIGN METHODOLOGY

Identifying the potential of a territory and creating its system of relationships are the first steps to innovating sustainably and collaboratively [10]. Designers have always been aware of the need to observe and gather data before and during the design process. Scenario analysis, a critical mass of data around the context or phenomenon to be analysed, has evolved from a helpful tool for defining design trajectories to a result of the design itself [5]. In this context, the Systemic Innovation Design Methodology [10, 11] proposes a holistic approach in which data collection is fundamental in informing and identifying the leverage points on which to act. This methodology emphasises the relationship between data and design, a concept introduced in the discipline of information architecture [4] and subsequently developed into the *information design* approach.

It is structured into three phases: *research*, *design* and *development* (Fig. 1). Although the second and third phases reflect a shared and well-established process in the design community, the first phase characterizes the holistic and cyclical approach of the methodology and represents the focus of this contribution. The research phase is a cyclical and virtuous process,where the principles of Information Design are combined with the analysis of large datasets, which can be defined as *Data-Driven Research* [18]. Data is crucial for identifying patterns and processing valuable insights in this approach. The collection and interpretation of data for identifying patterns is also found in a more traditional approach linked to design methods, known as *Desk & Field Analysis.* This method combines qualitative and quantitative research methods, such as market analysis, focus groups, and interviews, to identify the target audience's needs.

Through these data-driven approaches, the holistic analysis maps the domain of action and the territorial context of interest through a state-of-the-art analysis of resources — natural, social, economic, cultural, or historical — that enables the identification of strengths and weaknesses, criticalities, and opportunities [10]. To objectively frame the information collected in this phase, a multidisciplinary approach between design and disciplines such as sociology, anthropology, and economics is required.

The workshop *"Greetings from..."* intentionally focuses on this first research phase to enhance its importance in a practical design process, enabling participants to take an exploratory and visual approach to the context, understand existing scenarios, and craft design solutions that respond to real needs.

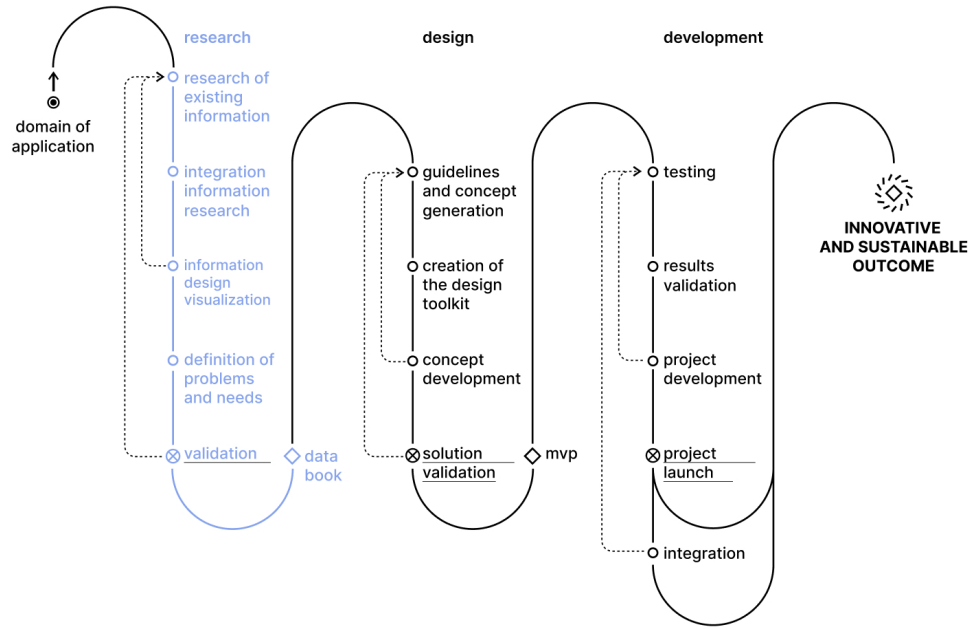

Fig. 1. Systemic Innovation Design Methodology. Innovation Design Lab. The steps of the first phase (Research) are the focus of the *Greetings from…* format. The different steps guide through the analysis of a context, the collection, and then the visualization of data to reach a holistic analysis through the creation of a databook.

The following paragraphs describe the activity according to the four steps in the methodology for structuring the holistic analysis:

(1) *Researching existing information:* collecting data through desk and field research, as well as field observations, is a fundamental step in exploring all the non-verbal factors that are otherwise difficult to record.
(2) *Integration of information:* organising, structuring, and cleaning the data to identify gaps and points of interest for the design process.
(3) *Visualisation of the information:* drawings, illustrations, scenarios, and graphs that translate and encode the collected information and generate a comprehensive state-of-the-art.
(4) *Definition of needs and potentiality:* moving from the state of the art to an exploratory analysis of the potentialities to reach the needs of the context.

3.1 Databook: a multi-dimensional tool

Following the holistic analysis steps, the methodology involves designing a visualisation tool to develop technical/creative solutions: the *databook* [10], an artefact that can be analogue or digital, where all the information collected is filtered, selected, organised, and related so that it can be easily interpreted [5]. The tool aims to fill the gap in existing tools for sharing data in a visual and communicative form, collecting and disseminating information characterising the investigated system.

The *databook* is a tool that can be configured as a starting point for the concept and design phase, thus remaining in the hands of the designer or becoming an actual product required by third parties. Whether they are companies, organisations, or administrations, the databook can serve as a starting point for understanding and designing for a territory or a domain of interest. Building a databook involves much experimentation in the choice of the medium and the interaction with the user: it can be an analogue tool, such as a paper document or a report, but it can also be a digital support, such as a digital platform, a dashboard or a website (Fig. 2). Figure 2 shows two examples of databook produced by or in collaboration with the Innovation Design Lab, with different objectives and approaches to data visualisation. The databook on the left, *Design & Territorio*, was commissioned by Vodafone Italia, a telecommunications company, to learn about Turin, Italy. The research aimed to provide the company with an overview of the urban context, the communities that reside there, and the individual personalities of the users [6]. The company's primary objective was to develop new services tailored to the local context or to enhance existing ones to make them more appealing and adaptable to users, with a focus on sustainable innovation. The databook we developed is a paper document structured around eight themes, with maps that can be overlaid to create data combinations based on the viewer's interests. It includes eight *personas* developed to meet the company's objectives, described through personal data visualisations and told through textual storytelling.

