

Chapter 14

Participatory Drawing in Ethnographic Research

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Abstract The chapter reports on a participatory drawing research study conducted by the Royal College of Art within the SusLabNWE project. It sought to explore people's notions of energy and to visualise their ideas and associations relating to it. The study is framed within the context of the broader ethnographic research tools that were employed by the SusLabNWE consortium. The study was conducted in three phases with visitors to the Helen Hamlyn Centre for Design's Life Examined exhibition at the Royal College of Art in September 2013; with students participating in the UK ArtScience Prize at The Silk Mill, Derby in April 2014; and with visitors to the Victoria and Albert Museum Digital Design Weekend in September 2014. Participants were offered drawing materials and asked to respond to the question: *What does energy look like?* In this chapter we discuss the outcomes of the research process, we analyse the images that were created and we explore what they tell us about the participants' ideas about energy and what this could mean for energy visualisations.

Keywords Drawing · Participation · Energy · Visualisation · Ethnographic research

14.1 Introduction

Drawing Energy was a research study that sought to explore people's perceptions of energy, an often-intangible concept that is ever-present in our daily lives. It was conducted jointly by the Helen Hamlyn Centre for Design and SustainRCA

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and was an opportunity to bring together their distinct philosophies and research approaches to explore the emerging territory of inclusive environmental design. In the context of this research, this meant understanding the ways in which people use and think about energy in contemporary British society and how energy itself might be represented in new ways in order to help people to engage with it in more personally-relevant and environmentally conscious ways.

Inclusive design and sustainability often have different starting points and deal with different scales. Inclusive design usually focuses on people's needs and capabilities at the domestic scale, while sustainability embraces complexity and systems thinking, addressing systemic change. The research methodology employed in *Drawing Energy* negotiated a space between the two, bringing together people's aspirations and perspectives with the context of socio-political mandates and changing infrastructure and technologies.

Drawing Energy was a qualitative investigation of energy. Within the context of SusLabNWE, it built on the qualitative research methods shared by the project consortium, that are outlined in the SusLabNWE Research Methods Toolkit (Greene et al. 2013). It also worked alongside the quantitative research techniques employed by other project partner institutions to explore human understandings of energy, and offered a new lens through which to consider the ways in which people use energy.

14.2 Aim and Approach

The *Drawing Energy* study builds on research methods developed by both the Royal College of Art over the last two decades and on The SusLabNWE Research Methods Toolkit developed across the project partner institutions. The energy research began by conducting a series of ethnographic interviews in 2013 with people—mostly Londoners—in their own homes, to explore their ideas around energy, what it means to them and how it features in their daily life.¹ Within this engagement we used design probes and logbooks (a development of the diary study) to gain further insights, all of which contributed to the later development of our drawing research.

While the principal focus of the SusLabNWE project was on energy in the utility sense, the word 'energy', with numerous definitions in English (Merriam-Webster 2015), is a concept that resists easy visualisation and is not synonymous with any singular or distinct visual icon. We therefore decided to expand the frame of reference for our research to encompass fully all the meanings the term holds and explore its significance for our interviewees.

¹The householders interviewed included social housing residents and owner-occupiers who were interested in monitoring their energy use.

The research process itself was people-centred, with the designers and researchers seeing householders as collaborators and contributors, not just ‘test subjects’ (Gheerawo and Bichard 2011). This was important: it is beneficial to work with real people as nothing can really replace the value of this process (Warburton 2003). This moves projects from being perhaps an ego-centric expression of design expertise, to having social relevance and value for the end user.

Drawing Energy was conducted with visitors to the Helen Hamlyn Centre for Design’s Life Examined exhibition at the Royal College of Art in September 2013; with students participating in the UK ArtScience Prize at The Silk Mill, Derby in April 2014; and with visitors to the Victoria and Albert Museum Digital Design Weekend in September 2014.

