

SOCIAL

WAYSHOWING

*A report on the potential for  
community-led, designer-enabled  
environmental graphic design*

**David Kopulos**

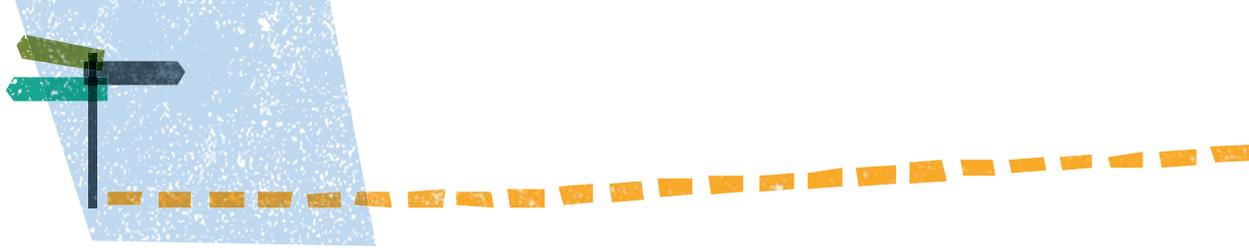
MRes Information Environments  
London College of Communication,  
University of the Arts London  
18 November 2011



# CONTENTS

ABSTRACT AND KEYWORDS	3
GLOSSARY	4
INTRODUCTION	5
THEORETICAL FRAMEWORK	7
Geosemiotics: a complementary approach	
LITERATURE AND PRACTICE REVIEW	11
Wayfinding as dynamic structuring of space	
Wayshowing and wayfinding	
Wayshowing as professional practice	
Growth of participatory, collaborative design	
Online crowdsourcing as collaborative opportunity	
Distributed intelligence offline	
Game mechanics and collaboration	
The gamification of design and research	
Wayshowing, games, and semiotics	
Opportunities for social wayshowing design	
RESEARCH DESIGN	21
Research questions	
Methodological overview	
Phase 1: pilot study, indoor wayshowing	
Phase 2: outdoor wayshowing game and focus group	
FINDINGS	27
From Phase 1	
From Phase 2	
Summary	
DISCUSSION	33
Limitations	
Intended participants: residents versus visitors	
Materials, permanence, and aggregation	
Lowering transaction costs	
An expanded definition of the sign	
CONCLUSIONS	35
Significance	
NEXT STEPS	37
Methodological toolbox and further iterations	
Motivation and crowdsourcing	
Self-sustaining social wayshowing	
LICENCE AND ACKNOWLEDGEMENTS	39
REFERENCES	41
FIGURE CREDITS	45
APPENDICES	47





## ABSTRACT

This report documents the development of *social wayshowing*, a new concept for urban pedestrian navigation. Positioned as complementary to existing, government-initiated wayshowing systems of directional signs and maps, this new process-based approach is evaluated in relation to the emerging concepts of collaborative production and gamification. A review of relevant literature and existing practice explores these concepts as both research methodologies and design approaches in the context of wayshowing. The results of this review informed an iterative series of action research activities designed to test the social wayshowing concept. For the first such activity, participants were invited to find specific destinations in an indoor setting and to make use of pre-made signs to direct others. A post-activity analysis of the signs' locations revealed distinct styles of wayshowing and the degree to which participants relied on each other's efforts to develop a cohesive wayshowing network. These findings were incorporated into the design of the subsequent research activity, which took place on the streets of London's Tower Hill area, a bustling financial and tourist district. Two teams of participants designed and installed signs to destinations they deemed noteworthy, after which they competed to follow the opposing team's signs to their intended destinations. Captured by the participants using cameras and audio recorders and analysed according to the constructivist principles of social semiotics and geosemiotics, the data generated by this game-based activity revealed the participants' close consideration of semiotic vocabulary in anticipation of how it would be reconstructed by those who followed. Strengths and weaknesses of the game-based motivational approach were also revealed, which served to indicate directions for further iterations of social wayshowing. These and other results will be assembled into a methodological toolbox, intended to equip professional designers when initiating future social wayshowing projects.

## KEYWORDS

*Social wayshowing, social semiotics, participatory design, gamification, collaborative production*



## GLOSSARY

---

<i>Aptness</i>	How a sign's design relates to what it is signifying. Sign designers determine the most apt way of communicating a message by using the symbols, etc. that will be familiar to the intended audience.
<i>Collaborative production</i>	When people cooperate to design or create something beyond what one individual could accomplish.
<i>Constructivism</i>	A theory of learning that argues that we actively 'construct' our understanding of the world by judging new information in relation to past experience.
<i>Crowdsourcing</i>	A method of outsourcing work to a networked, often unpaid group.
<i>Emplacement</i>	A sign's location.
<i>Environmental graphic design</i>	A professional discipline concerned with designing for spaces, as opposed to designing for a flat surface.
<i>Folksonomy</i>	A collaborative approach to classification or 'tagging'.
<i>Gamification</i>	Restructuring everyday tasks so they may function as games.
<i>Geosemiotics</i>	The study of how signs relate to their surroundings.
<i>Indexicality</i>	As understood by social semiotics, every sign is indexed (or, 'points') to what it is intended to signify; no sign design is arbitrary.
<i>Participatory design</i>	When the users of a design become the designers.
<i>Psychogeographic dérive</i>	A stroll without maps or destination, motivated by curiosity and a willingness to be guided by environmental cues.
<i>Semiosis</i>	The process of creating and interpreting signs.
<i>Semiotic aggregate</i>	The sum of all signs within a space.
<i>Semiotic complex</i>	An attempt to control the variety of signs within a space.
<i>Social semiotics</i>	A branch of semiotics in which all signs are considered to be the result of social processes and interactions.
<i>Transgressive signs</i>	Unofficial and unauthorised signs.
<i>Wayfinding</i>	The process of navigating through a space using maps, signs, and one's own memories and sense of direction.
<i>Wayshowing</i>	A way of assisting wayfinding by creating maps and signs, or by simply offering directions.

---



# INTRODUCTION

In recent years, governments and residents in major Western cities have begun to recognise what tourists and travellers have known for some time: the experience of navigating urban spaces on foot is often greatly improved when directional signs and installed maps are available for use. This practice of wayshowing design has been formalised within the professional discipline of environmental graphic design and is applied to entire neighbourhoods and cities as well as indoor environments and contained areas such as the grounds of world's fairs. Visual and psychological principles of wayfinding have been thoroughly documented and incorporated into wayshowing best practice, a notable recent example being the acclaimed and well-used Legible London system of signs, maps, and more (Turner, 2010). While wayshowing – as currently practised by professional

designers usually working under the commission of municipal governments – has made great strides in resolving issues of pedestrian navigation, its hierarchical organisational structure limits the eventual end users' degree of participation. The professional designer is positioned as the arbiter of what information is included in the final products. This outcome-based approach may not be fully responsive to the knowledge and needs of the communities the wayshowing tools are intended to serve. Additionally, this approach fails to accommodate the evolving needs of users and the ever-changing spaces and places it seeks to make legible. Local



**Figure 1**  
A Legible London map installation in Leicester Square.

knowledge as held by residents and users of urban spaces constitutes a largely unacknowledged resource for wayshowing information, and residents' interest in participating in projects which materially improve their community constitutes an untapped source of motivation for executing wayshowing projects.

This report documents research undertaken to activate this local knowledge and energy in the form of a process-based concept for wayshowing. Firstly, the theories of constructivism, social semiotics, and geosemiotics are unpacked to reveal the constructed, contextual nature of wayshowing and wayfinding. I apply these principles to help understand the methods with which participants construct meaning when creating and interpreting signs. The research questions for this project are then outlined and discussed, followed



by a review of relevant literature and practice. This review uncovers methodologies developed in the fields of conventional wayshowing, online collaborative production such as crowdsourcing, and game design. These methodologies are examined in relation to social wayshowing as potential tools for motivating participation and achieving a self-sustaining social wayshowing initiative. Following the literature and practice review, methodologies employed in the primary research are described and discussed, followed by an examination of how the results of each iterative cycle were applied to the subsequent iteration. The findings of this research reveal the creativity and resourcefulness of social wayshowers, their deep understanding of the established principles of wayshowing best practice as demonstrated by the surprising variety of wayshowing systems they employed, and the potential role for social wayshowing as a component of the existing semiotic aggregate. Ideas for future work are proposed, including an ethnographic approach to further iterations of social wayshowing research and further study of participant motivation in the context of crowdsourcing.

This research was undertaken in anticipation of its applicability to a variety of social issues. The navigational solutions offered by the discipline of wayshowing, along with the possibilities for collective action afforded by participatory design, as well as the potential for a self-sustaining movement afforded by game theory, can lead to a new method for tackling social issues as diverse as access to health care and social isolation. This potential is discussed in greater detail at the conclusion of this paper.



# THEORETICAL FRAMEWORK

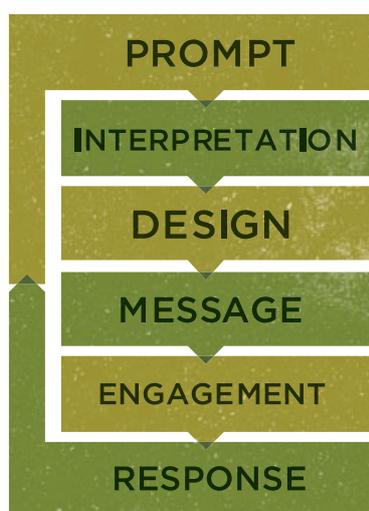
This research is fundamentally concerned with the ways in which signs can be made and interpreted in context, and methods of supporting and motivating this process. The theory of semiotics as originated by Saussure and Pierce (cited in Crow, 2003) provides a useful initial framework. Unaddressed by traditional semiotics, though, is the highly contextual and iterative, process-based nature of the acts of sign-making and interpreting which form the core of the social wayshowing concept. Social semiotics as pioneered by Halliday (1978) and further developed by Kress and Van Leeuwen (2001, 2010) offers an understanding of semiotics which is contingent on both the sign-maker and sign-interpreter’s interests, understood in game theory as their motivation for participation.

The following assumptions form the theoretical foundations of social wayshowing:

## *Semiosis as process*

Social semiotics as presented by Kress (2010, p.34) moves beyond Claude Shannon’s *sender → message → receiver* schema towards an understanding of sign-making – referred

to hereafter as semiosis, to adopt Pierce’s term – that foregrounds the sign-maker’s social context and interests. Kress (2010) identifies semiosis as an iterative process, consisting of: *a prior prompt → interpretation → a new sign based on the sign-maker’s interest and sense of audience → a message → interpreter’s engagement with it → a possible response* (see Figure 2). If the response is viewed as a potential prompt, a spiral cycle of semiosis emerges, ideally suited for the fluid roles and iterative experience of social wayshowing in which wayshowers become wayfinders and vice versa. Additionally, this process may serve as a tool for analysing social wayshowing activities; see the literature and practice review below for a deeper discussion of the spiral model of design, and the methodology section for an evaluation of its use as an analytical tool.



**Figure 2**  
The social semiotic process.

It is important to note the inclusion of the acts of interpreting and engaging with signs within this cycle of semiosis. In the context of this research, engagement with a sign constitutes wayfinding. That wayfinding is acknowledged as a central component of semiosis – which is conventionally understood as describing the process of sign creation only – is crucial to a holistic understanding of semiotics as ex-



pressed in social wayshowing. Sign creation cannot exist without interpretation and engagement (and vice versa). It is a central goal of social wayshowing to fully dissolve the boundaries between wayshower and wayfinder, as individuals switch roles as their situation demands.

### *Indexicality and aptness*

Social semiotics eschews the Saussurian categorisation of signs as either symbol (an arbitrary relationship between signifier and signified that must be learned), icon (a signifier that resembles the signified), or index (a sign that points to the signified just as dark clouds suggest rain) in favour of an understanding of a sign's form in relation to its meaning as one of aptness or best fit. Aptness is the result of the sign-maker's natural preference to employ familiar semiotic resources, which Van Leeuwen (cited in Jewitt, 2009) defines as the actions, materials, and artefacts contextually available for use in communication. The definition of what constitutes 'best fit' is left to the sign-maker but if the intended outcome is communication with the sign-interpreters, communicationally-apt signs – that is, forms which factor in the interests of the intended audience – will override other representational inclinations.

To extend the concept, aptness demands that *indexicality* is a property of all signs rather than a distinct category of sign, such as the arrow that points to its meaning (Scollon and Scollon, 2003). Social-semiotic signs are never arbitrary symbols, but through the sign-maker's interests and use of semiotic resources, are inevitably indexed to their intended meaning.

### *Constructed meaning*

Constructivism as proposed by Piaget (1995) provides a useful starting point for this research. It asserts that learning can be understood as an active process of constructing knowledge in which new information is judged in relation to past experience. A constructivist interpretation of semiosis would suggest that meaning is constructed individually from the social and physical context in which experiences take place, as well as from a previously-formed world-view. Constructivism affirms the validity of an individual's cognitive map (discussed below) and thus validates this project's basis in aggregating the individual's knowledge.

### *Multimodality*

Multimodality is a central concept for social semiotics. It foregrounds the affordances of modes such as colour and layout, and elevates these and other modes as equal to language in their ability to communicate. In this way, social semiotics acknowledges the contextual nature of the modal choices – paper versus pavement chalk, text versus icon – made by sign-makers. Different modes lend themselves to different "semiotic work" since each has different "potentials for meaning" (Kress, 2010, p.1). When analysing social wayshowing activities, a consideration of modal affordances yields a useful view of what the participants felt it was possible to express and represent within the available modes, and how modes combine to reinforce, complement, or dominate each other (Kress, 2001). Additionally, modes employed in sign-making constitute "material residues of a signmaker's interests" (Jewitt, 2009, p.30). Understanding that interest is crucial to successfully evaluating iterations of social wayfinding.

### *A democratic definition of the designer*

Design plays a vital role in social semiotics. Far from the conventional view of design as a practice of trained professionals, social semiotics considers design to be a universal act, fundamental to all sign-making that makes visible an individual's semiotic interests and asserts an individual's "interest in participating...in the social and communicational world" (Kress, 2010, p.23). In short, design is the tool employed by everyone through which meaning becomes message. A democratic definition of design is crucial to social wayshowing, wherein all participants are designers, and professional designers serve as a supporting resource.

### **GEOSEMIOTICS: A COMPLEMENTARY APPROACH**

"Much of semiosis is about linking," observes Kress, "through actions, adjacency or proximity, temporal or spatial" (2010, p.119). Kress identifies the key role played by a sign's physical context, and the fact that much of a sign's meaning is contextually-based. Nowhere is this more the case than with wayshowing/wayfinding. Geosemiotics as defined by Scollon and Scollon (2003) offers a view of semiotics inextricably linked to its physical context by focussing on a sign's *emplacement* – that is, a sign's location in the world – and the meanings that result. From a geosemiotic perspective, a sign's links to the world constitute an additional mode with its own affordances for communication. The geosemiotic concept of exophoric indexing, that is, information necessary for constructing a sign's meaning but situated outside the sign (such as the placement of an exit sign suggesting "exit this way") makes clear the importance of a sign's emplacement, as the sign's meaning is changed when it is removed from the context for which it was designed. Combining the complementary perspectives of social semiotics and geosemiotics permits an examination of the social meanings of the links between a sign and its physical context. This approach is crucial to understanding the processes at work within social wayshowing.

### *Contributing to the semiotic aggregate*

Sub-concepts within geosemiotics offer additional tools for understanding how social wayshowing is positioned in relation to existing wayshowing systems. The semiotic aggregate, for example, describes the convergence of semiotic discourses within an environment (Scollon and Scollon, 2003). While these discourses – regulatory signs, advertisements, and street performers, to name but a few – may appear to have little to say to each other, Scollon and Scollon assert that together they form a composite, intertextual message about the space itself. This composite message is a desirable outcome for social wayshowing, whose purpose is not only to guide wayfinders but also, through the community participation it encourages and the changes to the visual environment it effects, to encourage a sense of ownership of, and pride in, public spaces.