The second databook, *Follow App*, is a thesis project designed to study the IRCCS hospital in Candiolo, Turin, its care activities, spaces, functions, and the surrounding territory. The project aims to enhance the hospital's communication system, implement a functional wayfinding system, streamline internal and external processes, and improve communication between doctors and patients. The databook is available in both an analogue paper version, featuring tables and maps, and a digital version as an online platform with navigable and interactive content. The latter aims to provide an accessible platform for professionals, including designers, architects, engineers, and doctors, and is designed to be open-source, allowing for the analysis of other healthcare facilities. Thanks to the analysis of the data collected, the authors identified four project areas in the field of healthcare design and eight opportunities that could be developed in a short time: they concern the improvement of the psycho-physical well-being of staff and patients, the introduction of new forms of entertainment in waiting rooms and communication devices with patients, and the development of new public transport solutions to and from the hospital. A more in-depth analysis of the *Follow App* databook is available in the supplementary material.

The examples provided support the definition of the *databook* as a multidimensional tool made of *individual components,* such as data, which represents the fundamental entity. It is based on a set of *relationships* from the correlation between the categories of data investigated and the disciplines involved in the collection of information; it communicates through a *visual language* that translates a complex research problem into an effective graphic-visual form able to offer new knowledge and new meanings; it is a *structured system*, it must be seen as a whole, modular, implementable through components, but that works if the parts are related to each other.

4 THE FORMAT

Since its initial experimentation in 2013, the databook has consistently been a work in progress, evolving in shape, language, and interaction methods. An effective databook requires a design of the visualisations that effectively represent the theme, the type of support, and how the end user can interact with it. This process requires months of research, collaboration, and coordination, but ensures that two databooks will never be identical [5]. To date, the databook has resulted from a small group of people working together to research existing information and visualise it. This paper presents a new approach, exploring how individual exploration of a defined context can be

Fig. 2. Two databook examples. On the left, a paper document: *Design & Territorio*: Torino, 2018 (credits: Innovation Design Lab). A data-driven research into urban contexts and users, featuring overlay maps and eight personas to support the development of sustainable, locally adapted services. On the right, a dashboard: *Follow App*, Thesis project, 2019/2020 (credits: Lòpez, K., Mauro, A., Rizzo, A.). The project focuses on the IRCCS hospital in Candiolo, exploring services, spaces, and communication flows, offering a data visualization platform to improve wayfinding, processes, and patient–doctor interaction.

combined in a *collective databook*. In this way, multiple perspectives coexist but are still united by the visual language of data visualisation.

From these premises, we present *Greetings from…* an exploratory workshop that aims to map a city's domain of action and territorial context through a state-of-the-art resource analysis. The workshop is designed to involve students, researchers, or anyone without particular expertise in data visualisation to learn the principles of visual synthesis and territorial valorisation.

In particular, *Greetings from…* is structured to meet the following goals:

- Learning the visual synthesis of data visualisation to convey a meaningful message;
- Exploring the diversity of data visualisation and data language, and how its use can highlight otherwise undetectable connections and insights;
- Disseminating the *Systemic Design Methodology* by enhancing the databook as a tool and starting point for the design process to define needs and potentialities of a chosen context;
- Enhancing the multidisciplinary approach to frame the context of analysis and its dynamics in an entirely and objective manner.

The workshop aims to develop data visualisation that illustrates a territory's strengths and weaknesses and can influence the design of innovative solutions. To create the visualisations, we opted for a specific support with a limited space: the postcard. With its cultural and communicative value, the postcard serves as effective learning support for visualising data, encouraging participants to focus on essential information rather than decorative elements. We structured the activity so that a single postcard represents the designated city's quantitative and/or qualitative aspects. To develop the visualisation, participants must read, explore, and analyse the territory, identify a specific interpretation, and observe, collect, and view the data. The visualisation is created by hand using coloured pencils and markers. Digital tools are only used as a support during the visualisation preparation. Participants are, therefore, pushed to focus on the meaning of the data rather than on visual perfection.

At the end of the workshop, all postcards are combined to create an overall view of the city and form the collective databook. This offers an innovative perspective shared by the community, as opposed to a traditional and purely informative report.

4.1 The communicative and emotional value of the postcard

"In a time not so far away, when we were travelling or on important occasions [...], there was a gesture that each of us performed almost spontaneously: sending a postcard. It was a way to communicate to the recipient that they were important to us and were in our thoughts during pleasant moments." [12]

We chose the postcard as the visual output of the workshop because of its intrinsic value with the territory and its communicative potential. Sending messages or greetings on decorated cards is a custom that originated in the Renaissance era, thanks to the advancements in printing techniques. In the second half of the nineteenth century, the postcard no longer needed to travel in sealed envelopes; within a few years, its use facilitated the spread of the illustrated or picture postcard, becoming a symbol of mass tourism. The first examples of illustrated postcards emerged in Germany in 1870, known as "*Gruss aus*" (literally, "*greetings from*") [30]. From that moment, the postcard is recognised as a souvenir, a collectable, and a means of communication that captures the essence of a city.

"*Aesthetics and communication, ritual and symbol, play and action, imagination, and remembrance, as well as subjective experience*" are some of the factors that Rogan [30] identifies in the postcard. It is a physical object that supports activity-oriented communication by fostering relationships, and it can be viewed with a holistic perspective due to its integration in contemporary culture. The picture and the text give an 'objective' view of where the sender is and when they write a postcard, their feelings, and their interaction with the circumstances [24].