14.2.1 Ethnographic Research Methods

Our research began with ethnographic interviews in which we discussed people’s relationship to energy in the home and their broader thinking around it. We utilised a range of design probes and a logbook (a variation on a diary study), which for example, asked people to report which other words they associated with the word ‘energy’ and asked them consider and rate different methods of visualising energy, from an individual display on their phone or computer, to public displays, calculating the energy use in a residential area.² These methods were outlined for the context of the project within the SusLabNWE Research Methods Toolkit, which set out the agreed qualitative research approaches that each partner institution would employ in their investigation.

The toolkit comprised a set of twelve qualitative research methods to be used in the lab and in the field. These included questionnaires and diary studies to gain initial insights into a participant’s ideas about energy and its relation to everyday activities, as well as design probes delve deeper into the issues. It also includes co-creation and prototyping, to support the development of new designs, from a people-centred perspective, and lastly, the Toolkit also details in situ tasks, designed specifically for the lab setting. The Toolkit therefore offered a broad set of methodologies that facilitated our research at different stages of it.

In Drawing Energy we created logbooks, which were intended to gather insights into participants’ ‘thoughts and actions within the context of daily life practices’ (Romero Herrera 2013), related to energy consumption. While the design probe, which is often called a ‘cultural probe’ was ‘intended to reveal further insights into a participant’s behaviours or motivations concerning their domestic energy use’ (Bowden 2013).

²The design probes and logbook are ethnographic research methods detailed in The SusLabNWE Research Methods Toolkit.

These methods worked well for the exploratory nature of our research. By utilising these approaches we sought to uncover nuances in the ways in which participants think about energy, the associations they make with it in everyday life, and their responses to different forms of communicating energy use.

14.2.2 The Research Process

Early on in the research we found that people's mental models (Johnson-Laird 1983; Gentner and Stevens 1983) and notions of energy were very diverse (as confirmed by some other research, e.g. Rupp 2013) and that their associations were much broader than heat or electricity. One participant told us that to describe energy to a child he would say it is '[a] force. Something that creates change, or motion, or action.' We also consistently found, that the invisibility of energy was a significant attribute for the people we spoke to.

Another participant said to us:

I think I worked out that through gas and electricity every year, the average house gets the equivalent of a bit over three tons of coal delivered completely silently and without any mess. And go back a hundred years ago and everyone would have a really good quantitative understanding of how much energy they used because they had to physically shovel the stuff. So, that made me stop and think.

The initial research interviews revealed that the energy's invisibility was a defining characteristic, and one that might be closely connected to understanding our own environmental impact through energy use. This was by no means a new finding (e.g. Burgess and Nye 2008)—and 'keeping energy use visible' is central to the thinking behind home energy monitors (Hargreaves et al. 2013)—but it is one that has often been addressed in design through leaping straight to new interface designs (Froehlich et al. 2010) without exploring the issue further in terms of the meanings, social and ecological factors of everyday lived experience (Mazé and Redström 2008; Strengers 2011; Hamilton and Hinshelwood 2014) and the stories around these (Mourik and Rotmann 2013; Lockton et al. 2014).

To investigate the questions that energy's invisibility might present, we decided to undertake a drawing study to explore energy in new ways, and to use the drawing process to uncover the associations people make with this immaterial entity. We developed a visual research method, which social scientists might term a 'participatory visual method' (see for example, Gubrium and Harper 2013; Mitchell 2011) in which we asked people to respond, through drawing or writing on paper, to the question: *What does energy look like?* As Gray et al. (2010) suggest, '[w]ords become more challenging to visualise as they become less literal', and energy, as a form of dynamism, power, force or activity, might be considered 'an idea that isn't anchored to an object in reality' (Brown 2014). We reasoned that this method could help us to explore people's mental models and perceptions of energy, and of the infrastructures or meanings connected to it. Participatory

drawing research has been used before to explore people's understandings of abstract or invisible concepts, for example Bibace and Walsh (1979) and Nemeroff (1995) explored notions of germs and illness, while Qualter (1995) and Devine-Wright et al. (2009, 2010) have explicitly looked at conceptions of electricity generation and the National Grid.