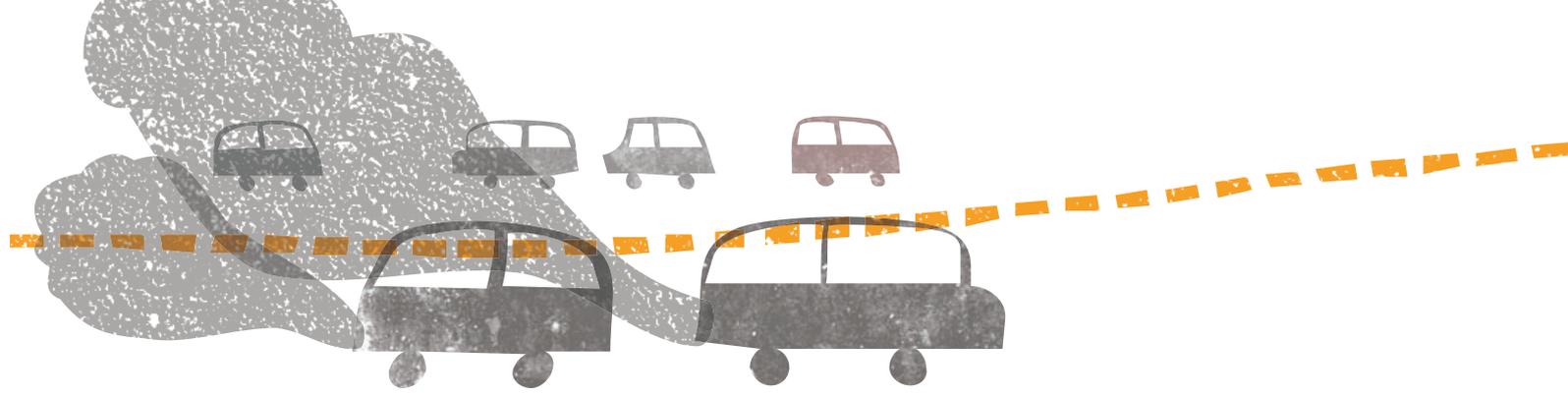
### *A performative process*

Jones identifies semiosis as a fundamentally performative process, with the sign functioning as a "site of display" (Jones, 2009, p.114) mediating the interaction between sign-maker and interpreter. This performative semiosis serves as a useful starting point for examining issues of motivation in social wayshowing. After all, signs are made for the benefit of others. Social wayshowing is a public act through which knowledge is performed, and the



desire to leave a trace of one's presence in a space can motivate continued participation (Shirky, 2009). Understood in the context of MacGonigal's (2011) notion of a feedback system of intrinsic reward as a defining trait of games (discussed below), the performative aspect of semiosis serves as a powerful mechanism for sustaining semiotic activity.

When considered as complementary approaches for understanding how meaning is constructed in the environment, social semiotics and geosemiotics provide important tools for evaluating social wayshowing.



# LITERATURE AND PRACTICE REVIEW

**A**s areas of study with potential for convergence, the fields of wayshowing/wayfinding, participatory design, and game mechanics have only recently been linked through forward-looking practice and research. This review examines the individual origins of these fields, relevant approaches to help identify common ground between them, and emerging practices which may be built upon by social wayshowing.

## WAYFINDING AS DYNAMIC STRUCTURING OF SPACE

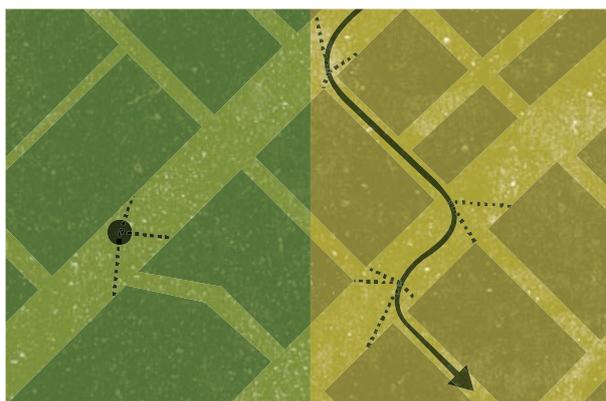
Having emerged out of early 20<sup>th</sup> century neuropsychological research (Arthur and Passini, 2002), the study of the human spatial sense is a well-established practice. Research focused initially on the concept of *spatial orientation* (Arthur and Passini, 2002) – that is, one’s static relationship to physical context. Attributed to a “common-sense knowledge of geographic space” by Raubal, et al. (1997, p.85), Jonsson (2002) attributes it more

specifically to *dead reckoning*, a term widely associated with maritime navigation that Jonsson applies to the mind’s innate capacity for estimating one’s position and orientation.

Lynch (1960) pioneered a dynamic understanding of our relationship with space, as when individuals iteratively calculate their position in relation to their destination over the course of a journey (see Figure 3). Dubbed *wayfinding*, research into the cognitive processes it involves have centred primarily on the concept of cognitive mapping. Jonsson

describes the cognitive map as an innate “sense of direction” (Jonsson, 2002, p.325) generated unconsciously by comparing one’s position and orientation to distinct environmental cues such as landmarks and sight lines. That one’s cognitive maps are based to a great extent on landmarks was demonstrated through the disorientation experienced by residents of Joplin Missouri, after a May 2011 tornado destroyed most of the town’s distinguishing features, leaving long-time residents to rely on designed wayfinding tools such as street signs for the first time (Barry, et al., 2011) (see Figure 4).

Lynch (1960) and Jonsson (2002) both identify the term *cognitive map* as ultimately mis-



**Figure 3**  
Spatial orientation (left) as a static relationship to space versus wayfinding (right) as a dynamic, iterative relationship.



leading, for unlike a conventional map, a cognitive map is formed of a series of discrete images. Alexander et al. (1977) provide a framework for viewing the cognitive map as a response to discrete mental images formed of contextual information by assembling these images into patterns. The authors propose a vocabulary formed of these elements that can be employed by designers and builders in the manner of a written language to aid (or frustrate) wayfinding.



In contrast to the structuring of context based solely on the surrounding environment as implied by Alexander et al., Raubal et al. (1997) suggest that constructed experiences form the primary unit of the wayfinder's structuring of space. These experiential patterns – or *image schemata* – should be analysed through subdivision into their component tasks, thus emphasizing the individual, contextual, constructed nature of wayfinding.

**Figure 4**  
A lack of landmarks in post-tornado Joplin, Missouri frustrated the wayfinding efforts of longtime residents.

Similarly, Arthur and Passini (2002) view wayfinding as a task-based process of spatial problem-solving consisting of decision-making, decision execution, and information processing. In contrast, space syntax introduces randomness and an exploration-based perspective to the study of wayfinding behaviour (Penn and Turner, 2002). It allows for 'unprogrammed' behaviour unaccounted for by task-based models. Space syntax provides a useful tool for modelling wayfinding journeys in which there is no set destination and the wayfinding process is based on incidence and emotional attractors often associated with the psychogeographic *dérive*.

## WAYSHOWING AND WAYFINDING

Whereas wayfinding is often used as a blanket term to describe the act of seeking a destination as well as the designers' practice of facilitating this act, Mollerup (2005) distinguishes between the user's process of wayfinding and the designer's act of wayshowing, defining two separate processes involving discrete skills and theoretical approaches. Describing the distinction in terms of production and consumption, Mollerup explains that "wayshowing relates to wayfinding as writing relates to reading and as speaking relates to hearing. The purpose of wayshowing is to facilitate wayfinding. Wayshowing is the means. Wayfinding is the end" (Mollerup, 2005, p.11).

This distinction can be understood in terms of the principles of semiotics as proposed by Saussure (cited in Crow, 2003), in which a signifier is selected to 'show' the signified. The meaning of the signifier is constructed in a separate act from the search for the signified.

While Mollerup's distinction between wayshower and wayfinder brings clarity to the designer's and user's conventional roles, it imposes a division of expertise and inequality of agency between the professional designer and the amateur user. Within this understanding, the designer is the gatekeeper (Shirky, 2009) and semiosis is a one-way process, communicating meaning from the voice of authority to the user by way of the designer. This



power imbalance invites a semiotic complex in which the aggregation of signs is limited to produce a unified system, potentially to the exclusion of other voices (Scollon and Scollon, 2003). Northover (2011) identifies and emphasises the variety of voices present in the wayfinding devices that populate our spaces. Noteworthy for the purposes of social wayshowing is the voice of incidence, in which the messages of wayfinders themselves are made visible through unofficial, often improvised signs created to fill gaps in official systems. Similarly, Scollon and Scollon (2003) define these *transgressive signs* by their ‘marginal placement’ and unauthorised presence. By addressing unmet needs, these self-appointed wayshowers close the semiotic and participatory gulf between wayshowing and wayfinding, between the production of signs and their consumption. The result is a semiotic aggregate of discourses, which Scollon and Scollon (2003) claim as a defining trait of urban space.

### WAYSHOWING AS PROFESSIONAL PRACTICE

The practice of designing systems to aid in wayfinding has become formalized within the discipline of environmental graphic design as practised by studios such as applied wayfinding information design and Cartledge Levene. These firms maintain a practice grounded in research, drawing from perceptual, behavioural, and spatial analysis. Pullman (cited in Gibson, 2009, p.7) identifies this user-centred, research-based approach as crucial to generating a wayshowing product that is relevant and useful to the user: “it is easy to assume that because the placement or content of a sign is obvious to the designer... that the end user will find it obvious too”.



**Figure 5**  
Mollerup's four categories of environmental signs. Clockwise from top left: direction, identification, regulation, description.

The outcomes of wayshowing design are expressed notably in urban centres, on inter-city highways, and within semi-public buildings such as airports and hospitals. They include maps and signs to serve the purposes of identification, direction, description, and regulation (Mollerup, 2005) (see Figure 5). Raubal et al. (1997) and Arthur and Passini (2002) identify the primacy of architecture and spatial layout in facilitating wayfinding. They view installed signage as a last resort, to be employed when a space's architecture itself cannot effectively function as a sign to guide users with

legible architectural cues. This philosophy was adopted by the designers of Legible London (Applied Information Group, 2006), a wayshowing system consisting most visibly of ‘monolith’ sign and map columns installed on walkways (see Figure 1). Widely used and highly praised, this multimodal system is built upon the most recent wayfinding theory and includes graphical, material, and conceptual innovations to best assist the wayfinding processes of both residents and tourists.

### GROWTH OF PARTICIPATORY, COLLABORATIVE DESIGN

In response to the largely unaddressed vernacular wayshowing practised by non-professionals, this paper proposes a merging of wayfinder and wayshower in the form of an

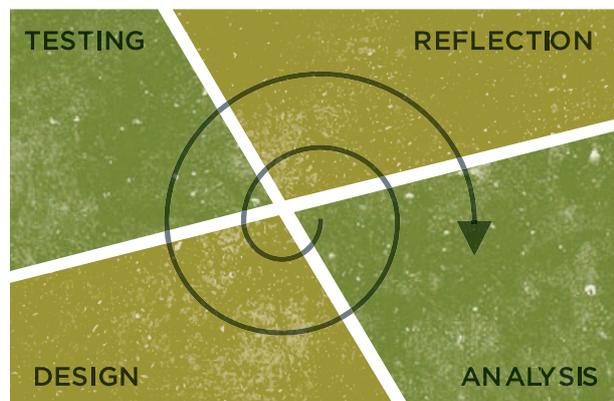
empowered public, equipped and supported by professional designers in order to create wayshowing systems. This participatory approach to wayshowing is largely overlooked in current literature and practice but draws from accepted research and practice in other fields such as participatory design, or PD.

The concept of user participation in design was pioneered in Scandinavia in the 1960s as an inclusive, politically-motivated movement to empower workers to fully participate in the design of the tools they would use (Francis, 1983). Though PD has influenced landscape design, architecture, and other fields, the majority of PD methodological research remains focussed on software design. Known variously as co-design, community design and collaborative design, PD differs from user-centred design in that the process of user participation is itself an important outcome, rather than simply a method for tailoring a product to the user (Brandt, 2006; Francis, 1983). Francis specifically identifies community pride and self-esteem as benefits of PD.

The role of the professional designer in PD is necessarily different from the conventional model. Francis views professional designers as listeners whose primary role is to anticipate and assess the effects of design decisions, to translate PD activities into plans, and to facilitate evaluation and reflection, which he views as crucial elements of PD.

Participatory design lends itself to iterative methodologies, such as Boehm's spiral model of design (cited in Hansen, 2006) (see Figure 6). In this model, the design process unfolds as a set of iterations, each involving problem analysis, a design response, testing, and reflection. Opportunities for participatory and professional design are present throughout.

Although an advocate for its potential, Francis (1983) identifies a weakness in the PD approach in the difficulty of ensuring all community voices are represented. It is often impossible to secure complete community participation, problematising PD's strength as a tool for incorporating minority voices. Schuler (n.d.) notes that "higher quality of the end product cannot be guaranteed" by PD, thus emphasising the PD process itself as being as important as the designs it produces.



**Figure 6**  
Boehm's spiral model of design.

Other approaches to collective and collaborative production such as crowdsourcing avoid this issue by encouraging self-selection, utilising the contributions of a large, diverse group of motivated individuals to provide the necessary diversity to generate inclusive, superior results.

## ONLINE CROWDSOURCING AS COLLABORATIVE OPPORTUNITY

As with the philosophy and methodology of PD, crowdsourcing has grown in parallel with advances in networked digital technology. The term is generally defined as a problem-solving model that "harnesses the creative solutions of a distributed network of



individuals” (Brabham, 2008, p.76). As a subset of collaborative production or peer-production (Tapscott and Williams, 2006), its origins can be traced to the anti-hierarchical theories of economist Frederich Hayek and concepts of distributed cognition developed in the 1990s (Nardi, 1996). Crowdsourced tasks may be performed collaboratively as with the multiple editors of Wikipedia articles, or individually as in the case of 99designs, discussed below. According to the term’s originator, “the crucial prerequisite is the use of the open call format and the large network of potential laborers” (Howe, 2006 cited in Brabham, 2008, p.76).

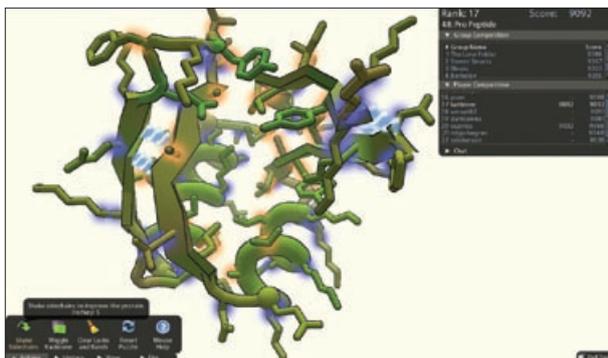
Brabham (2009) explicitly identifies crowdsourcing as a method of extending PD and enabling citizen participation in public planning processes. “At most, public participation can be seen as a logical extension of the democratic process in more local, direct, deliberative ways” (Pimbert and Wakeford, 2001 cited in Brabham, 2009). At the very least, involving citizens in the planning process helps ensure an outcome that will be more widely accepted by its future users (Burby, 2003; Brody et al., 2003; and Mirafteb, 2003 cited in Brabham, 2009).

In contrast to Brabham’s perspective, Shirky (2009) foregrounds the role of technology in affording collaborative production such as crowdsourcing. For Shirky, it is the internet and related digital communication tools which permit “the self-synchronisation of otherwise latent groups” (Shirky, 2009, p.39). The easy, instant communication afforded by digital technology minimises the time and energy required to participate (known as *transaction costs*), a crucial aspect of successful collaborative production.

This perspective is limited in what it can offer to social wayshowing, which I have deliberately avoided integrating with digital technologies such as smartphones, in part in order to avoid participatory gulfs between those who carry the required technology and those who do not.

Shirky does identify the crucial role played by a functioning community in defending crowdsourced projects, citing the potential for information vandalism that would render Wikipedia unusable were it not for a dedicated community of participants. Shirky goes so far as to describe participation in collaborative production as an act of love for the project and for the other members of the community, within the context of the project.

**Figure 7**  
Screenshot of foldit  
protein folding  
puzzle.



Well-known examples of crowdsourcing include the aforementioned Wikipedia online encyclopedia, with over 3 million articles written and edited by millions of participants worldwide (Wikipedia, *Statistics*, 2011). Crowdsourcing has also been employed to classify thousands of images from the Hubble Space Telescope ([www.galaxyzoo.org](http://www.galaxyzoo.org)), and to discover the best configurations for folding proteins ([www.fold.it](http://www.fold.it)), a crucial but laborious step toward curing a variety of diseases and disorders (see Figure 7).

Within the field of wayshowing, OpenStreetMap ([www.openstreetmap.org](http://www.openstreetmap.org)) is an open-source digital world map similar in functionality to Google Maps (see Figure 8). By encouraging crowdsourced modification, OpenStreetMap has become a dynamic, collaborative representation of a cognitive map.

Brabham (2008) attributes crowdsourcing's success to the benefits of aggregating (as opposed to averaging) knowledge held collectively by society. The resulting creative output "outperforms industry faster and cheaper than even the top minds in the fields" (Brabham, 2008, 79). Its unique appeal to participants stems from the intrinsic rewards it offers, a concept discussed below. MacGonigal (2011) notes that collaboration can be harnessed effectively only under certain conditions and when initiated within certain constraints:

It requires three distinct kinds of concerted effort: cooperating (acting purposefully toward a common goal), coordinating (synchronizing efforts, sharing resources), and co-creating (producing a novel outcome together). This third element, co-creation, is what sets collaboration apart from other collective efforts: it is a fundamentally generative act. Collaboration isn't just about achieving a goal or joining forces; it's about creating something together that it would be impossible to create alone. (MacGonigal, 2011, p.268)

In contrast to the initiatives cited above, graphic design-based crowdsourcing has met with less success and raises troubling ethical issues. Crowdspring ([www.crowdspring.com](http://www.crowdspring.com)) and 99designs ([www.99designs.com](http://www.99designs.com)) operate as online forums for clients to solicit logos and other graphic designs from the crowd through contests. Cash 'rewards' offered to the winning entrant typically amount to a fraction of the fees required by professionals, and the quality of the resulting designs has been widely questioned. And yet, the inevitability of collaborative methods in the design disciplines has been predicted by designer Bruce Mau:

Advanced design today is dominated by three ideas: distributed, plural, collaborative. It is no longer about one designer, one client, one solution, one place. Problems are taken up everywhere, solutions are developed and tested and contributed to the global commons, and those ideas are tested against other solutions. (Mau, 2004 cited in Brabham, 2008, p.75)

Wikipedia's own article on crowdsourcing describes the weaknesses of this approach, including the potential for lower quality of work and a "susceptibility to faulty results caused by targeted, malicious work efforts" (Wikipedia, Crowdsourcing, 2011), a phenomenon identified by Howe (2006 cited in Brabham, 2009) as *crowdslapping*.