Although the postcard's correspondence role has now been superseded by digital communication, the postcard remains an effective means of communication, and it is a subject of study and experimentation in the field of graphic and visual design. An example is the *Cartoleena* [19] project by Lorenzo Marchionni, a designer collecting and analysing postcards from the Italian holiday craze of the 1980s, which featured grotesque designs, vulgar images, and naive messages. He adopted a semiotic approach typical of works of art, attempting to make them relevant at a cultural level, despite their long-standing perception as humorous and superfluous [31]. Postcards are also used to address socio-environmental issues. It is the case of *Saluti & Baci. Travel Agency for a New World* by Daniele Catalli. The illustrator plays with the concept of idyllic landscapes typically found on postcards to expose issues such as ecological disasters, the harm caused by the capitalist era, and the rejection of the climate crisis [32]. The project *Klimakarten* [21] adopts an environmental journalism approach, combining the affordances and aesthetics of the postcard with the potential of data visualisation to engage readers on the consequences of climate change. The *Dear Data* [17] project by Giorgia Lupi and Stefanie Posavec demonstrates the relationships between data and postcards, where data visualisation is used to express themselves and gain a deeper understanding of each other. Data viz postcards are also used to express accomplishment, as SuperDot Studio did to celebrate the launch of their book, *Visualising Complexity* [16], by mapping the orders received within the first few hours of the book's sale.

4.2 Workshop structure

The workshop is structured according to the first phase (*research*) of the Systemic Innovation Design Methodology principles, following the four steps of the holistic analysis (Fig. **??**). The activity is planned to last from 3 to 5 days, a timeframe that allows the participants to be introduced to the world of data visualisation and have a first experience of territorial exploration. Since the format is also directed to novices of data viz, the first part of the activity is dedicated to a brief theoretical introduction to data visualisation and the databook. Then, the format is structured into three main phases: (1) setting the boundaries of the exploration, (2) exploration and collection of data and (3)

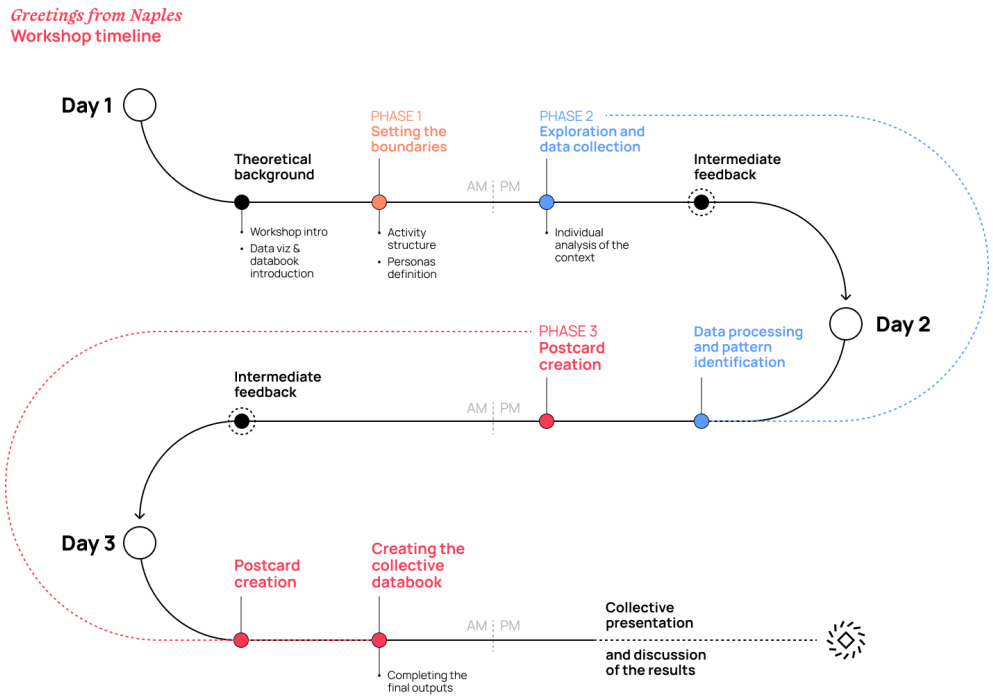

Fig. 3. Greetings from Naples. Workshop timeline of the three-day activity. The first day is structured into two phases: the morning focuses on the first phase of the workshop, combining an introduction to the activity with a theoretical background, followed by setting the boundaries of the exploration during the afternoon. This forms the basis for the second phase: exploring the territory and collecting data. This takes up the first part of the second day, followed by processing the collected information. From the afternoon of the second day until the end of the third day, the focus shifts to the third phase of the activity: creating postcards and delivering a final, collective presentation of the results.

postcard creation. The timeline in Fig. 4 helps visually understand the workshop's structure and steps along the three days *Greetings from Naples* was developed.

Setting the boundaries of the exploration. Before venturing into an exploration of a territory to gather information, it is crucial to design the data collection to clarify what to look for within the context. At this stage, participants are asked to define two elements:

- Identify the recipients of their postcards: define the *personas*. Consider their characteristics and interests, and imagine what figurative elements could generate positive sensations.
- Define the boundaries of the exploration: Depending on the conditions, the workshop considers a more or less broad context with multiple scales of analysis. Participants are then asked to assess the extent of their exploration: a whole neighbourhood, a single street, a specific building, etc.

Exploration and collection of data. There are various methods for gathering information when exploring a territory. We can conduct a quantitative analysis focused on objective and detached

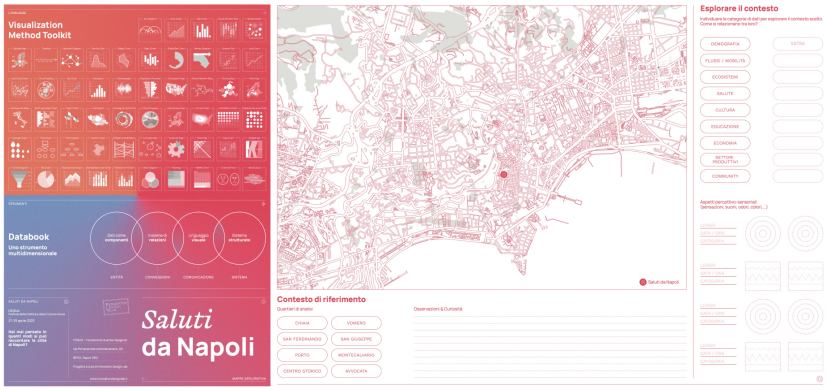

Fig. 4. The Explorative Map created for the workshop Greeting from Naples. The front includes a synthesis of the Visualization Method Toolkit, the back includes a map of the city.

numerical evidence, or perform a qualitative analysis centred on the definition of social and cultural phenomena. During a qualitative study, we can conduct field observations, which is a less rigorous — but no less effective — approach to territorial exploration. For the workshop's aim, we focused on field observation, asking participants to conduct visual research [20]. Visual research can be viewed as an interlude between qualitative and quantitative aspects, critically examining the effects of images, objects, and components of the built environment on people's lives [10]. During the activity, participants have at least one day dedicated to the exploration of the city; they are asked to walk, explore, and observe the city according to their scale of interest (from a single street to an entire neighbourhood), identifying their visual interpretation and collecting as many data as possible through photos, annotation of sounds, scents, and dialogues.