14.2.3 About the Study

The drawing study was conducted in three different stages and contexts, and it is important that we consider some of the factors in the research that may have informed the different outcomes produced.

The studies in the Life Examined exhibition and the Digital Design Weekend were both held within broader exhibition contexts and the participants were therefore all engaged with cultural events and design. Beyond this, there was no classification of their age ranges, occupations, or backgrounds. The students in the ArtScience Prize were the only group of a particular age range: they were all teenagers (13–18 year olds) working on art and design ideas inspired by the theme: 'Energy of the Future'. All of the participants could be said to have an interest in art or design, and this could have influenced the collection of images.

As the study was conducted in three different phases and locations there were inherent differences in the way each was structured. In the Life Examined exhibition participants drew on an angled board, at the V&A participants drew on tables, while at the ArtScience Prize many students chose to draw with their paper on their laps. At the V&A completed drawings were also hung on the wall, so participants could see some examples of earlier work.

All three strands of the study were conducted in either workshop or exhibition contexts, environments in which participants were encouraged to explore and create, which valued new ideas and even future visions. It is possible therefore that these conditions encouraged participants to express new ideas for what energy could be, or what they would like or expect to see in future, rather than to illustrate their experienced realities.

We acknowledge that the sample groups who took part in the study are not necessarily representative of British society as a whole, but we see this project as a way of uncovering individual views and ideas about energy that are not normally publicly expressed.

14.3 What We Found

From the three phases of the drawing study emerged a collection of 180 images of 'energy', presenting a diverse, multi-faceted and highly personalised picture of this often intangible and amorphous subject. In each of the three drawing studies

participants spent as long or as little time as they liked creating their drawing, however, we did not ask people to complete surveys or questionnaires as a part of the study, so our analysis is purely based on our interpretation of the images produced.

It is important to note that this was not a study of people's drawing skills or observational drawing proficiency (Kozbelt and Seeley 2007). By asking participants to draw a physical representation of the invisible we were asking them to take part in a conceptual drawing exercise and as such, the study intends focus on the ideas, thought processes, emotions or experiences that the drawings seek to communicate.

In studying the drawings we began a process of clustering, or categorising all the pieces in the collection. These were quite fluid groupings at first that offered different lenses through which we could view and think about the material. We looked for relationships and commonality between pieces, but we also considered the divergence or contrast in what the drawings seemed to communicate—those examples that counter one another, or which could exist in a category all of their own. The richness and subjectivity in this body of work means that we felt our groupings were by no means definitive, and in something of a kaleidoscopic way, the categories can shift, reorganise, create new constellations and suggest new ways of thinking about the drawings for each individual viewer. Here are the subjects we propose:

14.3.1 Nature/Culture

Many drawings depict the 'end points' of the power we use in everyday life: the light bulbs, plug sockets, batteries or wires that fill British homes today. They are products; part of the energy infrastructure and in a way emblematic of energy in contemporary culture. Time, convenience, connectivity and the domestic are important considerations in these images as they seem to reference the instantaneous, on-demand moment of connection we have with physical power on a daily basis. They also reference the human scale. Rather than consider the National Grid, or power stations, for example, they present the visible points of contact that people have with the energy system and show how the people behind these drawings experience energy in their immediate environment.

Quite in contrast to images of manufactured products and technologies, there are also many images of nature referencing plant or animal life, the elements and environmental conditions. There are images of the sun and lightning bolts, five drawing of waves, four trees and six flowers, which collectively seem to represent the full range of force and power within the natural world. The sun could be read as the original source of energy, and waves and lightning as powerful forces of nature. In fact, we see lightning bolts 13 times throughout the collection, and (at the time of writing) a lightning bolt is also the first image on Wikipedia's Energy page (Wikipedia 2015), so perhaps this particular aesthetic has been adopted into

our collective conscious as a symbol for energy, for example, via its use in battery charging iconography. How might more widespread adoption of electric cars affect this?