Also significant is the inherent power imbalance between those who commission or 'design' crowdsourcing projects and those who participate in them. Additional issues include the lack of compensation for tasks that would otherwise be completed by paid professionals,



**Figure 8**  
Screenshot from  
OpenStreetMap.

and in contrast with true open-source production, poor protection for the creator's intellectual property claims on the finished product. Brabham (2008) rebuts such criticisms, citing the popularity of crowdsourced projects and the reasons volunteers offer for their enthusiastic participation.

## DISTRIBUTED INTELLIGENCE OFFLINE

As suggested above, the vast majority of crowdsourcing initiatives exist primarily or entirely online, supported by 'collaborative infrastructures' such as the internet (Tapscott and Williams, 2006) which afford knowledge aggregation between geographically-dispersed individuals. Far fewer projects have attempted offline crowdsourcing, and little research exists in the realm of offline *distributed intelligence*, a term developed by Lévy (1997

cited in Brabham, 2008) to describe the fragments of knowledge held by individuals that can be usefully assembled by collaborative efforts. A notable offline project with ties to design and wayshowing is The Walking Papers project (walking-papers.org) (see Figure 9). After hand-annotating custom printouts of OpenStreetMap sections *in situ* with details such as shop locations, participants upload their maps to be integrated by others into the master OpenStreetMap. The Walking Papers provides a method of harnessing offline distributed intelligence by affording participation among those not comfortable with digital technology.



**Figure 9**  
Printout of OpenStreetMap of La Paz, Bolivia, annotated for The Walking Papers project.

A number of social problems with political and economic implications present opportunities for the harnessing of distributed knowledge. Guo (2011) notes the surprising number of journeys on London's Underground network which follow a longer route than necessary, thus adding to the system's congestion and necessitating expensive expansion. Implicated is the system's diagrammatic but geographically inaccurate line and station map. A potential solution rests in the knowledge of the most efficient routes, currently fragmented amongst the majority of the travellers.

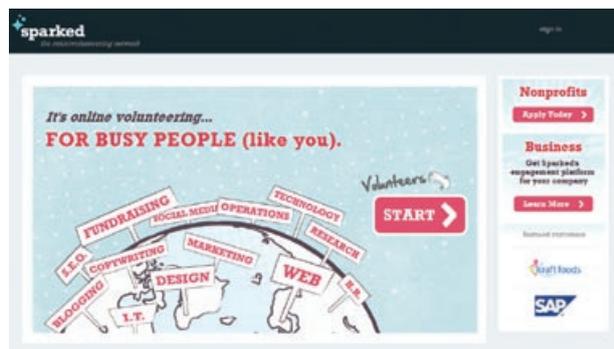
## GAME MECHANICS AND COLLABORATION

The principles that define crowdsourcing rely to a great extent on the mechanics of games. Long employed as a legitimate method of qualitative data collection within research, games have only recently been identified as a useful organizing method for solving broad social issues. We are currently witnessing the gamification of society, in which real-world tasks and systems are restructured by those who understood from childhood the pleasure of gameplay and now seek to apply its underlying principles to the wider world.

At their most basic level, games consist of four defining traits: a goal, rules, a feedback system, and voluntary participation (MacGonigal, 2011). Shirky (2009) and MacGonigal identify intrinsic rewards as the game player's primary goal – be it a desire for satisfying work, to contribute to a greater whole, to use and show off one's knowledge, to leave a

personal mark, or to create a social connection. It is worth noting that these motivators to gameplay comprise a mix of selfish and unselfish goals. Returning to a game's defining traits: the rules function as 'unnecessary' obstacles or constraints, without which no game is possible. It is important to note that it is these principles of game mechanics, not the medium of the game's delivery, that define gameplay.

A notable example of gamification for behavioural or social change is *Chore Wars* ([www.chorewars.com](http://www.chorewars.com)) which effectively motivates household chore completion by re-framing it as a competition between family members. Similarly, a game called *Sparked* facilitates Good Samaritan behaviour among strangers linked by mobile phone ([www.sparked.com](http://www.sparked.com)) (see Figure 10). As in all successful gamification cases, modes of behaviour from familiar games are applied to other situations where enthusiastic participation is considered desirable. MacGonigal attributes the success of gamification to the way in which games are “fulfilling genuine human needs that the real world is currently unable to satisfy”. She continues, “games are providing rewards that reality is not. They are teaching and inspiring and engaging us in ways that reality is not. They are bringing us together in ways that reality is not” (MacGonigal, 2011, p.4).



**Figure 10**  
Screenshot from the Sparked online volunteering game.

## THE GAMIFICATION OF DESIGN AND RESEARCH

The use of scenario games in exploratory design research is widespread (Iversen and Burr, 2002). Schön notes the crucial role played by simulation in scenario games and its relevance to design: “Scenario constructing is a design move in the sense that it restructures the current situation to provide new insights” by abstracting complex problems to their essence (cited in Brandt, 2006). Brandt notes that the structured participation afforded by games provides “the possibility to create an environment that is manipulable and well bounded” (Brandt, 2006, p.2).

## WAYSHOWING, GAMES, AND SEMIOTICS

Wayshowing is a component of many games, from wilderness orienteering to childhood cries of “warmer, warm, very hot” and “Marco!” “Polo!” Games intersect with the contemporary practice of wayshowing in terms of semiotics and simulation as well as the physical space created through the act of playing. To play a game is to navigate through these gamespaces (Borries et al., 2007) with the game's rule-makers serving as wayshowers. The Big Urban Game (Borries et al., 2007, p.390) – in which the landscape of Minneapolis was transformed into a gameboard – serves as a visceral and literal example of this transformation (see Figure 11).



**Figure 11**  
A gamepiece from the Minneapolis Big Urban Game.



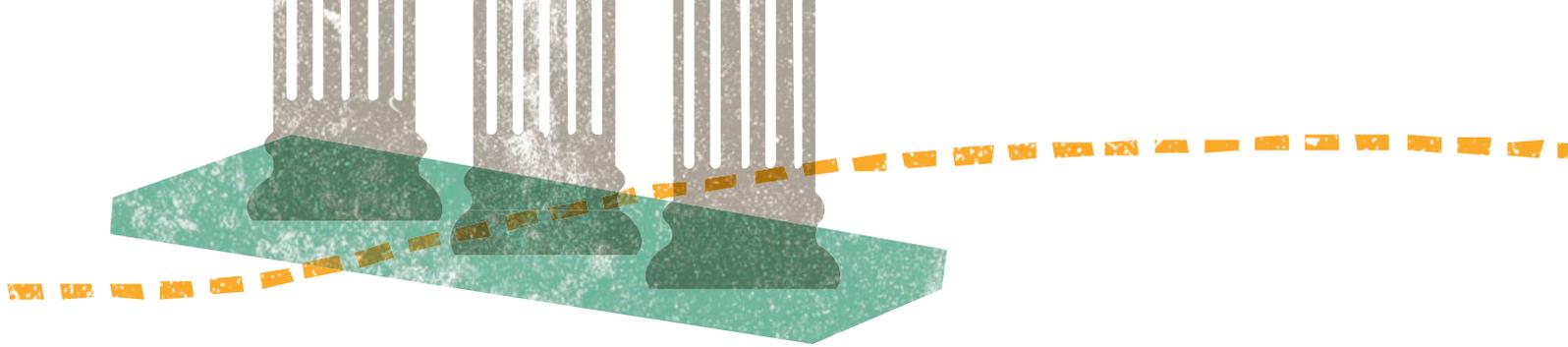
That games create or simulate space is a concept familiar to professional wayshowing designers, as their practice of placemaking and conceptual sign creation is fundamentally an act of simulation. Umberto Eco (cited in Crow, 2003) draws a connection between semiotics and game mechanics by way of an open interpretation of signs. When openness is facilitated through a non-prescriptive relationship between signifier and signified, searching for associations becomes a game of “pleasure and surprise” (Crow, 2003, p.176). By creating signs with an “abundance of possible meanings”, the act of wayfinding becomes a game itself.

### **OPPORTUNITIES FOR SOCIAL WAYSHOWING DESIGN**

I have defined wayfinding as primarily an individual, cognitive process, conventionally facilitated by a hierarchical process of design. The studies and practices discussed above identify and employ participatory, collaborative and game-based approaches as methodologies for motivating and facilitating collaborative, social activity within a variety of fields. The spatial and semiotic dimensions of games in particular suggest unique connections to the act of wayshowing. By re-imagining the act of wayshowing as an aggregation of collective knowledge, it merges with wayfinding to become a generative, social game of problem-solving and sign creation and interpretation.

These concepts form the philosophical core of social wayshowing and serve as the context for the primary research activities described below, in which social wayshowing as a practice is developed and evaluated.





# RESEARCH DESIGN

## RESEARCH QUESTIONS

**A**s discussed in the literature and practice review, links between collaborative production, gamification, and semiosis have only recently been identified. Evaluating the effectiveness of employing and combining these approaches in the context of social wayshowing constituted a primary goal of the research summarised in this report. The following questions were developed to provide a framework for this process of evaluation:

*Can methods of enabling crowdsourcing, structuring games, and supporting participatory design be employed to generate a methodology for initiating community-led urban wayshowing? What role can and should the graphic designer play in such a methodology? How can this collaborative approach be applied to other socio-spatial issues?*

It was my hypothesis when undertaking this research that well-structured games can serve to motivate participation in crowdsourced wayshowing, and that the professional environmental graphic designer can enable and facilitate this approach by acting as a game designer, as opposed to an information gatekeeper. The final question above addresses ways in which this research can apply to a wide range of issues facing communities which nonetheless contain a spatial element. This led to an additional hypothesis that the methodologies developed through this research can be applied to social issues beyond that of effective navigation.

## METHODOLOGICAL OVERVIEW

Primary research proceeded in two phases in order to iteratively develop and evaluate appropriate methodologies. This approach follows Boehm's spiral model of design (cited in Hansen, 2006) and reflects the process-based, cyclical nature of participatory design (Brandt, 2006; Francis, 1983) and social semiosis (Kress 2010).

Phase 1 constituted a pilot activity in which participants were asked to find certain locations within a building and to direct those who followed using standardised signs. Parameters such as time, materials, and geographic scope were controlled by design; the study was intended primarily to indicate methodological strengths and weaknesses to be incor-



porated into the following phase. By viewing the placement of the signs as a feedback system and analysing the geographic relationships between and within the sign trails as a method of discerning the wayshowers' thought processes, unexpected wayshowing patterns emerged which influenced the design of the second research phase.

The second phase of primary research was designed to build on the results of the previous phase by expanding its scope and scale. Teams of participants followed a predetermined route through an urban setting; they were instructed to observe and explore and to design and install signs to guide the opposing team to the noteworthy destinations they found. A focus group discussion with the participants followed, which served to move forward the spiral of reflection and action by soliciting evaluative feedback and discussion of the viability and potential of social wayfinding.

### *Approach*

The research activities could be considered action research (Robson, 2011) in that they served to evaluate a system prior to its implementation. The format of the activities was based on the principles of experience prototyping (Buchenau and Suri, 2000), an accepted research practice in service design in which actions and activities, rather than physical artefacts, are prototyped. The activities of both phases were designed to reflect spatial games such as hide-and-seek that would be familiar to the participants.

## **PHASE 1: PILOT STUDY, INDOOR WAYSHOWING**

### *Purpose*

This activity was designed to engage with attendees of the *Ziggurat* study day at the London College of Communication on 13 July 2011, to introduce participants to the concept of social wayshowing, and to serve as a pilot study for future phases of primary research.

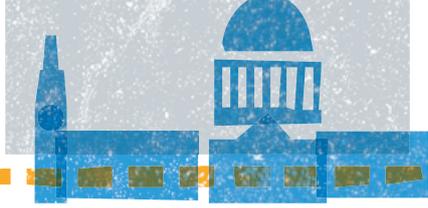
### *Format*

The activity was introduced to the approximately 40 attendees of the study day through a discussion of crowdsourcing and potential links with wayfinding theory and practice. The attendee group was comprised primarily of academics, designers, and other creative professionals between the ages of 20 and 60.

Attendees were invited to use the toilet facilities during the subsequent break but were not informed of the facilities' precise locations; only that a few exist at relatively equal distances in all directions. Those seeking the facilities were invited to generate their own wayshowing system for the benefit of the other attendees by installing temporary Post-it Note arrows along their route: blue arrows for Gents, pink arrows for Ladies. It was suggested that participants find their way using both architectural cues and by asking people they encountered for directions.

### *Outcomes*

The primary outcome of this activity was a diagrammatic map of arrow locations, which afforded analysis of the geographic position and orientation of the arrows and the patterns and systems they generated (see Appendix A). The findings of this analysis served to indicate directions for the next phase of primary research; their applicability beyond this use is



limited as their validity may be compromised by a variety of factors, including small sample size, the self-selection of participants, and previous familiarity with the surroundings. Nevertheless, the data suggest the importance of trust in the wayshower-wayfinder relationship, as well as the potential for interdependent wayshowing networks. Additionally, the results demonstrate the value of a well-defined activity which is closely aligned with participants' existing patterns of behaviour. These findings formed the basis of the second phase of primary research.

## PHASE 2: OUTDOOR WAYSHOWING GAME AND FOCUS GROUP

### *Purpose*

This research phase built upon the results of the preliminary activity described above by broadening its scope and introducing additional concepts such as group-based social interaction and gamification. The activity which formed the core of this research phase took the form of an urban outdoor game similar in some respects to a treasure hunt. Given a map of a predetermined route through the city, participants were divided into two teams and asked to identify noteworthy destinations and to design signs to guide the opposing team to them. When viewed from the process-based perspective of PD, the central out-

comes of this activity were the opportunity for participatory curation of local social semiotic resources, to permit a new form of play in physical space, and to provide an opportunity to question the voice of authority in existing urban signage.

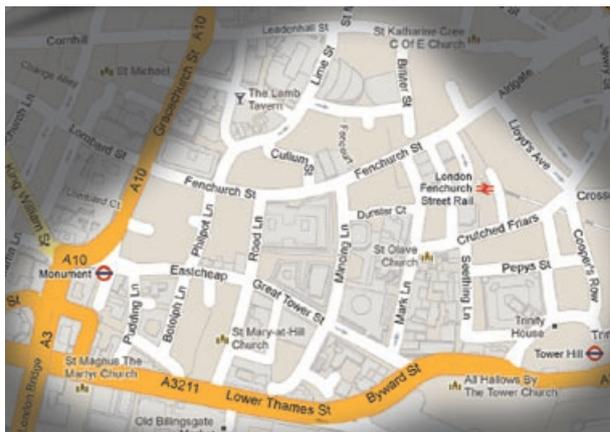
### *Site Description*

The wayshowing activity took place in an area of approximately 0.4km<sup>2</sup> – traversable on foot in about 10 minutes – in the south-eastern region of the City of London, bounded roughly by Leadenhall Street, Tower Hill Underground Station, the Thames River, and London Bridge (see Figure 12). Notable as the site of headquarters for financial institutions such as Lloyd's and bordering tourist attractions such as The Monument and the Tower of London, the area contains a wide variety of other destinations, from a historic market and a university to notable Saxon and postmodern architecture. In addition to these attractions and the rich opportunities for wayshowing they afford, this area was also selected due to the presence of All Hallows by the Tower church, members of which formed the nucleus of the participant group. That the area is currently in a state of wayshowing flux – under review by Transport for London for the implemen-

tion of the Legible London wayshowing system (Grewal, 2011) – served as an extra incentive for undertaking research here.

**Figure 12**  
Map of the Phase 2 research site.

© 2011 Google.  
Map data © 2011  
Google, Tele Atlas.



**Figure 13**  
Cullum Street: an example of the typical streetscape within the research site.



### *Sampling strategy*

As opposed to the indoor pilot study described above, the selection of participants for this activity constituted an important aspect of the study's methodology. Participants were primarily recruited for their social ties to the area and/or to each other. Ties to the area were deemed important on the assumption that knowledge of the surrounding neighbourhood would be desirable for familiarity with a greater variety of destinations, and previous social contact between participants was sought in order to foster group cohesion in the research activities described below. The participant group consisted of two men and three women, aged approximately 25-40. Achieving a representative sample of the site's population and users (with regard to ethnicity, income, etc.) was not deemed to be a priority; this research was intended in part to evaluate approaches for enabling crowdsourced activity, and the communities that form around collaborative projects such as crowdsourcing tend to self-select based on their interests rather than their demographic traits.