Postcards creation. Once the exploration phase is over, participants must go through the collected data to organise it, identifying relevant information and clustering similar topics. This step is fundamental for creating the postcards since they need to identify emerging patterns and behaviours that will be the subjects of their visualisation. They need to create a storytelling. At this point, their visual research can be supported by a desk analysis to enrich the structure of the information collected. Once they have built a "database", they can start working on the visualisation. As previously mentioned, the graphical construction is made by hand using colours and different types of markers to enhance relationships, shapes, and dimensions.

4.3 Workshop tools

To support the activities, we designed an *Explorative Map* (Fig. 4), a tool to hand the participants to support their exploration process and data collection. The map serves as a visual representation of the relationship between data and territory. For this reason, one side of the map is dedicated to the field observation phase, filled with a city map and perceptual grids to help the participants note their observations and sensations. The other side of the map is dedicated to data visualisation and offers an overview of the *Visualisation Method Toolkit* [28], a collection of 55 visual models categorised through different reading keys. Originally designed as a set of cards, the toolkit offers various ways to analyse, explore, and communicate quantitative and/or qualitative information. This side of the map is designed to guide participants in the second phase of the workshop, in which data collection is analysed and transformed into visualisations.

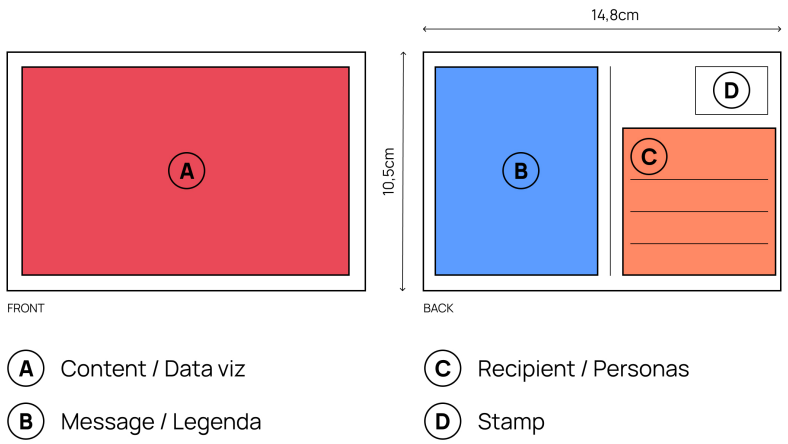

Fig. 5. Layout of the postcard and its components

For the postcard, we use the traditional format of 10x15cm, asking participants to work on all its components (Fig. 5): from the front, dedicated to the visualised content (A), to the back, considering the message (B), the recipient (C), and eventually a stamp (D) to send it.

4.4 Defining the recipient: building a personas

The choice of a postcard and its content is guided by an analysis of the recipient's interests, tastes, and habits. Before the exploration phase, we would ask participants to identify the recipients of their postcards, imagining what figurative elements could generate positive sensations and pleasure. We want the content of each postcard (the visualisation) to intrigue and engage the receiver to visit the city.

We asked participants to create *personas*. In Interaction Design, a *personas* is a description of a fictitious person whose relevant attitudes, characteristics, and interests are defined according to the domain or area of focus we are working with [23]. It is a tool to create empathy and design relationally through a holistic survey of the territory, identifying patterns of behaviour and collecting extensive related data [10, 33]. By adopting what Nielsen describes as an engaging perspective [22, 27], participants are asked to identify acquaintances as their recipients, seeing themselves with their actions, stories, and emotions, limiting stereotypes. *"What would your grandma like to know about Naples? What does your best friend or partner want to receive?"*

4.5 The message: building a legenda

A postcard would be incomplete without a message for the recipient. The message is usually a written text of greetings where the sender shares personal experiences and thoughts. Once the postcard is received, the recipient has to understand and interpret it [24]. Once the front of the postcard is done, participants work on the message to guide the visualisation reading. The message should convey the essence of the greeting — what they want to communicate — and help the recipient understand how to interpret the contents through a legend.

Fig. 6. Greetings from Naples. Territorial exploration in the Quartieri Spagnoli neighbourhood with the support of the map.

5 GREETINGS FROM NAPLES

We conducted the first edition of the workshop in April 2023 in Naples, Italy. We were invited to the first edition of the *DESINA Festival* [9], an event dedicated to Graphics and Visual Cultures. The festival reflected on the impact of visual design practices on everyday life. Design professions and visual projects contribute to shaping civic education and help reconstruct a social conscience. In this context, data, when interpreted and contextualised, is a visual tool able to communicate new knowledge and reveal new meanings [5].

We run the workshops over three days with seven participants attending bachelor studies in arts, comics, and graphic design. None of the participants had expertise in data visualisation. On the first day, we provided an overview of data visualisation from a historical, application, and functional perspective. We then introduced the databook and the different phases of the activity. Then, we asked the participants to think of their personas and start their territorial exploration with the support of the *Explorative Map* (Fig. 6). By having a clear idea of who they wanted to address the postcards to, they explored the city with different perspectives. Due to time constraints, the participants limited their exploration to the Quartieri Spagnoli, a neighbourhood renowned for its liveliness, narrow alleys, small taverns, and other elements that represent the soul of Naples and its citizens.