This sets up an interesting duality in our collection of images: in those discussed so far we can start to see a contrast or tension between the wild, which are in many instances (although not all) large-scale and potentially overpowering forms of energy; and the harnessed or the tamed, which is often energy that has been captured to be of service to people. It is also interesting to consider the perspective of the image-maker—the person doing the drawing—how they relate to the forms of energy they have depicted. Some image-makers may have drawn energy as it relates to them and some may have drawn the sources of renewable energy that we capture. In that sense, they have illustrated a starting point in the energy system whilst others may have sought to depict energy in its purest form, entirely beyond the limits of the engineered, human-made energy infrastructure.

14.3.2 Abstraction

Whilst in the previous section we discussed drawings with a broad range of subject matter, what these images had in common is that they were all representational. However, many of the other drawings in our sample are abstract.

There are images that are very concerned with colour and form, but suggest no explicit connection to, or association with, the objects or entities around us. We see swirls, zigzags, amorphous shapes, lines and blocks of colour across all the sample groups. One image is all bright orange and red, whilst another uses layers of colour to create a wash of deep blues and purple. Perhaps these images seek to visualise the matter of energy itself, to materialise the invisible, rather than to depict those elements or artefacts that either embody energy, or allow us access to it. Or perhaps they directly address the formlessness of energy, the way it is not neatly articulated in a precise and defined shape and cannot be pointed to, but exists intangibly all around us. Through this comparison we can see that the previous set of images depicted how energy is contained, while these drawings might do exactly the opposite.

But even in this range of abstract images, we see diversity. One drawing from the Life Examined exhibition shows a simple horizontal blue line across the middle of the page, reaching almost to the edges—a single mark on which to focus our attention—while another from the same group of participants, depicts a knotted, frenzied and chaotic mix of lines of different colours and trajectories. Whilst one drawing seems to suggest calmness and clarity, and the other speaks of disorder and confusion, they could both refer to energy's ubiquity and constancy. So there are parallels to draw, even in this seeming divergence, and it is interesting to consider how similar principles can be expressed in very different visual forms.

14.3.3 Process Drawings

At the V&A, the third and final strand of our study, we were able to offer the participants a wider variety of materials to work with than we had been previously. In the first two studies participants used pens and pencils, but in the third we added to this chalk pastels and ink and brushes.

Over the 2 days of the study (in which time the tables became increasingly stained and the materials looked worn and less precious), participants became more experimental with their drawings and freer with the materials. By the end of the first day people began to produce what we could call ‘action drawings’ or works wholly concerned with the process of their making. Several people dripped ink from above the paper; one person used a brush to draw circles then blew the ink across the page—leaving the trace of their energy in the path of the ink. Another three people (who didn’t know each other beforehand) collaborated on a drawing, each making marks in pastel for 5 s, simultaneously. The resulting piece is the evidence of their energy on the paper. These images are non-representational, but they are records of the energy that has been exerted in their production. They are concerned with the paper, materials and the action of making—the drawing is a three-dimensional object and the result of an energetic process, not a picture plane (Greenberg 1961).

There is great breadth in the themes addressed by the participants. The drawings do not simply address the issues of the energy infrastructure, or environmental concerns. Instead they show us a much fuller scope of the ways in which people think about energy. The diversity, the contrast, the unexpected and the anomalies all serve to broaden our thinking on this subject, rather than to narrow our definition of it.

14.3.4 What We Do Not See

As well as all the subject matter that the drawings do represent, there are many issues that they do not address, and we would like to briefly consider the significance of some of what has been left out.

Several drawings show energy sources or supplies, but these are nearly all renewable. Alongside the drawings of the sun and waves, we see images of wind turbines on eight occasions, and from the Life Examined exhibition we find a new proposal for harvesting rainwater. Electricity pylons, which are a common feature of the British landscape, and a much longer-standing and established infrastructure than wind turbines—the first pylon was erected in 1928 (National Grid 2014) and the first wind turbine in 1991 (Nixon 2008)—do not feature at all.