### *Format*

Participants were invited to take part in a "morning of friendly competition as teams of participants compete to guide each other through the streets of Tower Hill", as it was described in the Participant Information Sheet. Participants assembled at All Hallows church and were divided into two groups on the basis of their familiarity with the site, with the goal of ensuring that both teams consisted of both local 'experts' and novices. The research activity was designed to be experienced by the participants as a game; participants were organized as players on a team, with the research site as a gameboard. Following MacGonigal's (2011) defining traits of games, the activity was introduced to the players in terms of a goal (collect the most points by finding and signing the most noteworthy destinations), rules (follow the route on the provided map within a set time, use only the materials provided without recourse to digital wayfinding aids such as smartphones), and a feedback system (the other team will follow your route and attempt to find your signed destinations).

These constraints notwithstanding, players were given considerable latitude for executing their tasks. Firstly, participants were encouraged to experiment with the methods and strategies of wayshowing they employed, and to be creative in their use of the provided sign-making materials, which consisted of multicoloured chalk, white adhesive labels, permanent marker, pen, magnets, Post-it Notes, and multicoloured plastic tape (see Figure 14). These materials were intended to permit the wayshowers to employ different modes in their processes of semiosis, including text, colour, image, and scale. Additionally, the definition of a 'noteworthy destination' was left intentionally ambiguous, permitting the teams to determine for themselves what constituted a noteworthy destination.



**Figure 14**  
Contents of the materials kit.

At the conclusion of the game, participants reflected on the experience in an hour-long focus group session led by the researcher. This served as a flexible, inclusive opportunity



(Robson, 2011) for the researcher and the participants to collaboratively evaluate this iteration of social wayshowing by highlighting methodological strengths and weaknesses (see Appendix H for a full transcript of the researcher's questions and the participants' responses and discussions).

### *Participant roles*

Each team was asked to assign the roles of Photographer, Recorder, and Navigator to its members based on experience and interest. This act of self-selection broadly parallels the specialization common to online collaborative acts, in which group members spontaneously divide their labour based on their expertise and interest (Shirky, 2009). Photographers were instructed to take photos of their experiences during the game using the provided digital cameras, and Recorders were provided with portable digital dictaphones and asked to capture the team's conversations for the duration of the game. Navigators took charge of the route map and also carried and managed the materials kits.

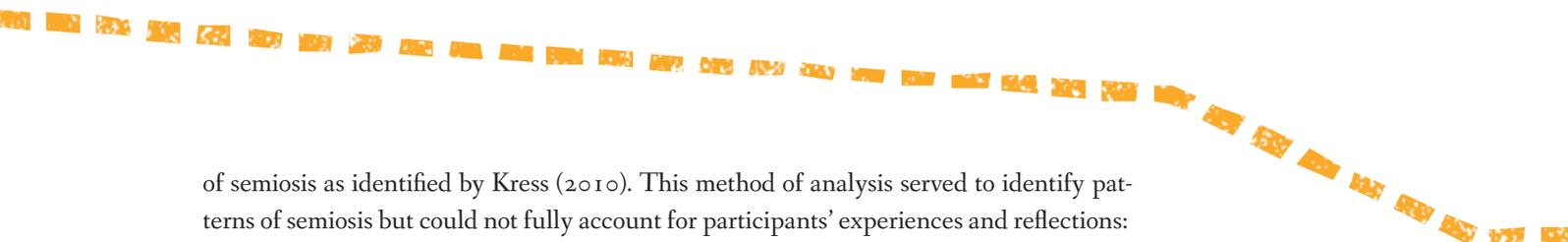
### *Methods of data collection*

A multimodal approach to data collection placed equal emphasis on visual artefacts and audio transcripts. Cameras and recorders permitted the participant teams to create a multimodal documentary record of their processes of semiosis. Collected data consisted of photos and audio recordings captured by the game players, as well as the provided route maps which the teams annotated with sign and destination locations. For the second half of the activity, teams were also asked to take down and collect the signs installed by the opposing team. An audio recording of the subsequent focus group session was also captured and transcribed. All collected data was coded with a prefix to identify its type ("T<sub>1</sub>R" and "T<sub>2</sub>R" for Team 1 or Team 2 conversation transcripts, "F" for the focus group transcript, and "T<sub>1</sub>Pic" and "T<sub>2</sub>Pic" for photos captured by both teams) and a number to identify the individual transcript line or photo. This multimodal data was analysed in order to reconstruct the context and process of semiosis as experienced by the two teams. The specific methods employed for this analysis are described below.

Patterns of data collection equipment usage differed between the two teams, yielding unequal quantities of raw data (measured in minutes of recorded audio and numbers of digital photos taken). Team 1 recorded a majority of their journey and as a result, the audio data captures incidental sounds and conversations between team members not specifically directed at the dictaphone. Team 2 recorded shorter segments with spoken commentary directed specifically at the device.

### *Methods of analysis*

Analysis broadly followed an interpretivist approach in which activity is understood in terms of symbols expressing layers of meaning, a common approach in semiotic research (Miles and Huberman, 1994). The process was adapted from the classic analytic methods described by Miles and Huberman, in which data is coded and sorted for patterns, relationships, and themes in order to develop generalisations to be situated within theory. As with other components of this research, analysis of Phase 2 data followed an iterative, reflective spiral cycle. As a first stage of analysis, data from the various sources was cross-referenced and condensed into a matrix. The destinations identified by the wayshowers served as the core units of analysis, with data categories broadly reflecting the wayshower's process



of semiosis as identified by Kress (2010). This method of analysis served to identify patterns of semiosis but could not fully account for participants' experiences and reflections: during the focus group, participants often described overall impressions of the activity without dividing their experiences by specific destinations. Further analysis employed a matrix organized thematically, whose categories were identified through a grounded approach to the data in relation to both Kress' process of semiosis and MacGonigal's defining traits of games. These themes are outlined below.



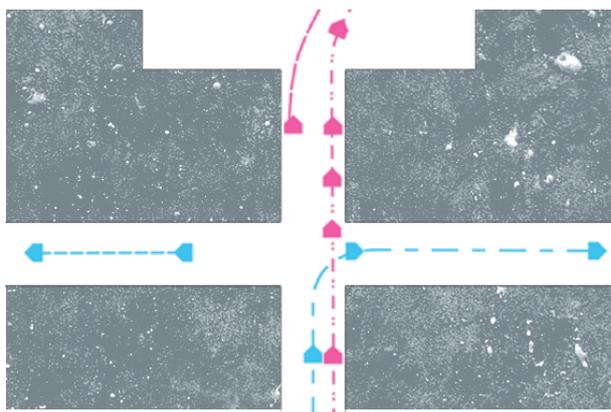
# FINDINGS

## FROM PHASE 1

Six attendees chose to participate in the activity (based on an assumption of one attendee per numbered pack of arrows which had been used). Twenty-seven arrows were employed to show the way to four of five nearby Gents facilities and two of three nearby Ladies facilities (see Appendix A for a map of arrow locations as documented approximately two hours after the activity concluded).

An analysis of the geographic position and orientation of the arrows yielded inferences about the wayshower's decision-making processes as they found their way and determined the ideal manner to guide subsequent wayfinders.

Wayshower B chose to place arrows every few metres, whereas Wayshower F left long gaps between arrows. In the case of the long corridor parallel to the Great Hall, one arrow is only barely visible in the distance from the location of the previous arrow. Similarly, both Wayshower D and E used their final arrows to direct wayfinders up staircases. In the case of Wayshower E, the wayfinder was required to climb two stories of stairs and pass two hallway entrances before arriving at the intended destination. The route demarcated by Wayshower F ended before the toilet, requiring the wayfinder to walk down a hallway and turn left to find the destination.



**Figure 15**  
Detail of arrow locations map. See Appendix A for full map.

From these observations I have distinguished two styles of wayshowing. The first involves providing reassurance and confirmation of the correct route by providing more information than is strictly necessary. The second style provides only the bare minimum of information, requiring the finder to use their own initiative, to rely on architectural cues, and to trust the wayshower.

It is also interesting to note the degree to which the wayshower relied on each other's work to form a networked, cohesive wayshowing system. Only Wayshower B created a

seamless route from the origin to destination. Wayshowers C and D created partial routes, relying on other arrows to direct finders to decision points – hallway intersections – where the new route was demarcated. Male Wayshowers A and D relied on the pink arrows of other wayshowers for part of the route, likely based on the assumption that Gents and Ladies facilities are often adjacent.

Two wayshowers preferred to place the arrows on the floor as opposed to the walls. This distinction is not noted in the Appendix A map but does serve to demonstrate the potential for an aggregate of wayshowing modes.

## FROM PHASE 2

The three members of Team 1 designed signs to four destinations: the park at St. Dunstan's in the East church, The Monument, Lamb Tavern, and the art deco exterior of Bolton House on Cullum Street. The two members of Team 2 designed signs to five destinations: the Memorial Gardens near Trinity House, a vertical 'green wall' garden at Mint Hotel near Trinity Square, sculpted stone skulls above a doorway in St. Olave's churchyard, British Rail boundary markers outside Fenchurch Street Station, and sculptures in Fen Court near Lloyd's landmark headquarters.



**Figure 16**  
A member of Team 1  
installs a sign.

### *Semiotic interest and noteworthy destinations*

Responding perhaps to the ambiguous brief of what constituted a noteworthy destination, the sites selected by the wayshowers comprised a mix of conventional attractions whose noteworthiness is based on historical significance or landmark status, and less well-known sites whose novelty, aesthetic distinction, and significance through personal experience provided grounds for inclusion.

At one point, Team 1 discussed a church they were approaching; Participant L concluded that it was “not that impressive” (T1R65) and the team passed it by. During the focus group session, Team 1 participant M defined a noteworthy destination as being a building older than a certain date: “the block between the Monument and up to Leadenhall there isn't a great deal, to be honest. It's very commercially build-up; it's mostly 70s and 80s development and some 2000s development, but that's it. A bit of a dearth of stuff between the Monument and up toward Leadenhall area” (F41).

When viewed as manifestations of the wayshowers' semiotic interests, the destinations they deemed noteworthy suggest a desire to highlight positive aspects of their surroundings, be they obvious sights like The Monument, or a hidden 'green' wall.

### *Past knowledge versus new discoveries*

Many of the destinations chosen by Team 1 were previously known to one of its members. Speaking about the Lamb's Tavern, Participant M announced that “I know along near the end there's actually quite a nice pub” (T1R80) and later revealed his familiarity with the

general area: “at least in Leadenhall there are ample interesting things to point out” (F41). This can be seen as fulfilling an intrinsic reward as defined above (Shirky, 2009; MacGonigal, 2011). In contrast, many of the destinations chosen by Team 2 were unforeseen

discoveries. In the words of Team 2 participant H, the destinations they deemed noteworthy were “a mixture of things we would see and find interesting, and things that as you approach the area, you remembered, ‘Oh, I think this is interesting, I want other people to check it out’, and things that [my teammate] had knowledge of, that I wouldn’t have known” (F48).

### *Modes, materials, and semiotic resources*

Both teams gravitated toward certain modes, materials, and semiotic resources. Team 2 deliberately experimented with the materials provided and the modes they afforded, designing signs using everything from Post-it Notes with text adhered to lampposts at eye-level, to chalk on the pavement. Although both teams indexed destinations through physical proximity and using arrows, Team 2 additionally experimented with conceptual proximity,



**Figure 17**  
A sign created by Team 1 designating the start of a trail.

as when they placed an arrow on a street map to point to the intended destination (see Figure 20).

From the start of the activity, Team 1 determined that pavement chalk was the most flexible, durable, and visible option, and employed it to the exclusion of the other materials. Although this limited the potential modes of communication, significant in Team 1’s approach was the semiotic resources they employed. After agreeing that the arrow should be the primary symbol of their wayshowing designs, the team negotiated a bespoke semi-

otic grammar that they consistently applied to their designs. This grammar took the form of circles and straight perpendicular lines which amended the arrows, and respectively designated the start and end of each trail of arrows toward a destination (see Figures 17 and 18). While drawing their first arrow, Participant L asked his teammates if they should develop “something to indicate the beginning of the arrows, like a circle at the end of it?” (T1R21). Later, Participant M asked, “do we need an end-of-trail indicator, as well? Just a single line across the top of it to indicate there’s no other signage?”



**Figure 18**  
Team 1 end-of-trail sign as found by Team 2.

(T1R34). The trails mentioned by Participant M consisted largely of arrow sequences, guiding the wayfinder along a specific route to the destination. This contrasts with Team 2’s approach, which primarily involved single signs near the destinations. Team 1’s arrow trails communicated direction and through their context, implied that a noteworthy destination awaited at the end of the trail. The team determined that “it doesn’t have to

say specifically what it is, just that there's interesting stuff this way". In contrast, the textual messages Team 2 incorporated into their sign designs often called for specific behavioural responses: "Turn around and look up high" urged one sign drawn on the pavement with chalk (T2Pic8); "PAY YOUR RESPECTS. Memorial Garden ahead," commanded another (T2Pic1). Team 2 often provided historical background and context on signs to destinations they were familiar with. "Don't miss Sam Pepy's [sic] church" wrote Team 2 Participant S about St. Olave's (see Figure 19).



**Figure 19**  
A descriptive sign by Team 2.

It is clear from an analysis of the visual and audio evidence of both teams' processes of semiosis that while Team 1 focussed on trail-based wayshowing by developing a nuanced semiotic grammar, Team 2 invested its efforts in experimenting with semiotic resources in order to generate a pastiche of wayshowing modes.

### *Consideration of audience*

It is clear from the transcripts of conversations between team members that these semiotic strategies were developed out of concern for the way their signs would be perceived by their audience, which in this case consisted of the opposing team in their role as wayfinders during the second half of the activity. This concern for semiotic aptness was revealed in the wayshowers' selection of materials and modes, and their use of semiotic resources.

Manifestations of this concern for aptness betrayed the participants' deep understanding of the established principles of wayshowing best practice, even though most participants had no formal training in the subject. Team 1 participant L reflected,



**Figure 20**  
Team 2 used an existing wayshowing installation to point to a specific location with a blue arrow.

I think early on we decided that consistency is good; people get something in their head to look for, so we made big chunky arrows that were colourful versions of what you get on the street, like turning lanes and that sort of thing, mostly on the [pavement], though. It wasn't that adventurous an approach by any means. So much London signage is already on the streets, that it doesn't take long once you're here to start looking for that. Retrospectively, we probably should have made it more unique, so it would stand out as being clearly related to interesting stuff as opposed to just 'this is the way you turn'. Maybe it would have just been a matter of colours; having bright, neon-paint; something that stood out but kept the general model of signage that people are already semi-used to here. (F2)

Team 1 considered employing colour as a semiotic mode, in the form of a "colour-coding



scheme” (T1R11) but chose to use a single colour for the sake of consistency and recognisability for the wayshowers, switching colours only when a piece of chalk was used up.

Additionally, Team 1 acknowledged the limitations of a trail-based system when the potential exists for wayshowers to approach destinations from multiple directions: “one of the things we realized early on was that we were planning on the basis of people following the path, whereas for every one of those points, there’s so many different entry points” (Participant L, F22). Although they knew in the context of this research activity which route the wayshowers would follow since it was stipulated on the provided map, the team discussed creating signs for both sides of the street in order to ensure the wayfinders encountered their signs.

The team’s development of a semiotic grammar of circles, arrows, and lines was based on a similar desire to incorporate existing symbols which would be familiar to wayfinders, and demonstrates the participants’ ability to internalise London’s wayshowing signage conventions and subsequently employ them as powerful semiotic resources. Participant H noted that “there’s value in having the signage look like what...you’re used to looking for” (F6). Participant L summed up Team 1’s semiotic philosophy: “the thing about our approach is it ties in with so much about how London signage works already. The bike signs, one-way signs, and parking signs are all marks like this, so once people have been in London for any length of time, you tend to pick up on this, which is probably a good starting point” (T1R35). In the subsequent focus group, Team 2 acknowledged that they did not fully understand this grammar until it was later explained by the wayshowers.

Team 2 participant S reflected on the limits of arrow-based wayshowing compared with their system of modal pastiche: “We used Post-it Notes to write little descriptions, but obviously you can’t put permanent signs in the environment – or can you? – that give people that information. An arrow: you’re not sure if it’s pointing *to* something or just showing you the direction. It’s making it into a narrative. If you want people to go off the tracks you have to give them a reason to do that. Getting that into the descriptive sign is critical” (F7).

Although the majority of the findings discussed here relate to the process of semiosis as constructed by the wayshowers, the wayfinders’ engagement with the signs they encountered is relevant to social wayshowing as well. Both teams found all the destinations as intended by the other, accurately re-constructing most meanings as initially constructed by the wayshowers. In their wayfinding roles, the teams came to understand the conventions employed by the wayshowers (with the notable exception of the lines and circles discussed above) to the extent that the wayfinders suspected something was amiss when the wayshowing systems diverged from the patterns the wayshowers had established: “I think we might be missing a bigger arrow somewhere, because usually they...” began participant L (T1R112), to which participant M responded, “slightly surprising, unless they’ve deliberately decided to mix up the wayfinding mechanisms” (T1R113).