They came back on the second day with their data collected. At that point, they began to organise, cluster, and analyse the information they had gathered to consider the visualisations (Fig. 7). From the clustering process, we observed how they primarily took photos of the elements they wanted to map, focusing on factors that are part of daily life or particularly connected to the city's cultural identity. Once they had their data organised, they started planning their visualisations with the support of the *Visualisation Method Toolkit*. On the third day, they completed ten different postcards, each describing a different aspect of the city. Through a final discussion, we confronted the participants on the emerging elements, how they connected with the information represented, how they managed the visualisation, and their feedback on the activity.

Fig. 7. Greetings from Naples. Data analysis of the obituary column. After photographing several obituaries in the neighbourhood, the participant organised and analysed the photographs with the help of a computer. This stage aimed to identify patterns and shared categories in the layout of the obituaries to create a specific data visualisation.

5.1 Postcard Visualization Design

Each visualisation results from a specific key of observation, analysis, and interpretation of Naples. The exploration process, structured on quantitative, qualitative, and perceptual-visual research, reveals that personal interaction and a multidirectional relationship with the context are fundamental for future design interventions on the territory [10]. We report some of the impacts visualised on the postcards (Fig. 8):

The impact of colour. Naples is a colourful city, described through the stratified graffiti on its streets. By mapping the colourful murals through abstraction, clustering, and proportion, the postcard serves as both a guide and a treasure hunt of the most representative works of Neapolitan urban art production. The participants chose to use a dot chart model, making each square represent a mural of 100 dots. Each dot is 1% of the colour in the graffiti.

The impact of sociality. This postcard represents the social and superstitious values of the city through the life stories in the mortuary announcements. We can understand how recognizability is constructed by analysing the spelling of nicknames connected to physical characteristics, professions, hobbies, and belongings. By distributing the collected data in parallel coordinates, we can visualise the relationships between articles, adjectives, and master features.

The impact of light. This postcard is addressed to a travel blogger friend who wants to know the perfect corner for the photo opportunity. The visualisation shows the variation of lights in a picturesque corner in Quartieri Spagnoli. Multiple shades of yellow pencils are used to define coloured beams, varying in intensity and inclination to the right or left. Additional information, such as how populated that spot is at different moments of the day, is represented with coloured dots. In this case, the visualisation does not adopt a specific visual model, but it results from an

abstraction and simplification process of the photographic data gathered during the exploration phase.

The impact of profane. Naples is also the city of sacred and profane. Votive altars, electric madonnas, and other DIY angles of devotion are spread around the streets. In this postcard, the colours indicate the typology of the altars: blue for Madonnas and Jesus, orange for all the saints, and purple, which represents the majority, for the citizens. The visualisation shows a city code for the devotion and recognizability of the citizens. The distribution of different shapes along two axes also illustrates how some representations involve the community (on the right side of the x-axis) and others are designed for the individual (on the left side).

The impact of sound. We can also use other senses to map the city, such as listening for 10 minutes to the sounds at a street intersection. As this postcard illustrates, we can perceive a succession of many scooters, a few cars, and a single bicycle. Basic rounded shapes in a grayscale classify and tell the intensity and distance of the sounds, revealing how playing the horn is still the rule in the city. The grey is used to convey the smog from the different vehicles, whose intensity is highlighted by the colour contrast with the bicycle, represented by a double green asterisk.

The impact of ingenuity. Naples is a city of scooters and cars, and therefore also of incidents that require creative ingenuity when fixing broken parts. This postcard effectively represents the type and extent of damage to different-coloured scooters. Various geometries represent the components of the scooters. At the same time, other lines indicate the point of damage and the type of material used to repair the broken pieces: scotch, cardboard, textile, or plastic strings. In this case, the legend is fundamental: it becomes the added value to orient the receiver in a curious cross-section of genius and creativity.

5.2 The Collective Databook

Unlike the databooks briefly described in Section 3.1, the postcards created during the workshop offer a collective view of Naples, particularly the Quartieri Spagnoli area. When considered as a whole, the data represented on the postcards enables us to compare the tourist and everyday dimensions of the city. Naples has always been a popular tourist destination. This is due to its gastronomic culture, artistic heritage, street art (particularly in light of the city's football history), and the authentic, popular character that can be experienced in its alleys. On the other hand, Naples is also known for its traffic congestion, city chaos, crime problems, social inequalities, and deteriorating building conditions. The tourist dimension of the city, when compared to the data collected from postcards, leaves room for a lived, layered, and multi-sensorial city, where every corner tells stories through colour, light, sound, sociability, and ingenuity. The postcards function as small acts of observation, revealing a city in its most authentic and spontaneous everyday life. Naples has a lively and rebellious spirit, characterised by a strong collective memory and identity, which is expressed through daily, self-managed spirituality. The city offers a frenetic and chaotic urban landscape, but is also characterised by street art that expresses urban resilience.

Due to the chosen format for the workshop and the design output, participants were not required to define specific design guidelines or arrive at a design concept, as is typically expected in the Systemic Innovation Design Methodology process as a whole. The objective of the workshop was to raise awareness of data collection, of the holistic and exploratory nature of the research phase of the methodology, as well as the use of data visualisation as a design and communication tool. The activity's results indicate that the postcards can be read individually or as a whole, offering different project ideas depending on how they are read and by whom. Based on our analysis of