The prevalence of renewable energy in the drawings is also intriguing when we consider that it remains a minority energy source across Europe. In the UK, renewable electricity accounted for 18 % of the total electricity generated in the

third quarter of 2014, which was an increase of 4.2 % on the previous year, but coal and gas accounted for 58.5 % of electricity generated (DECC 2014). The energy mix in Europe is changing: the UK's target is for 15 % of all energy consumption to be from renewable sources by 2020 (DECC 2011) and across Europe renewables are forecast to account for 16 % of total residential energy use by 2020 (E3M-Lab 2013). However, our energy supply is still heavily dominated by fossil fuels and this is scarcely represented in the drawings. The emphasis we see on renewables is likely not to be people's lived experience. Instead, the drawings may look to the future, to imagine what will or could be, rather than intending to show what is at present, or has been in the past.

Nor is the fierce political debate that we often hear—or media coverage about the costs of energy in the UK—depicted in the images. In recent years the cost of domestic heating has become increasingly expensive and it was the subject of much public debate (see for example, Boffey 2015; Massy-Beresford 2014) over the course of the drawing study. Yet these worries or unsettling realities are not represented in the images.

Another interesting omission from the drawings is numbers (and units such as kilowatt hours). When we talk about energy, in terms of what we use and how much it costs, we typically quantify it—even our domestic bills rely on this information. Energy suppliers usually communicate to their customers in measurements—and real-time quantitative feedback for householders is a major plank of UK energy policy (DECC 2009). But apart from equations, the drawings do not portray numbers, and we therefore see no reference to one of the principal ways in which energy is talked about, or to the idea of quantities at all. This raises questions about how effective or useful quantitative metrics are for people in thinking about energy. Might other modes of communication or explanation be more valuable in engaging people in a dialogue about energy consumption? And how could we support people in thinking about the political and ecological systems in which they play a part, rather than talk to them purely about the money they owe?

14.4 Reflections

The drawings present stimulating material for considering the ways in which people currently do think about and visualise energy, and a key learning from the project was the broad scope and conceptual connections that people make beyond heat or electricity. What people have drawn in terms of technology at least, leans towards the future rather than towards the historic, but in other ways the results are more divergent. We find that across the sample the definitions of energy are varied. The drawings link to personal history and emotions, but also to infrastructure and systems. They stretch across scales, from the human and engineered, to the natural and untouched; and they are concerned with the political and environmental, the aspirational and the unique, as well as the ubiquitous and the everyday.

Building on the ethnographic research methods set out in the SusLabNWE Research Methods Toolkit, we were able to utilise the shared project approaches to identify key areas to explore further. Through interviews, design probes and logbooks we were able to identify that there was a broad spectrum of different meanings about the idea of energy and that the issue of invisibility was a significant factor in people's understanding. This led us to develop the drawing study to delve deeper into the questions around it. We therefore see the drawing study as an additional ethnographic research method, which responded directly to the findings uncovered in the first phase of work.

Perceptions of energy are, of course, very subjective. But in presenting these varied and sometimes opposing views, we think this study has reflected on some of the enormous complexities in what we often experience as simple daily realities. What has been produced is a diversity of representation, and through the associations and interpretations, we think that the study presents an exploration of how the subject of energy is culturally constructed.

We also think that designers and the energy sector should consider the imagination and creativity with which the participants in this study approached drawing energy, and that these broader interpretations and modes of visualisation might be able to transform energy systems for the better.

Acknowledgments Drawing Energy was a research study conducted by the Royal College of Art within the SusLabNWE project. The discussion of this research work presented here was originally published in *Drawing Energy: Exploring Perceptions of the Invisible*, an RCA publication produced on completion of the study. In this chapter we present our drawing study in the context of the ethnographic research methods utilised in the wider European project consortium.

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