### *Motivation*

The points system which was integrated into the activity was not a prime motivating factor for the wayshowers. Team 1 did not mention points at all during their conversations,



and Team 2 did only once, in jest. Motivation was discussed during the subsequent focus group; Participant S noted that her team followed the signs “because we knew that that was the purpose” of the activity (F9), but the participant acknowledged the need for other rewards for when the wayfinding would take place outside the framework of a formalised research activity.

### *Perceptions of subversive activity*

Participants expressed surprise that they were not questioned by police or security guards as a result of their activities. Participant S recounted that she “was expecting someone to ask ‘what are you doing? You can’t stick that on there’” (F66). Some participants expressed a preference for the impermanence of pavement chalk over the potential permanence of the white label stickers, to avoid the appearance of participating in an act of vandalism.

### *Trust*

During the focus group, participants discussed the crucial role played by trust in this type of activity. They acknowledged the possibility for inaccuracies or misleading or missing information resulting from the crowdsourced activities, and suggested that social wayshowing would be best suited for use in concert with other systems to ‘fill in the gaps’. Participant L observed that “I generally find the [existing on-street] maps useful, but it’s the in-between directions to specific points along the way where this sort of thing would be useful, because I have a terrible sense of direction. So, being able to catch little indicators along the way would help” (F87). Participant S stressed that “you have to trust... that somebody is guiding you and giving you [correct] information” (F82). Referring to Google Maps, Participant S discussed the wayshower’s trade-off between convenience and reliability when deciding which wayshowing tool to use: “you still use it because it’s convenient, but with that proviso that it might not be right” (F86).

## **SUMMARY**

For the Phase 1 findings I described the two strategies (providing reassurance and requiring initiative) employed by the participant wayshowers, and the degree to which the wayshowers relied on each other’s efforts to create a wayshowing network. Regarding Phase 2, I first described the mix of destinations deemed noteworthy by the wayshowers as representing a desire to highlight positive aspects of the area. I discussed the participants’ use of modes, materials and semiotic resources as part of their processes of semiosis, and the degree to which a consideration of their audience influenced their modal, material, and resource selection. I examined the trail-based semiotic grammar developed by Team 1 in contrast to Team 2’s modal experiments and resulting semiotic pastiche. Finally, I discussed the weaknesses of the points system as a motivator for wayshowing activity, the importance of ensuring that social wayshowing is never perceived as vandalism, and the potential for employing social wayshowing in concert with other systems in order to overcome issues of trustworthiness.

These findings successfully demonstrate the potential of the social wayfinding concept and indicate directions for future work (discussed below), but above all, they suggest that when given the opportunity, amateur participants can be creative and effective wayshowing designers, acting with care and deep consideration of the needs of the wayfinders who will follow.



# DISCUSSION

## LIMITATIONS

**T**his research was limited in scale and scope to a relatively small number of participants responding to a specific environmental and semiotic context in central London. As a result, care must be exercised when applying these findings in other contexts. It must be understood that social wayshowing is not intended to replace conventional systems of wayfinding such as Legible London. Rather, social wayshowing should be viewed as a process that complements these systems.

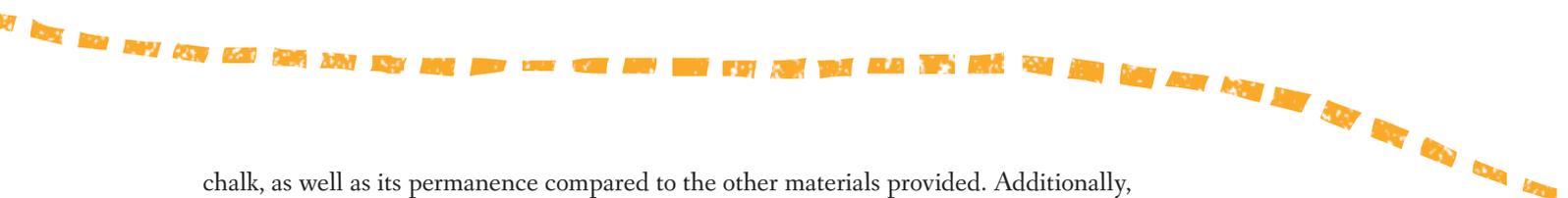
A gap in this research which resulted from the project's limited scope was the lack of primary research into strategies for applying crowdsourcing techniques to social wayshowing. This issue is discussed below as a possible next step for this research. Related issues of motivation and intrinsic rewards were also not adequately tested and must be considered when organizing further iterations of social wayshowing.

## INTENDED PARTICIPANTS: RESIDENTS VERSUS VISITORS

It is important to consider the divergent meanings that tourists and residents may attach to public space and the uses that result. It is the visitors, more likely to be unfamiliar with the area, who are more often in need of navigational aid. Tourists, having travelled for the specific purpose of experiencing a place, may be more inclined to take conscious notice of their surroundings for pleasure's sake and as part of a search for wayfinding cues. For residents familiar with their route, their surroundings may be taken for granted but valued on a deeper level as collectively-owned public space affording the potential for social, cultural, and political discourse. Social wayshowing has been primarily intended for long-time residents as an opportunity to activate their collective knowledge of a space, but it must be acknowledged that any resulting system of wayfinding will likely be used equally, if not to a greater degree, by visitors such as tourists who may not be able to participate in its development.

## MATERIALS, PERMANENCE, AND AGGREGATION

The participants' preferences for certain materials constituted an important finding, as noted above. One team in particular preferred the flexibility and visibility of pavement



chalk, as well as its permanence compared to the other materials provided. Additionally, the participants felt that pavement chalk did not carry the implications of subversive, illegal activity associated with stickers and other media. That pavement chalk does not bear this association may relate to its role as an instrument of childhood play. Pavement chalk's distinction in this regard is complemented by its temporary nature. Partially washing away with each rain shower, pavement chalk is well-positioned to afford iterative accumulations of messages, permitting an aggregation of knowledge that is elusive with other media. As with a palimpsest manuscript, the chalk signs which more accurately reflect collective knowledge will be continually redrawn, while the others will fade away with the rain. Also, pavement chalk in particular and messages on the ground in general have the distinction of being a mode used infrequently for commercial messages, avoiding confusion. As Participant S recounted when attaching Post-it Note signs to lampposts, "a few people walked past and they just completely blanked and I think people think you're doing advertising...so they've already made an assumption." (F69).

### **LOWERING TRANSACTION COSTS**

Related to the question of material selection is the crucial issue of transaction costs. As discussed above, Shirky (2009) cites the ability of digital technology to lower transaction costs as a key component of the success of online crowdsourcing initiatives. The use of mobile technologies in social wayshowing was rejected early in the research, in part based on the fact that smartphone adoption is far from universal: a recent survey (Ofcom, 2011) found that only 26% of UK residents own a smartphone. Positioning social wayshowing as a smartphone app would prevent the full participation of a wide segment of society and would link the concept to a particular technology which may become obsolete within a few short years. Having rejected digital technology and the low transaction costs it affords, it is important to consider other ways to make social wayshowing an effortless activity for would-be wayshowers. Selecting contextually-appropriate, inexpensive, and easily-accessible materials is a crucial component of lowering transaction costs.

### **AN EXPANDED DEFINITION OF THE SIGN**

While this research has defined the sign primarily in the conventional terms of symbols on a flat surface, in order to develop a holistic framework for social wayshowing it is important to consider a broader definition of the sign. Beyond the artefact-as-sign we associate with Legible London or a journey through an airport, behaviour-as-sign constitutes an important concept, particularly within a definition of semiosis as a performative process. In the context of wayfinding, holding a map is a well-understood sign of being lost and functions as an invitation for help. It may be that in some cases, social wayshowing will move away from a basis in artefacts, merging with the social behaviours common in many highly touristed areas where residents provide directions to visitors who appear lost.



# CONCLUSIONS

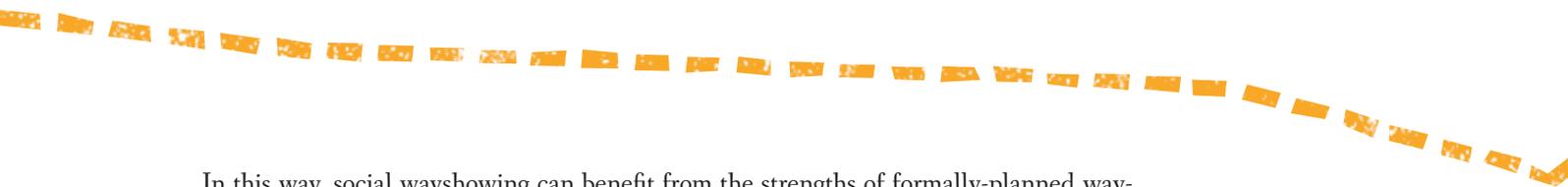
**T**he findings discussed above reveal the creativity and resourcefulness of social wayshowers. The wayshowers demonstrated a variety of social semiotic interests by designating a wide range of destinations as noteworthy, including a mix of those previously known and new discoveries. They designed and implemented a surprising variety of wayshowing systems, demonstrating a deep understanding of the established principles of wayshowing best practice. In designing these systems, participants gravitated toward certain materials, modes, and semiotic resources and even generated a bespoke semiotic grammar, always out of concern for the way their signs would be perceived by their audience. Description and narrative were revealed to be useful mechanisms for motivating wayfinders to follow social wayshowing signage. Certain modes such as colour and its communicative potential were avoided, suggesting that infinite modal choice is not a desirable aspect of social wayshowing design.

Social wayshowers sought to provide reassurance for the wayfinders who followed by implementing trails, employing consistent materials, and adopting semiotic resources which would be familiar through their existing applications. By leveraging existing wayshowing systems, wayshowers self-organized to generate a layered semiotic aggregate.

Additionally, the wayshowers demonstrated no reluctance to switch roles and become wayfinders, often enjoying the challenge of constructing the meanings that wayshowers embedded within their signs. Finally, participants demonstrated a willingness to reflect on their design practices by noting the weaknesses of certain approaches and considering appropriate solutions. The participants' evident enjoyment and success validates the role of the professional graphic designer as a game designer who determines the parameters and format of the social wayshowing iteration based on a depth of knowledge and experience. This permits the participants to build on that foundation in often-surprising ways.

To avoid alienating potential participants, social wayshowing must not be perceived as a subversive activity. Participants favoured the impermanence of pavement chalk over the potential permanence of stickers in order to avoid being perceived as vandals.

Finally, this research revealed the importance of cultivating trust between wayshower and wayfinder. Findings indicate that social wayshowing would be best considered as a contributor to the existing semiotic aggregate, rather than an alternative to existing systems.



In this way, social wayshowing can benefit from the strengths of formally-planned wayshowing initiatives to create a cohesive wayshowing ecosystem.

This research has effectively laid the groundwork for social wayshowing by successfully demonstrating its potential and indicating avenues for improvement and further study.

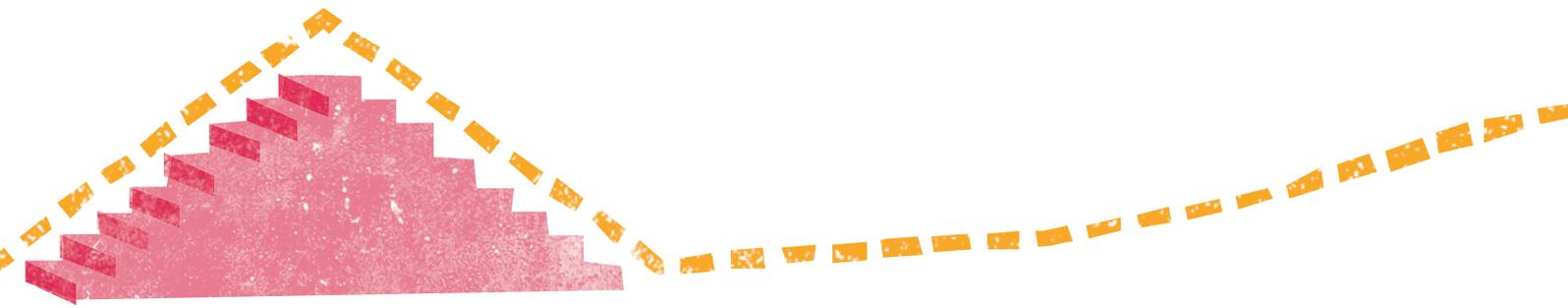
## SIGNIFICANCE

The methodologies explored in this research have significant applications beyond traditional issues of wayfinding as practised by tourists. Issues of information search, curation, and authority have become critical to those with ubiquitous access to information, and can become life-threatening obstacles to those without. Often, these issues involve questions of navigation, questions which are ideally suited to be resolved through the tools of wayshowing. The following cases illustrate the broad applications for grassroots systems of information exchange as proposed by social wayshowing:

Case 1: new parents identify a sudden need to realign their cognitive maps of their neighbourhood to correspond with the needs of their new child. They “become rewired to seek out free play centres, libraries with large children’s areas, and places with change tables and nursing stations” (Bowen, 2011) at a time of stress and potential isolation from their peers.

Case 2: women in post-earthquake Haiti suffer unnecessarily for lack of information about their local health clinics. Many are unaware that these temporary clinics offer a range of free services as well as the better-publicised fee-based services (Human Rights Watch, 2011).

In these cases, wayshowing-based solutions can help vulnerable groups access needed services. Wayshowing can serve as a social connector and a search engine for potentially lifesaving knowledge. Coined as a portmanteau of folks and taxonomy, the term *folksonomy* – referring to a collaborative culture of annotation and meta-tagging – is an apt description of the potential results of social wayshowing. Although this research was limited in scope and scale to contained geographic areas, small numbers of participants, and conventional uses for wayshowing signage, its applications are innumerable and increasingly needed.



# NEXT STEPS

## METHODOLOGICAL TOOLBOX AND FURTHER ITERATIONS

**A**n immediate next step that will serve as an outcome of this research is a methodological toolbox for professional designers and others wishing to undertake further iterations of social wayshowing. Written in plain English with instructions, tips, and points of discussion, this toolbox will be an online distillation of the findings described above. In addition to serving as a didactic resource, the toolbox will reflect its basis in collaborative production by soliciting feedback and functioning as a forum for further refinement of the social wayshowing concept and method. This toolbox must be tested and refined in parallel with further research-based iterations of social wayshowing. The development and evolution of this toolbox will serve to answer a key research question for this project: *What role can and should the graphic designer play in such a methodology?* By positioning this didactic and responsive forum as the ultimate outcome of this project, I seek to provoke discussion about the professional designer as an enabler and resource as opposed to a gatekeeper.

In keeping with a view of the role of the professional designer as enabler of latent public knowledge and creativity, an important component of the development of social wayshowing will likely prove to be partnerships with communities. As demonstrated during the Phase 2 research described above, community partnerships are both crucial for securing and sustaining dedicated participant groups, and require much care to cultivate. A greater emphasis on ethnographic methods is called for; establishing a relationship with a willing community must be the first priority when pursuing further iterations of social wayshowing.

Although this deep ethnographic relationship between researcher and participants may appear to be in opposition to the stated goal of a self-organising project grounded in the philosophy of crowdsourcing, I believe that this ethnographic approach is a necessary intermediate step. Only through a close, trusting relationship between researcher and participant can the necessary data be collected in order to make improvements to the methods of social wayshowing.



## MOTIVATION AND CROWDSOURCING

Even as an ethnographic approach is pursued, attention must be paid to the applicability of online crowdsourcing methods to social wayshowing. The limited scope of this research prevented a full investigation of the implications of employing an online crowdsourcing methodology in offline situations such as social wayfinding. This topic is a key area for additional study. One important component of this additional study must be a further exploration and evaluation of mechanisms for motivating participation in a crowdsourced context. As with the broader topic of crowdsourcing, mechanisms for motivating participation were not fully examined in the research completed to-date. Although this research identified the concept of intrinsic rewards as a desirable component of social wayshowing, a deeper understanding of how intrinsic rewards can be effectively used to motivate participation is necessary in order to successfully undertake future social wayfinding iterations, particularly when those iterations are organized without the recruiting framework of a formal research activity.

## SELF-SUSTAINING SOCIAL WAYSHOWING

The ultimate goal of this project is to initiate an iteration of social wayshowing that is self-sustaining. To borrow a term from the online world, it would be an ultimate confirmation of the validity of the concepts explored here to see social wayshowing ‘go viral’ and be adopted and adapted by diverse communities and for diverse purposes. A model for this emergent approach to design research is the Iconathon initiative ([www.iconathon.org](http://www.iconathon.org)). Organized as a partnership between online symbol repository The Noun Project and the non-profit Code for America group, Iconathon is a concept for design workshops in which participatory methodologies are employed to generate a new vocabulary of visual symbols for the public domain. This model is relevant to social wayshowing in that it employs design research methodologies initiated by professional designers to seed self-sustaining efforts in the manner of crowdsourcing. Iconathons rely on the semiotic resources, knowledge, and creativity of community members to generate design outcomes which reflect the needs of that community. Iconathons position the consumers of signs as their designers, much in the same way that social wayshowing erases the boundaries between wayfinder and wayshower.