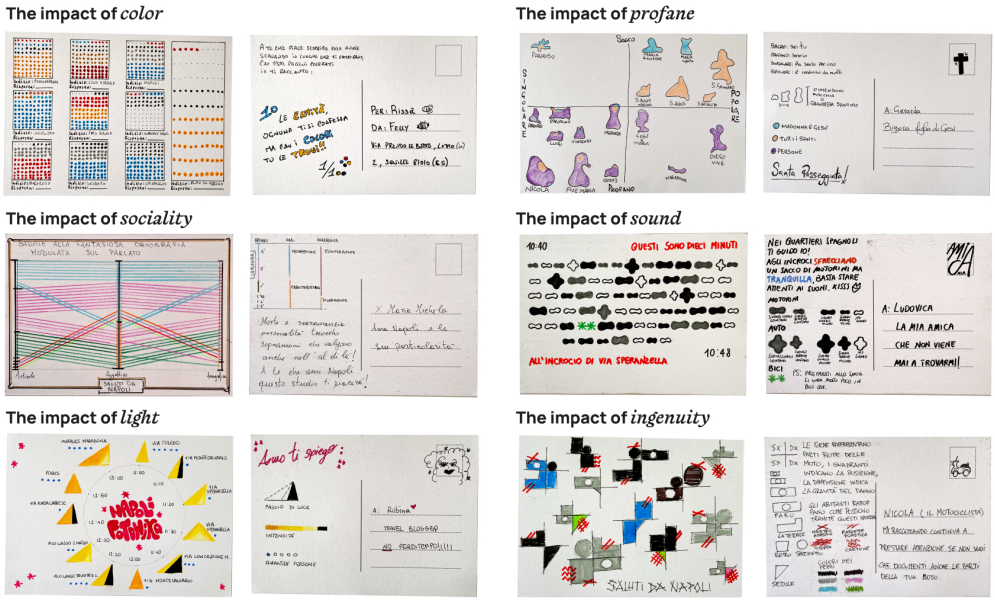

Fig. 8. Greetings from Naples: results of the visualization process. Each postcard depicts a particular observation of the neighbourhood, offering a personal analysis and interpretation of Naples. The front of the postcard features data visualisation, combining shapes, patterns and colours. The back features the legenda (the message) and the recipient (the personas).

the results, we can outline some project directions that could form the basis of a project on the Quartieri Spagnoli or the city of Naples:

- The lively and rebellious spirit provides an opportunity to consider how to improve popular expression by designing urban spaces that are more welcoming through the use of colour and light. These interventions could also help mitigate urban degradation in the city.
- The collective memory emerging from the postcards on the murals, as well as on the sacred and profane aspects of the neighbourhood, suggests social interventions through community spaces and realities that can strengthen citizens' sense of belonging, in contrast to the large numbers of tourists. A local narrative could also inform the design of new forms of urban spirituality.
- The chaotic and noisy nature of the city presents an opportunity to reconsider how people navigate it, by mapping and regulating its soundscape through the creation of quiet zones and experiential sound paths.

5.3 Reflections and feedback from the participants

At the end of the workshop, we asked the participants to share their feedback and personal perception in a short video interview (see video and participants' statements in the supplementary material). They shared how the explorative approach amplified their perception of the context, making them see everything that had been considered a daily routine with a "different eye" until that moment. As stated by a participant (P3.3): "Studying here every day and coming here every day made me feel like I was repeating a loop, making the same sequence without even realising it".

Another participant (P4.2,3) added: "[...] I have never seen these streets with these eyes. I started to linger on the tangible, touchable things, but also intangible things, like sounds, smells, in a very meaningful way."

They also shared how data synthesis went beyond their idea of numerical evidence, as a way to communicate a message differently, by overlapping reading levels through symbols and forms (P2). This perception arose after an initial impression of the workshop as being difficult to grasp in just three days (P3): the terms "data" and "data visualisation" referred to an analytical, precise, almost statistical dimension in the minds of participants, challenging their background in the visual arts (P2).

Their postcards support the hypothesis that a more intuitive, sketch-based, and personal approach to data collection and analysis can break down barriers with the more rigid dimension of data visualisation, facilitating the approach of visual and communicative disciplines such as design to a practice of conveying information still rarely explored by university students (P4, P6). The overall results consolidate the databook's role as a tool with emotional involvement. It amplifies the ability to learn and reason, improves communication skills, and promotes multidirectional thinking.

6 DISCUSSION AND FUTURE IMPLEMENTATIONS

Greetings from Naples was the first attempt at using this format, and we were pleasantly surprised by the results and the level of involvement obtained from the participants. However, as with all initial attempts, we encountered some unplanned aspects that required us to reassess and refine specific activity components to enhance the experience for future iterations. The workshop was later replicated at the University of Parma in February 2024 and during the Rovista event in Turin in July 2024. The following paragraphs discuss operational difficulties, learning outcomes, and added value from the experience in Naples.

6.1 Timing and postcard creation

The workshop lasted three full days, during which we assumed, in the planning phase, that participants would create around five postcards each. Our initial estimates were based on the assumption that the limited space available (the postcards) and the hand-drawing modality (with less focus on details and precision) facilitated the immediacy of the visualisation process. We were proven differently since we obtained an average of 2 postcards for each participant. The reduced production of postcards should not be considered a weakness of the activity or the participants. Still, it allows for reasoning about how the workshop has been set up, and that could be strengthened: the freedom of action, especially in the exploration phase, could benefit from more structured methods to guide the participants during the collection and analysis phases. Additionally, time constraints and data limitations affected the visual representations and details of the postcards. When organising the data, participants realised they had collected sufficient information to develop mainly one visualisation. If we compare two postcards made by the same participants, we can see differences in the visual and content quality. The first one (Fig. 9 on the left) typically exhibits greater accuracy in data collection and model construction; the second one (Fig. 9 on the right) is usually more abstract and general in its topics.

6.2 Territorial Exploration and Data Collection

The *Explorative Map* has greatly supported the exploration and visualisation phases. However, we noticed some areas for improvement regarding the effectiveness and necessity of the city map. Since the exploration was limited to Quartieri Spagnoli, which the participants were very familiar with, the map was not decisive in guiding the exploration. Moreover, the city map is fixed on a scale that does not always work, particularly when the exploration is confined to a smaller area,

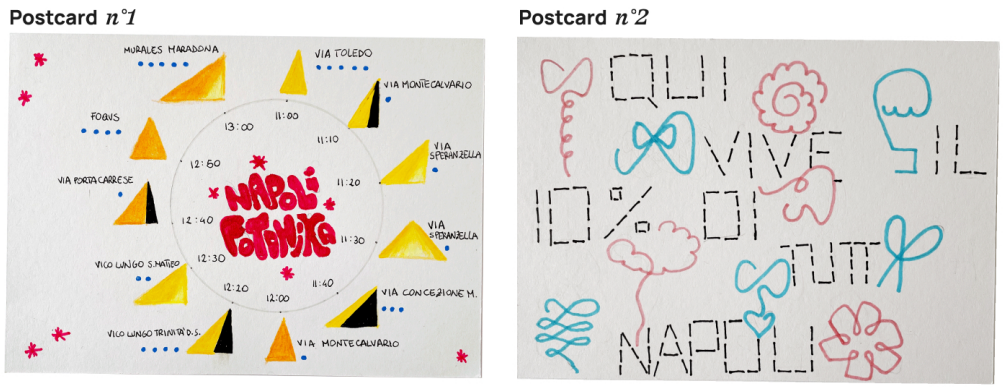

Fig. 9. Comparison of two postcards realized by the same participants during *Greetings from Naples*. The one on the left is more accurate in terms of the composition, study, and arrangement of shapes. It also includes different types of data, such as the time of day, the intensity and direction of the light, and how crowded the streets are. The one on the right uses more abstract symbols, representing a single data using text.

such as a small neighbourhood. This factor prompted us to reflect on the flexibility of the map, whether we should define some boundaries within the scale of analysis, and how the tool should support this.