With regard to mechanisms for initiating a self-sustaining iteration of social wayshowing, it will be useful to consider the concept of the *information cascade* as proposed by historian Suzanne Lohmann (cited in Shirky, 2009). It describes the threshold at which individuals will choose to participate in a group movement, be it a protest or crowdsourced social wayshowing. Each individual’s threshold is different and depends on what size the movement has achieved. The result is exponential growth: as the movement grows, more people reach their threshold and join, and the cycle continues.

It is exciting to consider the potential for self-sustaining social wayshowing and the evolutions in approach, methods, and outcomes which would result. That social wayshowing could help an overwhelmed parent and a forgotten woman as much as a lost or curious tourist is an exciting thought; one which I hope will motivate designers – professional and amateur alike – to propel this research forward.



## LICENCE

This report is licensed under a Creative Commons Attribution-NonCommercial-Share-Alike 2.5 License. You are free to copy, distribute and display the work and to make derivative works under the following conditions: you must give the original author credit, you may not use this work for commercial purposes, and if you alter, transform, or build upon this work, you may distribute the resulting work only under a licence identical to this one. More information: <http://creativecommons.org/licenses/by-nc-sa/2.5/>

## ACKNOWLEDGEMENTS

Many thanks to Dr. Alison Barnes, Reverend Bertrand Olivier and the congregation and staff of All Hallows by the Tower church, Hilary Donaldson, the students of the Masters of Research Information Environments programme, project supervisors Dr. Kevin Walker and Prof. Teal Triggs, and everyone else who offered their time, energy, and insight to bring these ideas to life.



## REFERENCES

- 99designs. [online] Available at: <<http://www.99designs.com>> [Accessed 4 August 2011].
- Alexander, C., Ishikawa, S., and Silverstein, M., 1977. *A pattern language: towns, buildings, construction*. New York: Oxford University Press.
- Applied Information Group, 2006. *Legible London: a wayfinding study*. [pdf] Available at: <[http://www.tfl.gov.uk/assets/downloads/businessandpartners/Legible\\_London\\_report.pdf](http://www.tfl.gov.uk/assets/downloads/businessandpartners/Legible_London_report.pdf)> [Accessed 30 October 2011].
- Arthur, P., and Passini, R., 2002. *Wayfinding: people, signs, and architecture*. Oakville: Focus Strategic Communications.
- Barry, D., Oppel Jr., R., and Sulzberger, A., 2011. When everything is gone, including a sense of direction. *The New York Times* [online] 28 May 2011. Available at: <<http://www.nytimes.com/2011/05/29/us/29joplin.html>> [Accessed 4 August 2011].
- Borries, F. et al., 2007. *Space time play: computer games, architecture and urbanism: the next level*. Basel: Birkhauser.
- Bowen, A., 2011. Oh baby, it's cold. *Spacing*, Winter Issue, p.58.
- Brabham, D., 2008. Crowdsourcing as a model for problem solving. *Convergence*. 14, pp.75-90.
- Brabham, D., 2009. Crowdsourcing the public participation process for planning projects. *Planning Theory*. 8, pp.242-262.
- Brandt, E., 2006. Designing exploratory design games: a framework for participation in participatory design? *PDC '06 Proceedings of the ninth conference on Participatory design: Expanding boundaries in design*. 1, pp.57-66.
- Buchenuau, M., and Suri, J.F., 2000. Experience prototyping. *Proceedings of Designing Interactive Systems conference*.
- Chore Wars. [online] Available at: <<http://www.chorewars.com>> [Accessed 4 August 2011].
- Crow, D., 2003. *Visible signs: an introduction to semiotics*. Crans-pres-Celigny: AVA Pub. SA.
- Crowdspring. [online] Available at: <<http://www.crowdspring.com>> [Accessed 4 August 2011].

The Extraordinaries. *Sparked*. [online] Available at: <<http://www.sparked.com>> [Accessed 4 August 2011].

foldit. [online] Available at: <<http://www.fold.it>> [Accessed 4 August 2011].

Francis, M., 1983. Community Design. *Journal of Architectural Education*, 37, pp.14-19.

Galaxy Zoo. [online] Available at: <<http://www.galaxyzoo.org>> [Accessed 4 August 2011].

Gibson, D., 2009. *The wayfinding handbook: information design for public places*. New York: Princeton Architectural Press.

Grewal, I., 2011. *Discussion on wayshowing in Tower Hill*. [email] (Personal communication, 1 September 2010).

Guo, Z., 2011. Mind the map! The impact of transit maps on travel decisions in public transit. [working paper] New York University.

Halliday, M., 1978. *Language as social semiotic: the social interpretation of language and meaning*. Baltimore: University Park Press.

Hansen, T., 2006. Strings of Experiments - looking at the design process as a set of socio-technical experiments. *PDC '06 Proceedings of the ninth conference on Participatory design: Expanding boundaries in design*. 1, pp.1-10.

Howe, J., 2006. The Rise of Crowdsourcing. *Wired* [online] Available at: <<http://www.wired.com/wired/archive/14.06/crowds.html>> [Accessed 4 August 2011].

Human Rights Watch, 2011. *Nobody remembers us* [pdf] Available at: <<http://www.hrw.org/sites/default/files/reports/haitio811webcover.pdf>> [Accessed 17 October, 2011].

Iconathon. [online] Available at: <<http://iconathon.org/>> [Accessed 18 October 2011].

Iversen, O., and Buur, J., 2002. Design is a game: developing design competence in a game setting. *Proceedings of Participatory Design Conference 23-25*. June 2002. pp.22-28.

Jewitt, C., 2009. *The Routledge handbook of multimodal analysis*. London: Routledge.

Jones, R., 2009. Technology and sites of display. In: C. Jewitt, ed. 2009. *The Routledge handbook of multimodal analysis*. London: Routledge. Ch.9.

Jonsson, E., 2002. *Inner navigation: why we get lost and how we find our way*. New York: Scribner.

Kress, G., and Van Leeuwen, T., 2001. *Multimodal discourse: the modes and media of contemporary communication*. London: Arnold.

Kress, G., 2010. *Multimodality: a social semiotic approach to contemporary communication*. London: Routledge.

Lynch, K., 1960. *The image of the city*. Cambridge, Mass.: Technology Press.

MacGonigal, J., 2011. *Reality is broken: why games make us better and how they can change the world*. London: Jonathan Cape.

Miles, M., and Huberman, A., 1994. *Qualitative data analysis: an expanded sourcebook*. Thousand Oaks: Sage Publications.

Mollerup, P., 2005. *Wayshowing: a guide to environmental signage; principles & practices*. Baden: Lars Müller.

Nardi, B., 1996. *Context and consciousness: activity theory and human-computer interaction*. Cambridge, Mass.: MIT Press.

Northover, J., 2011. Presentation at Ziggurat exhibition and study day. London College of Communication, 13 July 2011.

Ofcom, 2011. *Communications market report: UK* [pdf] Available at: <[http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/UK\\_CM11\\_FINAL.pdf](http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/UK_CM11_FINAL.pdf)> [Accessed 12 November 2011].

OpenStreetMap. [online] Available at: <<http://www.openstreetmap.org>> [Accessed 4 August 2011].

Penn, A., and Turner, A., 2002. Space syntax based agent simulation. *Proceedings of the 1st International Conference on Pedestrian and Evacuation Dynamics*. Springer: Berlin, pp.99-114.

Piaget, J., 1995. *Sociological studies*. [translation] London: Routledge.

Raubal, M., Egenhofer, M., Pfoser, D., and Tryfona, N., 1997. Structuring space with image schemata: wayfinding in airports as a case study. Available at: <<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.79.4393&rep=rep1&type=pdf>> [Accessed 4 August 2011].

Robson, C., 2011. *Real world research: a resource for users of social research methods in applied settings*. Chichester, West Sussex: Wiley.

Schuler, D. *Participatory design*. Public Sphere Project. [online] Available at <<http://publicsphereproject.org/drupal/node/235>> [Accessed 4 August 2011].

Scollon, R., and Scollon, S., 2003. *Discourses in place: language in the material world*. London: Routledge.

Shirky, C., 2009. *Here comes everybody: the power of organizing without organizations*. New York: Penguin Press.

Turner, J., 2010. Legible London: can better signs help people understand an extremely disorienting city? *Slate* [online] Available at: <[http://www.slate.com/articles/life/signs/2010/03/legible\\_london.html](http://www.slate.com/articles/life/signs/2010/03/legible_london.html)> [Accessed 6 October 2011].

Tapscott, D., and Williams, A., 2006. *Wikinomics: how mass collaboration changes everything*. New York: Portfolio.

The Walking Papers. [online] Available at: <<http://walking-papers.org>> [Accessed 4 August 2011].

Wikipedia, 2011. Crowdsourcing. [online] Available at: <<http://en.wikipedia.org/wiki/Crowdsourcing>> [Accessed 1 August 2011].

Wikipedia, 2011. Statistics. [online] Available at: <<http://en.wikipedia.org/wiki/Special:Statistics>> [Accessed 1 August 2011].

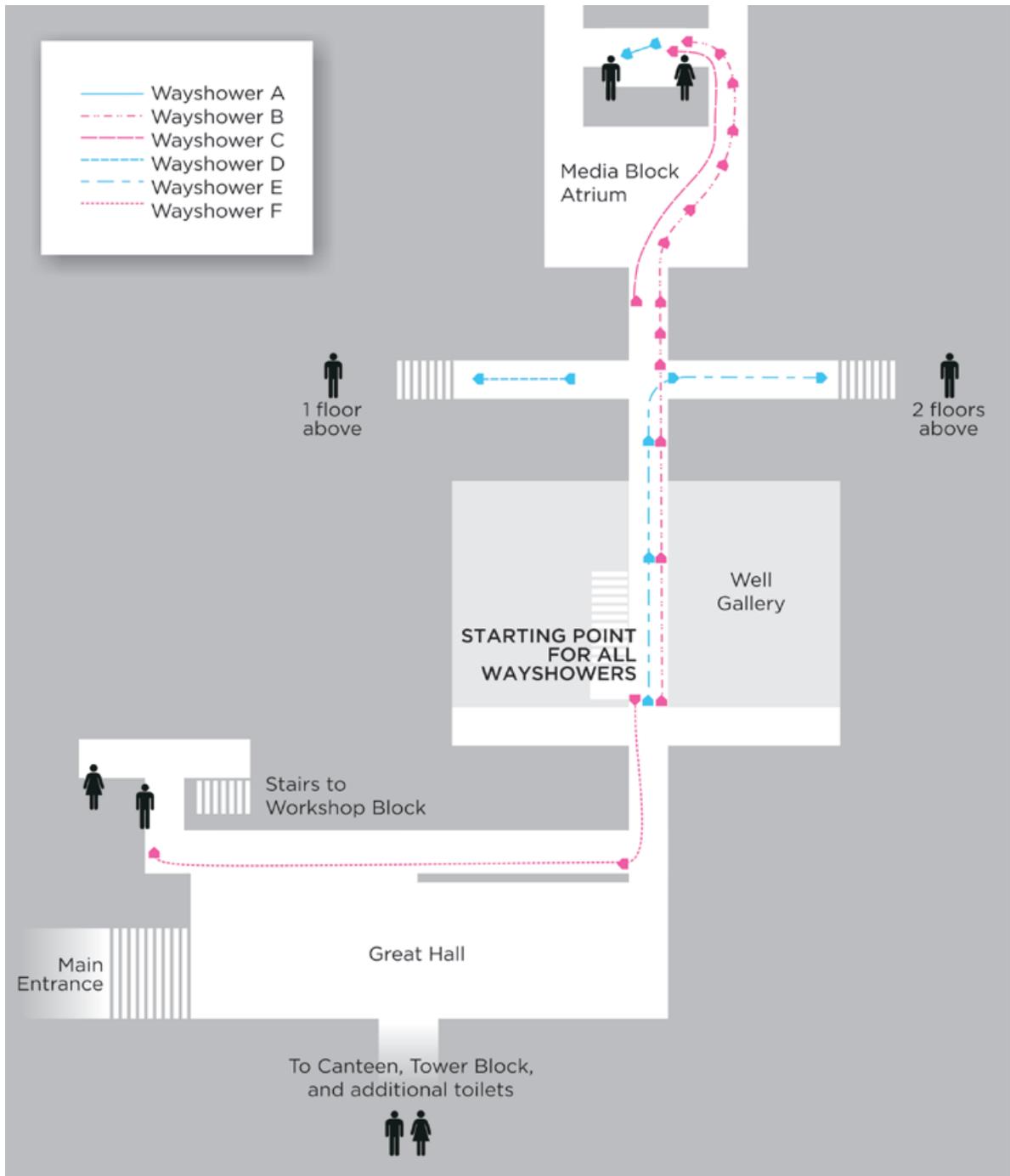
## FIGURE CREDITS

1. Knight, G., 2010. *You Are Here*. [online image] Available at: <<http://www.flickr.com/photos/8176740@N05/4659593497/>> [Accessed 30 October 2011]. Used under Creative Commons license.
2. Kopulos, D., 2011.
3. *ibid.*
4. Lenard, B., 2011. [online image] Available at: <<http://www.flickr.com/photos/48540847@N03/5767059380/>> [Accessed 30 October 2011]. Used under Creative Commons license.
5. Kopulos, D., 2011.
6. *ibid.*
7. foldit. [website screenshot] Available at: <<http://fold.it/portal/info/science>> [Accessed 30 October 2011]. Used under Creative Commons license.
8. OpenStreetMap. [website screenshot] Available at: <<http://www.openstreetmap.org/>> [Accessed 30 October 2011]. Used under Creative Commons license.
9. The Walking Papers. [website screenshot] Available at: <<http://walking-papers.org/scan-large.php?id=fx3q2ln5>> [Accessed 30 October 2011].
10. Sparked. [website screenshot] Available at: <<http://www.sparked.com/>> [Accessed 30 October 2011].
11. Big Urban Game. [online image] Available at: <<http://www.decisionproblem.com/bug/bug3.jpg>> [Accessed 30 October 2011].
12. Google Maps. [website screenshot] Available at: <<http://http://maps.google.co.uk/>> [Accessed 12 November 2011]. © 2011 Google. Map data © 2011 Google, Tele Atlas. Permitted use.
13. Kopulos, D., 2011.
14. *ibid.*
15. *ibid.*
16. T1Pic15. Used with permission.
17. T1Pic3. Used with permission.
18. T2Pic56. Used with permission.
19. T1Pic57. Used with permission.
20. T1Pic54. Used with permission.



# APPENDIX A

Phase 1 data and analysis: locations of participant-installed wayshowing arrows and resulting trails.



## APPENDIX B

*Phase 2 data: transcription of audio recording of Team 1 wayshowing/wayfinding activity, Saturday 3 September 2011. Multiple recordings totalling approximately 50 minutes.*

<i>Line Code</i>	<i>Speaker</i>	<i>Transcription</i>
T1R1	L	We could put things on both sides of the street
T1R2	M	Could do. Obviously they're going to be approaching from either one way or the other, so we could certainly add something to point out St. Dunstan's in the East. But it's an interesting problem because you don't know whether they're going to be coming along the river-side of the street or that side of the street. Okay, the experience is a bit skewed because we know they're going to be coming in this direction...
T1R3	L	We could just do a series of chalk on the street with big arrows, and some combination of symbols of some kind, but it doesn't have to say specifically what it is, just that there's interesting stuff this way.
T1R4	M	Exactly. I think one of the things is having a symbol for all of our signs so it's completely evident that –
T1R5	L	– So it gets past language barriers, to do with tourism –
T1R6	M	We should work out how to mark that one, as our first step. What options do we have?
T1R7	L	Magnets...I'm not sure magnets is the best for this area. My inclination is chalk, but we also have post-it notes, stickers, sharpies, coloured tape, pens, sidewalk chalk, and crayons. I think some big, colourful chalk on the street right here –
T1R8	D	They will be very angry with this, if they just cleaned it!
T1R9	L	Nothing illegal about sidewalk chalk! Parts of my work involve understanding what is and isn't the law, what you can get away with.
T1R10	D	It should be something bright, like pink.
T1R11	L	Oh, you're right. Should we come up with a colour-coding scheme of some kind? Or stick with a consistent colour?
T1R12	M	I think stick with a consistent colour, to be honest. If we move up to the crossing, we know they're going to be approaching from that particular direction, or all along here.
T1R13	L	I'm wondering if a big arrow right here, pointing straight that way, and maybe semi-regular pink lines coming from somewhere towards, with little arrows pointing that eventually take you to the big arrow?
T1R14	M	Maybe. But it's partly about using the fewest indicators to do it.
T1R15	L	If we just did one every...so you can see them between each other...three feet apart...
T1R16	M	Agreed. Fair enough.
T1R17	L	So, start with our big arrow here, then? [sound of chalk on pavement] Should I put some kind of smiley face to go with it?
T1R18	M	I think that's fairly distinctive as it is.
T1R19	L	Out of the way, we're trying to make signage for you!
T1R20	M	Put something along here, within sight of that, just to...
T1R21	L	Something to indicate the beginning of the arrows, like a circle at the end of it?
T1R22	M	I definitely like that idea. [sound of chalk on pavement] Do you want to mark it from the other side of the street as well?
T1R23	L	I have to work on my arrow-drawing skills. Uh oh, our prime arrow-drawing space over there is all wet! This, however, this is made for an arrow. [sound of chalk on pavement] I don't think this chalk is going to last.
T1R24	M	We may have to change colour. That's okay, though.
T1R25	L	Another one in-between?
T1R26	M	Yeah, a smallish one. We'll see if it vanishes.
T1R27	L	You'd have to be pretty out of it to not notice.
T1R28	M	Agreed.
T1R29	L	On the one hand, the thing that sort-of taints the experiment is that we know more-or-less the route they're going to be coming
T1R30	M	Precisely. But it's an interesting question: what to do about the signage when the thing we're pointing to is completely and utterly obvious? It's worth having some sort of signage saying yes, that is something of interest, but there's no point in further signage.
T1R31	L	Actually, when you're coming in off of, what's it called, London Bridge –
T1R32	M	– off Fish Street Hill, exactly –
T1R33	L	– It's just a bit out of the way.

T1R34	M	Do we want to mark it this way, just with a single arrow, to indicate that yes, it is something of interest? [sound of chalk on pavement] Given that it's the start of a trail, I guess it needs a circle on it, as well. Do we need an end-of-trail indicator, as well? Just a single line across the top of it to indicate there's no other signage?
T1R35	L	The thing about our approach is it ties in with so much about how London signage works already. The bike signs, one-way signs parking signs are all marks like this, so once people have been in London for any length of time, you tend to pick up on this, which is probably a good starting point.
T1R36		[long pause for walking]
T1R37	M	We're going to be going right here, up Fish Street Hill.
T1R38	L	Very strange phenomenon. Looks like a little window in the side. [not signed by them]. Should we do another arrow from another direction?
T1R39	M	Yeah, from Fish Street Hill.
T1R40	L	Do you think the arrow should go at the top of the street? Because by the time you're here...
T1R41	M	Yeah, because they're going to come from Eastcheap.
T1R42	L	[long pause for walking] So, because we know they're coming from this way, should we put a sign that comes around the corner here?
T1R43	D	Yeah.
T1R44	M	Yeah. But it's interesting because it's almost slightly hidden.
T1R45	L	Maybe we do need another one further down. Curvy arrow?
T1R46	M	Yeah.
T1R47	L	This'll really test my arrow-drawing abilities. How can I do a curve, across various lines.
T1R48	M	And I think we need one supplementary arrow, just a bit further back down, just to mark that.
T1R49	L	Here?
T1R50	M	Yeah, from about there, it's pretty obvious.
T1R51	L	[Researcher] can totally market this exercise as a team-building activity.
T1R52	M	Next left, up Philpot Lane.
T1R53	L	Do we know if there are any side streets?
T1R54	M	Not immediately in this area.
T1R55	L	They're going to cross at some stage; they're going to make it to that corner...it will work in our context for this experiment; it won't work in real life.
T1R56	M	After we get across Fenchurch Street, we get into the slightly more interesting part of this particular route, because we're running right next to Leadenhall Market.
T1R57	L	Do we think it's worth experimenting with any other approaches? Or do we stick with our chalk?
T1R58	M	If you had proper signage, you could have put it on walls, but you end up with an interesting situation, in an experimental case, when the only things you can put on walls are stickers.
T1R59	L	They don't necessarily jump out at you all that much.
T1R60	M	And, the question of what's acceptable and what's vandalism.
T1R61	L	Oh, I stick stickers everywhere. You don't really get hit for anything like that. .... Police are out in force today.
T1R62	M	They would be, unfortunately. The EDL.
T1R63	L	Yeah, I came down Brick Lane and totally forgot it was happening.
T1R64	M	So we're following Lime Street around, so we've got plenty of time to explore this particular area.
T1R65	L	Is that church...not that impressive, is it?
T1R66	M	Not particularly, no. So, we've marked that and that so far.
T1R67	L	[possibly now looking at an installed map] Maybe we should put stickers on here that say, look for this one, look for this one...
T1R68	D	And use the tape to line the street!
T1R69	L	Yeah, we could tape the street, put little arrows on the tape towards...that might be a bit cheeky.
T1R70	M	It's an interesting question, though: leveraging other people's wayfinding.
T1R71	L	These are all the big things on here. But like [the researcher] was saying, what about small parks or a nice pub somewhere.
T1R72	M	Unfortunately, that initial area is somewhat dead; there's more of interest around here.
T1R73	L	Maybe we should walk around there and try and make sure there's good signage; this is where we're meeting them, right?
T1R74	M	Yeah.
T1R75		[long pause for walking]

T1R76	M	Definitely into Leadenhall Market, because there's a lot –
T1R77	L	They're coming this way, right? Should we do something in the middle of the road, perhaps? Maybe arrows pointing this way? It's a slightly saturated area. Do you think we need any additional signage beforehand, or just parallel... Do we need a line at the end of them?
T1R78	M	No, because we're going to take them through Leadenhall Market to something in particular, or various particular things, rather than...
T1R79	L	Should we point them down here?
T1R80	M	Well, around, maybe, because I know along near the end there's actually quite a nice pub. Basically just a sign to reinforce going around this way. [chalk noise]. It's the next left, so maybe...
T1R81	L	A straight one here? They're going to be coming from –
T1R82	M	They're going to be coming from Lime Street. ... There's the one I was thinking of, that Lamb's Tavern there. So perhaps on this corner, a diagonal one.
T1R83	L	[chalk noise] And then maybe one right in front of the building?
T1R84	M	Yeah. Directly in front.
T1R85	M	[long pause for walking] There is one interesting thing here: this particular building, unusual piece of art deco for this area. You've got Leadenhall back there which is the same era, but given all the development around here, it's quite an interesting discovery.
T1R86	L	Do you think we should do a curvy one on each corner, or one in the middle of the road?
T1R87	M	Each corner. Again, an interesting challenge, because you have a walking grate vent there... [chalk noise]. I guess, one here with a terminal sign, with a suggestion to look up.
T1R88	L	Should we put text on it?
T1R89	M	Why not!
T1R90	L	Who makes the rules here? We make the rules!
T1R91	M	Exactly. ... I think we're pretty close to... Yes, this is the Lloyd's building, and here's the meeting point, and there's [the researcher].
T1R92	L	The whole piping on the outside –
T1R93	M	Fairly dramatic.
T1R94	L	It is quite odd. Probably not on the standard tourist map.
T1R95	M	[To the researcher] It was an interesting route, because a lot of that route there's not a great deal of side streets to wander down. So, we've marked four places.
T1R96		[long pause as they begin the 'finding' phase; non-relevant conversations]
T1R97	M	Interesting to see if they've marked it from the other direction as well.
T1R98	L	We'll have to nail them on it if they didn't. Give them grief at the other end. ... It's a strange bit of juxtaposition...
T1R99	M	Yeah, you've got the 2000s architecture here and then sixties/seventies, you've got the art deco back there as well. .... They're making a right here. And then first left on Fenchurch Street.
T1R100	L	Oh, arrow.
T1R101	M	So there is. Okay, so 'cross over here' is the message.
T1R102	L	That's an arrow there.
T1R103	M	They've been fairly generous with their signage, generally.
T1R104	L	We invested in quality not quantity. Should we be taking note of the names of places –
T1R105	M	I have been.
T1R106	L	It would be Fenchurch Street station, maybe?
T1R107	M	Obviously Fenchurch Street station is here, but I don't see any signage or arrows to pick it up yet. .... Ah, interesting!
T1R108	L	So, can we say it's pointing to the station?
T1R109	M	Yeah.
T1R110	L	Where's our route? Does it take us this way?
T1R111	M	Yup, straight down New London Street. Mind you, this street is one of those you'd only know if you were around here. Oh, we have an arrow.
T1R112	L	I think we might be missing a bigger arrow somewhere, because usually they...
T1R113	M	Slightly surprising, unless they've deliberately decided to mix up the wayfinding mechanisms.
T1R114	L	Think they might have pointed to this thing here?
T1R115	M	I don't know. It's not really clear, is it? I will mark down a question mark. Okay, so we're going down Seething Lane. I certainly don't see... Oh, there's an interesting object on that No Entry pole, there.

TiR116	L	They're getting more creative with their.... "Don't miss...."
TiR117	M	Have you got a photo of that one?
TiR118	D	Yeah.
TiR119	L	Into the courtyard?
TiR120	M	Yup.
TiR121	L	Skulls somewhere?
TiR122	M	What does the note say?
TiR123	L	"See skulls above doorway". There's a doorway.
TiR124	M	It's a wee small doorway.
TiR125	L	Take a picture of the skulls?
TiR126	M	Go back on Peter street to do that.
TiR127	M	Again, very modern London. You've got the back of Timothy House, and a brand new hotel. Oh, and arrow on the other side of the road.
TiR128	L	They haven't accommodated for two sides of the road. .... Is this related at all?
TiR129	M	No, merely graffiti. Make a right here. Trinity House itself, which is beautiful.
TiR130	L	Oh, there's a paper. "look up high". Wow. .... Have they won already? By nature of us having found more...
TiR131	M	[unintelligible]
TiR132	L	How far off are we?
TiR133	M	Very close; Just bear right.
TiR134	L	Oh, that looks like it should have been somewhere else.
TiR135	M	There. An attempt to magnetize it, it didn't quite wok.
TiR136	L	I think their markings are a bit too subtle. We're really had to search for them.
TiR137	M	I think I can see something at the corner of Muskovy Street, We will briefly wander that way. It may have just been me. No, I think it's just very blue-looking paving stones. And here we are back at All Hallows. It will be interesting to see how many they found as well.
TiR138	L	But we did giant arrows. Maybe they'll get confused by the pub.
TiR139	M	It is quite historical, though.
TiR140	L	If they get confused by it, it's their own fault!

# APPENDIX C

Phase 2 data: photos taken by Team 1 Photographer, Saturday 3 September 2011.



T1Pic1



T1Pic2



T1Pic3



T1Pic4



T1Pic5



T1Pic6



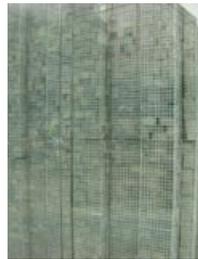
T1Pic7



T1Pic8



T1Pic9



T1Pic10



T1Pic11



T1Pic12



T1Pic13



T1Pic14



T1Pic15



T1Pic16



T1Pic17



T1Pic18



T1Pic19



T1Pic20



T1Pic21



T1Pic22



T1Pic23



T1Pic24



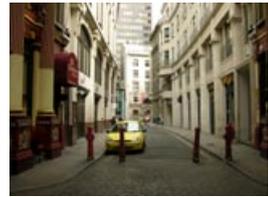
T1Pic25



T1Pic26



T1Pic27



T1Pic28



T1Pic29



T1Pic30



T1Pic31



T1Pic32



T1Pic33



T1Pic34



T1Pic35



T1Pic36



T1Pic37



T1Pic38



T1Pic39



T1Pic40



T1Pic41



T1Pic42



T1Pic43



T1Pic44



T1Pic45



T1Pic46



T1Pic47



T1Pic48



T1Pic49



T1Pic50



T1Pic51



T1Pic52



T1Pic53



T1Pic54



T1Pic55



T1Pic56



T1Pic57



T1Pic58



T1Pic59



T1Pic60



T1Pic61



T1Pic62



T1Pic63



T1Pic64



T1Pic65



T1Pic66



T1Pic67



T1Pic68



T1Pic69

# APPENDIX D

Phase 2 data: Map handout annotated by Team 1 during wayshowing/wayfinding activities, Saturday 3 September 2011.

## Part A: showing

Walk along the route and put up your signs to point the way to noteworthy or unusual or interesting things on the side streets. Your goal: to show the other team how to find them.

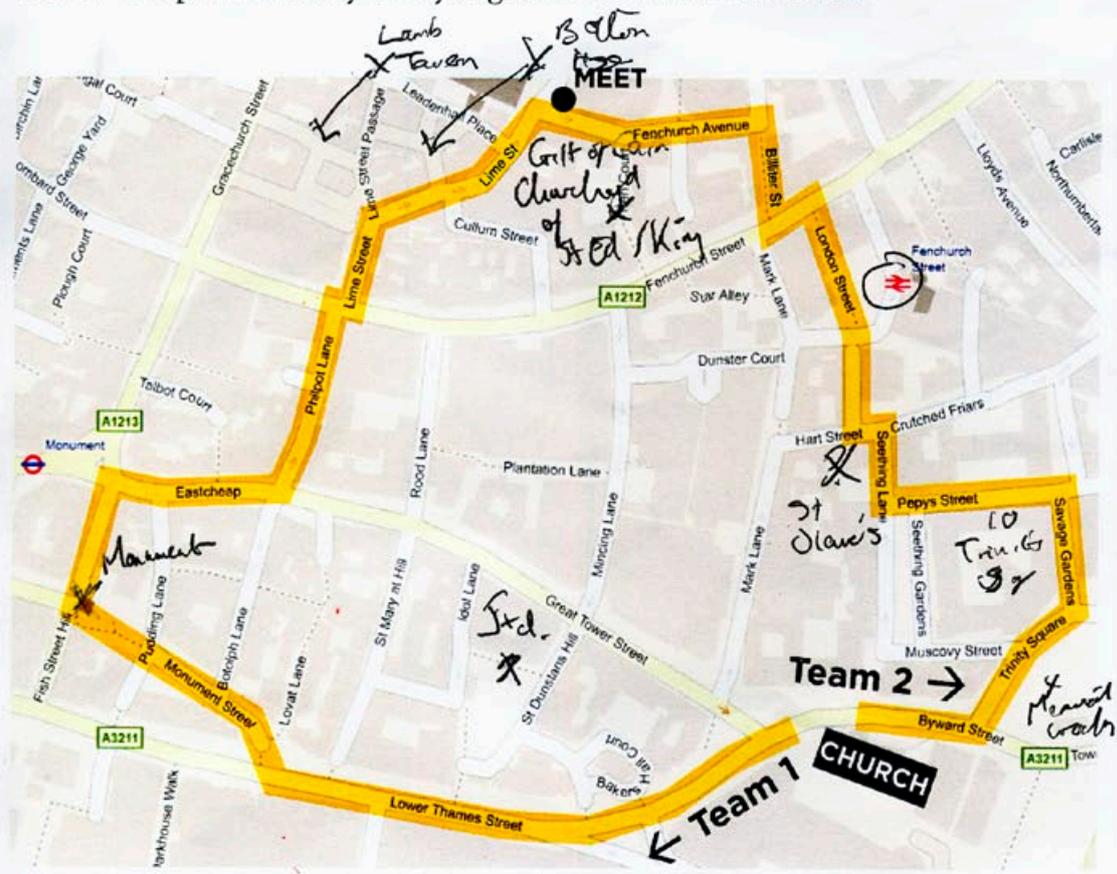
## Part B: finding

After meeting the other team at Lime Street and Fenchurch Avenue, start looking for the signs they've installed. Two points per destination you find.

**POINTS:**

--

Bonus: One point for every time you give directions to a lost tourist.