The workshop demonstrates the effectiveness of the approach in broadening the boundaries of context analysis. From an object, a word, a symbol, a colour, an animal, or a sound, each postcard has managed to visualise and unfold a social, cultural, historical, religious, or artistic facet of the city. All this information would not have been collected through desk analysis without sensitivity to the territory, which only those who live there daily possess.

6.3 Data literacy and visualization knowledge

The workshop aims to introduce the data visualisation approach applied to territorial design. The visual models of the Visualisation Method Toolkit have been helpful and inspiring for developing visualisations. In some cases, the visual models have been replicated rigorously; in others, they have been abstracted into shapes and components to align with the message to be shared with the postcard recipient. Although not complex, the visualisations obtained effectively brought out new and unexpected meanings of the territory.

From the effectiveness and learning point of view on data visualisation, two phenomena can be observed: on the one hand, those who have experienced the workshop as an intensive experimentation of practices related to visual design. In this case, little thought has been given to the role of data for conscious design. In other cases, participants understood how data and their visualisation could support context analysis to develop design practices.

7 CONCLUSION

The databook provides the designer with the most objective tools and knowledge to act and communicate through data. This tool can offer an all-encompassing perspective, allowing for a detailed examination of a specific context without neglecting its interconnections with surrounding realities, and reveal critical issues and opportunities for design disciplines. The format strengthens and expands the role of the databook as a tool of immersive exploration, favouring the user's

understanding of a territory, the definition of their needs, and their common sense. We were surprised to find such creativity and involvement during the exploration. This might be due to the participants' background in the arts and design, their strong connection to the city's culture, or the considerable freedom in collecting the data. *Greetings from Naples* has confirmed how combining personal knowledge with the curious gaze of a tourist can generate awareness for design insights with a significant impact. *Greetings from...*—a format structured to be replicated in every other city—offers a model for exploring contexts to uncover unexpected factors, perspectives and opportunities for innovative and sustainable design strategies.

ACKNOWLEDGMENTS

The authors would like to thank the participants of the editions of *Greetings from Naples* for their outstanding involvement and empathy.

INFORMATION+ PRESENTATION

This article was presented at the Information+ 2023 conference titled "Greetings from… A format to visualise the unexpected for impactful design strategies".

REFERENCES

[1] Russell L Ackoff. 1989. From data to wisdom. *Journal of applied systems analysis* 16, 1 (1989), 3–9.
[2] Rahul Bhargava, Dee Williams, and Catherine D'Ignazio. 2021. How Learners Sketch Data Stories. In *2021 IEEE Visualization Conference (VIS)*. 196–200. https://doi.org/10.1109/VIS49827.2021.9623299
[3] Vetria L Byrd. 2021. Using Dear Data Project to Introduce Data Literacy and Information Literacy to Undergraduates. In *Advances in Software Engineering, Education, and e-Learning: Proceedings from FECS'20, FCS'20, SERP'20, and EEE'20*. Springer, 131–142. https://doi.org/10.1007/978-3-030-70873-3_10
[4] Alberto Cairo. 2012. *The Functional Art: An introduction to information graphics and visualization.* New Riders.
[5] Sofia Cretaio, Sergio Degiacomi, Leonardo Moiso, Cristina Marino, Chiara Remondino, Paolo Tamborrini, et al. 2023. Databook design per fare innovazione. Uno strumento di ricerca e analisi per attivare progettualità sostenibili. In *DesignIntorno. Atti della Conferenza annuale della Società Italiana di Design*. Società Italiana di Design, 445–455.
[6] Andrea Di Salvo, Cristina Marino, Paolo Marco Tamborrini, et al. 2024. Dati e Persona/ggi. La narrazione come strumento strategico per esplorare unicità e complessità del territorio. In *Design per la Diversità. Atti della Conferenza Nazionale SID 2023*. SID Società Italiana Design, 176–185.
[7] Merriam-Webster Dictionary. [n. d.]. *workshop*. Retrieved April 02, 2024 from https://www.merriam-webster.com/dictionary/workshop
[8] Banu Inanc Uyan Dur. 2014. Data visualization and infographics in visual communication design education at the age of information. *Journal of arts and humanities* 3, 5 (2014), 39–50. https://doi.org/10.18533/journal.v3i5.460
[9] DESINA Festival. 2023. *Festival della grafica delle culture visive 01.* Retrieved April 10, 2024 from https://2023.desina.it/
[10] Andrea Gaiardo, Chiara Lorenza Remondino, Barbara Stabellini, Tamborrini Paolo, et al. 2022. *Il design è innovazione sistemica. Metodi e strumenti per gestire in modo sostenibile la complessità contemporanea: il caso Torino.* LetteraVentidue Edizioni.
[11] Andrea Gaiardo, Paolo Tamborrini, et al. 2015. Systemic Innovation design methodology: the comparison of two cases studies. *Proceedings of the 11th European Academy of Design Research, Paris, France* (2015), 22–24.
[12] Caracol Art Gallery. 2021. *"Saluti Baci" l'art-graphic journalism secondo da Daniele Catalli.* Retrieved April 10, 2024 from https://caracolarte.it/saluti-baci-lart-graphic-journalism-secondo-da-daniele-catalli/
[13] Denise Hattwig, Kaila Bussert, Ann Medaille, and Joanna Burgess. 2013. Visual literacy standards in higher education: New opportunities for libraries and student learning. *portal: Libraries and the Academy* 13, 1 (2013), 61–89. https://doi.org/10.1353/pla.2013.0008
[14] Rob Kitchin. 2014. Big Data, new epistemologies and paradigm shifts. *Big data & society* 1, 1 (2014), 2053951714528481.
[15] David A Kolb. 2014. *Experiential learning: Experience as the source of learning and development.* FT press.
[16] Nicole Lachenmeier and Darjan Hil. 2022. *Visualizing Complexity.* Birkhäuser.
[17] Giorgia Lupi and Stefanie Posavec. 2016. *Dear data.* Chronicle books.
[18] Wolfgang Maass, Jeffrey Parsons, Sandeep Purao, Veda C Storey, and Carson Woo. 2018. Data-driven meets theory-driven research in the era of big data: Opportunities and challenges for information systems research. *Journal of the Association for Information Systems* 19, 12 (2018), 1. https://doi.org/10.17705/1jais.00526
[19] Lorenzo Marchionni. 2021. *Tanti cari saluti.* Il Saggiatore.

[20] Claudia Mitchell. 2011. *Doing visual research.* Sage.
[21] Francesca Morini, Anna Eschenbacher, Johanna Hartmann, and Marian Dörk. 2024. From shock to shift: Data visualization for constructive climate journalism. *IEEE transactions on visualization and computer graphics* 30, 1 (2024), 1413–1423. 10.1109/TVCG.2023.3327185
[22] Lene Nielsen. 2004. Engaging personas and narrative scenarios. (2004).
[23] Lene Nielsen and Kira Storgaard Hansen. 2014. Personas is applicable: a study on the use of personas in Denmark. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. 1665–1674.
[24] Jan-Ola Östman. 2004. The postcard as media. *Text & Talk* 24, 3 (2004), 423–442. https://doi.org/10.1515/text.2004.017
[25] Marina Parente and Carla Sedini. 2017. Design for Territories as practice and theoretical field of study. *The Design Journal* 20, sup1 (2017), S3047–S3058.
[26] Marina Parente and Carla Sedini. 2017. *PAD# 13: Design for territories*. Vol. 13. LetteraVentidue Edizioni.
[27] John Pruitt and Jonathan Grudin. 2003. Personas: practice and theory. In *Proceedings of the 2003 conference on Designing for user experiences*. 1–15.
[28] Chiara L Remondino, Paolo Tamborrini, and Wouter Meys. 2019. Visualisation Method Toolkit: a shared vocabulary to face complexity. (2019). https://doi.org/10.21606/learnxdesign.2019.13039
[29] Jonathan C. Roberts, Chris Headleand, and Panagiotis D. Ritsos. 2016. Sketching Designs Using the Five Design-Sheet Methodology. *IEEE Transactions on Visualization and Computer Graphics* 22, 1 (2016), 419–428. https://doi.org/10.1109/TVCG.2015.2467271
[30] Bjarne Rogan. 2005. An entangled object: The picture postcard as souvenir and collectible, exchange and ritual communication. *Cultural Analysis* 4, 1 (2005), 1–27. https://api.semanticscholar.org/CorpusID:49086301
[31] Simone Sbarbati. 2017. *Cartoleena: su Instagram, l'analisi semiotica delle cartoline brutte.* Retrieved April 16, 2024 from https://www.frizzifrizzi.it/2017/07/21/cartoleena-instagram-lanalisi-semiotica-delle-cartoline-brutte/
[32] Simone Sbarbati. 2020. *Saluti e baci: grazie a Daniele Catalli puoi inviare una cartolina illustrata a un* negazionista (o a chi vuoi).* Retrieved April 16, 2024 from https://www.frizzifrizzi.it/2020/12/18/saluti-e-baci-grazie-a-daniele-catalli-puoi-inviare-una-cartolina-illustrata-a-un-negazionista-o-a-chi-vuoi/
[33] Barbara Stabellini, Paolo Tamborrini, and Andrea Di Salvo. 2019. *The Design Value of the Relationship Between Personal and Urban Data: Volume X: Auditory and Vocal Ergonomics, Visual Ergonomics, Psychophysiology in Ergonomics, Ergonomics in Advanced Imaging*. 144–150. https://doi.org/10.1007/978-3-319-96059-3_16
[34] Karen Swan, Philip J Vahey, Ken Rafanan, and Tina Stanford. 2009. Challenges to cross-disciplinary curricula: Data literacy and divergent disciplinary perspectives. In *Annual Conference of the American Educational Research Association. San Diego, CA. Retrieved fromhttp://www. sri. com/work/publications/challenges-cross-disciplinary-curricula-data-literacyand-di vergent-disciplinary-p.*
[35] Paolo Tamborrini, Barbara Stabellini, et al. 2018. Metodologie e strumenti per l'innovazione sostenibile. *MD JOURNAL* 5 (2018), 50–57.
[36] Leo Van Audenhove, Wendy Van den Broeck, and Ilse Mariën. 2020. Data literacy and education: Introduction and the challenges for our field. *Journal of Media Literacy Education* 12, 3 (2020), 1–5. https://doi.org/10.23860/JMLE-2020-12-3-1
[37] Jagoda Walny, Samuel Huron, and Sheelagh Carpendale. 2015. An exploratory study of data sketching for visual representation. In *Computer Graphics Forum*, Vol. 34. Wiley Online Library, 231–240. https://doi.org/10.1111/cgf.12635
[38] Annika Wolff, Daniel Gooch, Jose J Cavero Montaner, Umar Rashid, and Gerd Kortuem. 2016. Creating an understanding of data literacy for a data-driven society. *The Journal of Community Informatics* 12, 3 (2016). https://doi.org/10.15353/joci.v12i3.3275

RESEARCH MATERIAL STATEMENT

Additional material regarding the databook, the workshop structure, agenda, tools, environment and outcomes can be found online: https://osf.io/yrme2/?view_only=6b12813fe4784fcf9ffaf35e09ed051d

AUTHORSHIP

Sofia Cretaio: Workshop Coordination, Data Analysis, Writing—original Draft; Chiara L. Remondino: Workshop Coordination, Data Analysis, Writing—review and editing, Supervision.

LICENSE

CONFLICTS OF INTEREST

The authors declare that there are no competing interests.

Received 18 April 2024; revised ; accepted