David's mobile: 07504 967 067

## APPENDIX E

*Phase 2 data: transcription of audio recording of Team 2 wayshowing/wayfinding activity, Saturday 3 September 2011. Two short recordings made over the course of approximately 1.5 hours.*

<i>Line Code</i>	<i>Speaker</i>	<i>Transcription</i>
T2R1	S	We've done the first two clues, coming away from the church. There's the clue for the memorial garden which is a post-it note on the back of a street pole, and then walking down [unintelligible] Gardens, we've done another clue to a vertical garden, high up on a building, encouraging people to turn around and have a look, and hopefully they will see it. Okay, we're moving on.
T2R2	S	So we're walking down Seething Lane, and on our left, or to the right of the other team, there's the entrance to St Olave's Church, which was mentioned by Pepys in his diaries on a number of occasions. They will find a sign on the entrance to Seething Lane coming from the direction of Heart Street.
T2R3	S	Okay, here's a little bit of information. We've just got a bit lost ourselves. We were looking for London Street, but in fact the sign says New London Street, so note to map-makers.
T2R4	S	Here we are on London Street which seems to be two places at once, which is a really weird feeling. But anyway, what we've done is we've found some very interesting little brass markers which mark the boundary of the British Rail property, ie: Fenchurch Station on your left as you're coming down London Street. Left you a little message to highlight some interesting fact.
T2R5	S	Fenchurch Avenue, to the right, Team 1. In Fen Court there is a sculpture, a set of sculptures designed to acknowledge the link between the wealth of the city and the slave trade. There's a memorial to Wilberforce and [unintelligible].
T2R6	S	Okay, we're setting off on the second half of our quest, and here we are at the Lloyd's building. It feels different to be searching rather than indicating. And we've got a little bit of competition from the utilities companies here, but we're going to do our best.
T2R7	S	Here we were, walking down Lime Street, and decided to show H Leadenhall market, and we spotted a stray sign. We didn't spot the usual clue, or they're trying to catch us out, maybe!
T2R8	S	Okay, we found the second clue, which is the Gold house on College Street; very nice piece of tiling. We've headed off down Lime Street now.
T2R9	S	Friendly builders, knew where they were unfortunately, but do we get extra points for just being friendly? I think so.
T2R10	S	Okay, so we found the clue that we thought was the first one, seems it was the second one, which was the entrance, or AN entrance, to Leadenhall Market, because we went off-piste and found it before we were supposed to. Sorry!
T2R11	H	Sorry!
T2R12	S	Okay, here we are walking down Eastcheap, about to turn left down Fish Street Hill, and guess who spotted an arrow, so we're going to head down now to the Monument.
T2R13	S	Okay, we've just encountered another guy, a large, quite phallic-looking arrow, actually. But it's a good, big sign, encouraging us to turn round and have a look at the Monument we've just come from, so we're heading in the direction of Lower Thames Street at the moment. The old fish market on the right-hand side. Getting a bit noisy.
T2R14	S	We've encountered another couple of arrows on Lower Thames Street. We've seen lots of tourists, but no-one wants to talk to us, unfortunately. Because tourists mean points.
T2R15	S	Coming down Lower Thames Street, we've found another sign, pointing us in the direction of St Dunstan's in the East, so we're just checking out the garden.

# APPENDIX F

Phase 2 data: photos taken by Team 2 Photographer, Saturday 3 September 2011.



T2Pic1



T2Pic2



T2Pic3



T2Pic4



T2Pic5



T2Pic6



T2Pic7



T2Pic8



T2Pic9



T2Pic10



T2Pic11



T2Pic12



T2Pic13



T2Pic14



T2Pic15



T2Pic16



T2Pic17



T2Pic18



T2Pic19



T2Pic20



T2Pic21



T2Pic22



T2Pic23



T2Pic24



T2Pic25



T2Pic26



T2Pic27



T2Pic28



T2Pic29



T2Pic30



T2Pic31



T2Pic32



T2Pic33



T2Pic34



T2Pic35



T2Pic36



T2Pic37



T2Pic38



T2Pic39



T2Pic40



T2Pic41



T2Pic42



T2Pic43



T2Pic44



T2Pic45



T2Pic46



T2Pic47



T2Pic48



T2Pic49



T2Pic50



T2Pic51



T2Pic52



T2Pic53



T2Pic54



T2Pic55



T2Pic56



T2Pic57



T2Pic58



T2Pic59



T2Pic60



T2Pic61



T2Pic62



T2Pic63



T2Pic64



T2Pic65



T2Pic66

# APPENDIX G

Phase 2 data: map handout annotated by Team 2 during wayshowing/wayfinding activities, Saturday 3 September 2011.

## Part A: showing.

Walk along the route and put up your signs to point the way to noteworthy or unusual or interesting things on the side streets. Your goal: to show the other team how to find them.

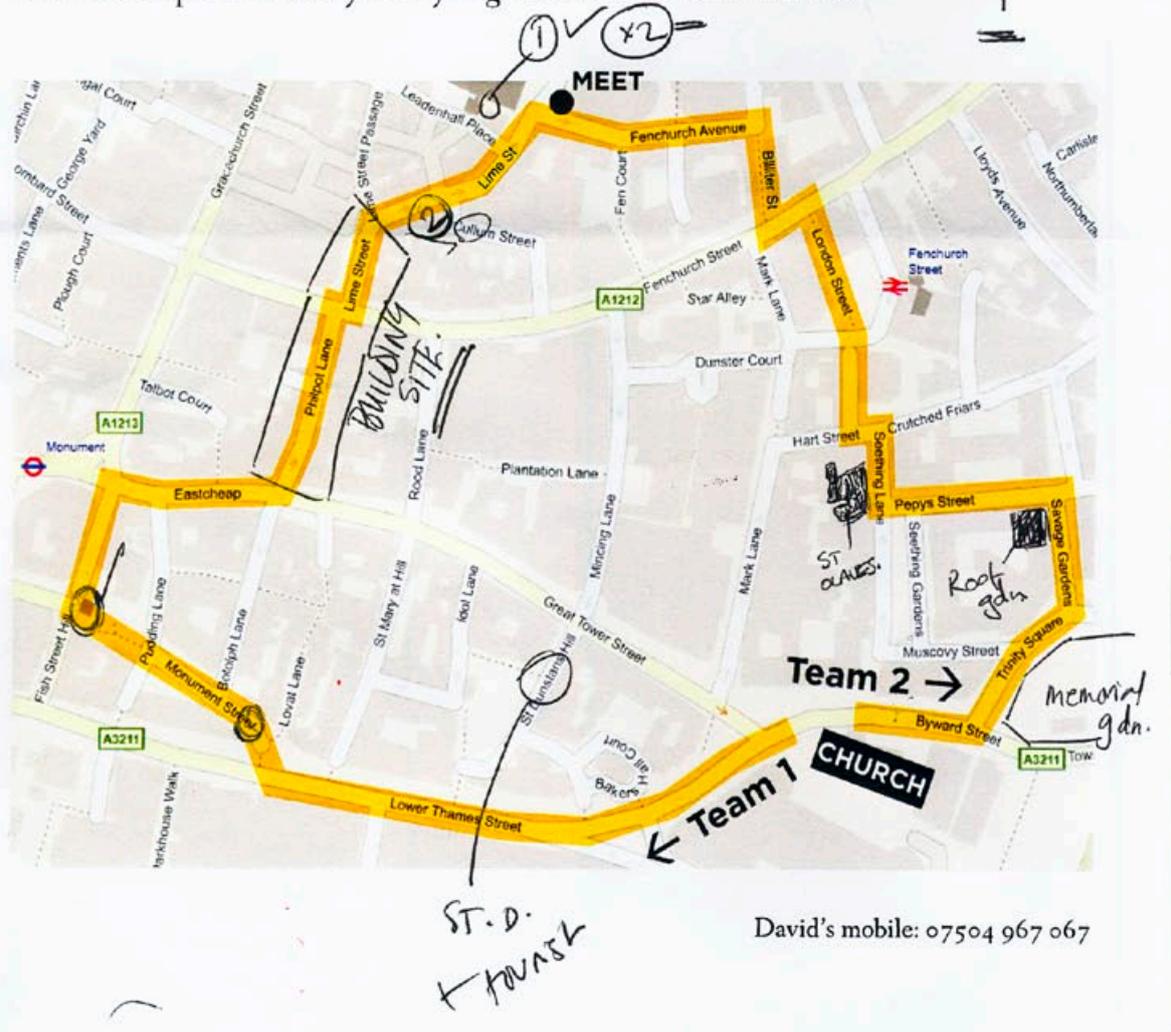
## Part B: finding

After meeting the other team at Lime Street and Fenchurch Avenue, start looking for the signs they've installed. Two points per destination you find.

POINTS:  
1 TOURIST!  
+ 1

Bonus: One point for every time you give directions to a lost tourist.

9



## APPENDIX H

Phase 2 data: transcription of audio recording of focus group held in *All Hallows by the Tower*, Saturday 3 September 2011, approximately 40 minutes long.

Line Code	Speaker	Transcription
F1	Researcher	In general, I'd just like to hear what you thought of it and what your experiences were.
F2	L	We were slightly dull in our approaches. I think early on we decided that consistency is good; people get something in their head to look for, so we made big chunky arrows that were colourful versions of what you get on the street, like turning lanes and that sort of thing, mostly on the sidewalk[pavement], though. It wasn't that adventurous an approach by any means. So much London signage is already on the streets, that it doesn't take long once you're here to start looking for that. Retrospectively, we probably should have made it more unique, so it would stand out as being clearly related to interesting stuff as opposed to just 'this is the way you turn'. Maybe it would have just been a matter of colours; having bright, neon-paint; something that stood out but kept the general model of signage that people are already semi-used to here. Maybe if we had high-vis[ibility] paint like neon paint or something, we'd have probably done better. But yeah, I mean, try and get something that stands out but that isn't too, too intrusive into people's lives.
F3	Researcher	Tough balance to strike, I guess.
F4	L	Yeah.
F5	Researcher	What about Team 2?
F6	H	Then again, just responding to that, there's value in having the signage look like what maybe you're used to looking for, and I don't necessarily think that was the wrong way to go.
F7	S	[To Team 1 members] We found your arrows! We found them. They were huge. But the point you were making, L, about making a connection between what you might see: we found the same thing. We used post-it notes to write little descriptions, but obviously you can't put permanent signs in the environment – or can you? – that give people that information. An arrow: you're not sure if it's pointing TO something or just showing you the direction. It's making it into a narrative. If you want people to go off the tracks you have to give them a reason to do that. Getting that into the descriptive sign is critical.
F8	Researcher	So, you're saying that if you just had an arrow go off the beaten track, there's no reason for them to follow it unless they have a lot of time on their hands
F9	S	Well, we did it because we knew that that was the purpose.
F10	M	Exactly.
F11	D	So we tried to show this line, like 'this is the final direction', and we tried to show the first arrow with a circle.
F12	S	See, I don't think we picked up on that.
F13	M	That might have been slightly subtle.
F14	Researcher	Can you describe that again?
F15	D	When you see the arrow for the first time, it's got a big circle, and when it's the end arrow, it has a line.
F16	H	I only noticed that with the Monument one, that there was a line, and then you were standing staring at the Monument. We certainly noticed that some of them had circles on them, but I don't know that I noticed that sometimes it had a circle and sometimes it didn't if it was continuing on. But no, that makes sense. The 'market' one pointed toward...
F17	M	...To the tavern.
F18	H	Oh, the tavern! I thought it was pointed at the red box.
F19	M	No.
F20	S	We made a little side trip to see the Market to we went in and found the arrow before we'd found your original arrow.
F21	H	Because S was like, 'Oh, let me show you the market' and I was like 'Ooh, we're being bad'. And then we said, 'Wait, there's an arrow. How were we supposed to know it was here??' Because we hadn't gone the way you had showed us. Ten minutes later we found where we would've gone off.
F22	L	One of the things we realized early on was that we were planning on the basis of people following the path, whereas for everyone of those points, there's so many different entry points. We weren't going to go and do every possible way you could approach Monument in the time that we had.
F23	Researcher	How did you make out in terms of the points? Can we determine a winner? Did you keep track of how many signs you found?
F24	M	Well, Team 1 had four locations that we put signage to.
F25	S	We found all of them, and we also found a tourist; they found us, excuse me. Extra point for that. So how many is that? Nine.
F26	Researcher	[To Team 2] And do you know how many signs you put up?
F27	H	[expresses hesitancy] Four?
F28	Researcher	[To Team 1] How about this: how many [of Team 2's signs] did you find?
F29	M	We think you did five places. So, the [unintelligible] artwork in [unintelligible] churchyard just by the meeting point, Fenchurch street station itself...
F30	H	Oh, sorry! That was...no, that's not....
F31	S	That's okay. There was a sign on top of a post because there was some interesting...

F32	H	That was the next one, right? Posted on top of the post?
F33	M	So that's Hart Street, Samuel Beech church, [unintelligible] Square, which has got the carvings, and the memorial garden.
F34	H	What about the studs in the road...
F35	S	...by Fenchurch Street.
F36	M	No, didn't see those at all.
F37	H	Because first we came upon the Fenchurch Street station we saw these studs in the street – the British Rail boundary line, and thought 'Oh, that's kinda cool', and one of them was sticking out particularly out of the street, so on a pole near it, we put a post-it note that said 'Look at the studs' and as we kept going we saw the map and I thought 'I'll put an arrow pointing to...' It was supposed to be pointing to the spot where the studs were, not necessarily the Station.
F38	M	No, it came off to us as if it was pointing at the station. We walked down London Street, came out into the large piazza area in front of Fenchurch Station. We couldn't see any signage at that point, so we just walked straight, toward New London Street; we came across the map; the map had that pointing at it so consequently thought 'ok, the station' then we walked straight ahead to New London Street.
F39	S	You probably would have walked past it, so that's okay. And then, the thing where you said 'Turn around to look up' is actually the vertical gardens.
F40	Researcher	How did you choose what was noteworthy? You passed lots of different things you could have chosen; how did you choose those four or five?
F41	M	The block between the Monument and up to Leadenhall there isn't a great deal, to be honest. It's very commercially build-up; it's mostly 70s and 80s development and some 2000s development, but that's it. A bit of a dearth of stuff between the Monument and up toward Leadenhall area. At least in Leadenhall there are ample interesting things to point out. [unintelligible] The thing about Lower Thames Street is the pedestrian architecture is not friendly. We went out of the church and turned left, and stayed on the river-side of the road. Lower Thames Street isn't that friendly for pointing out different things.
F42	Researcher	Just big, blank façades, you mean?
F43	M	Yeah, big blank façades. It's a dual carriageway, so more-or-less impossible to get across the road easily.
F44	S	But you did find St Dunstan's Church, and the [unintelligible] park on the other side.
F45	Researcher	So, in terms of noteworthy things, it's mostly 'The older it is, the more unusual it is, and if it's interesting architecture...'
F46	M	Exactly. The other one that we pointed out was Bolton House near the meeting point, which is one of the few art deco buildings left in that particular part of London.
F47	S	How did we decide? I suppose...
F48	H	...We saw the sculptures park; we looked down the alleyway, and saw those were right there. It was a mixture of things we would see and find interesting, and things that as you approach the area, you remembered, 'Oh, I think this is interesting. I want other people to check it out', and things that you [S] had knowledge of, that I wouldn't have known.
F49	Researcher	So you would've walked past it and not seen it as interesting if you didn't know the history.
F50	H	Yeah, or since there's so much to look at, not had my attention called to it.
F51	S	Especially somewhere like the City, the interesting things are the juxtapositions...
F52	Researcher	So, things that are unusual.
F53	S	Yeah, or incongruous.
F54	Researcher	So what about the materials? You all chose post-it notes, and some chalk, that you thought was the best thing? Most fun? Best to get people's attention?
F55	M	I think my initial thought was that the pavement chalk was going to be the most visible, although I was quite surprised by how far out I was able to see the bright post-it notes. That definitely did work from that perspective.
F56	L	I think it was partly the durability; the worry of anything getting blowing off or getting knocked off.
F57	M	This one [indicating a post-it] we actually found on the ground, next to the post it was supposed to be stuck on. We found electrical tape on the post, and the magnet was still attached to it as well. But it was on the ground.
F58	S	Do you think it had fallen off or had someone pulled it off?
F59	M	I think it had fallen off. It didn't look like it had been pulled off.
F60	H	The thing about the one you didn't find, which looked the very same although it was maybe in a spot you wouldn't be looking...
F61	M	Yeah, it was on the top [of the post].
F62	H	After we had done it, I thought 'Maybe I'll go and circle the pole with chalk', and then I thought, 'S is going to think I'm too chalk-happy'. That might have been something to draw your attention to the pole.
F63	L	I don't think we even got that close to the station itself. So it probably would have taken...
F64	S	It was at the top of the steps. But what was also interesting, I thought, was that there were quite a lot of people around but nobody really paid us any attention....[general agreement from participants]...we were on the ground, drawing large arrows in chalk, and the only time was when a couple of builders, having a cup of tea, wondered what we're doing.
F65	H	We weren't even chalking, we were looking for stuff, and they were like, 'Are you lost?' and we were like "No!"...

F66	S	...“We’re just doing this...” “Oh what are you doing” “We’re doing this bit of wayfinding” and they looked [confused] so we had to explain wayfinding! That was funny. But apart from that, nothing. I was expecting someone to ask ‘What are you doing? You can’t stick that on there’.
F67	M	One of the other things that I do in this similar area is running games in the City, where people are trying to find stickers which have been placed in areas around the City. The ‘guards’ who have placed the stickers are in high-vis tabards, players are wearing street clothes, and civilians don’t pay any attention to that. They’re completely happy that that goes on, and not really a problem. The only trouble we’ve had is with the security folks around the City but as soon as you tell them it’s a game, it’ll be over in an hour or two, they say ‘Yeah, cool’.
F68	L	I think that describes London pretty well, except it’s hundreds and thousands of layers of activity and people disconnected from everyone else which probably makes your [the researcher’s] job a lot harder.
F69	S	When we were putting up post-it notes a few people walked past and they just completely blanked and I think people think you’re doing advertising...so they’ve already made an assumption.
F70	Researcher	You’ve all probably used the Legible London signs and maps when you’re lost; how does that contrast with what you did today in terms of finding destinations?
F71	D	There is no Legible London in this area...
F72	Researcher	So, it’s an older system?
F73	M	Yeah, around here it’s the old London system that pre-dated the Legible London work.
F74	Researcher	Did you use [those old maps and signs] when you were wandering around?
F75	M	Yeah, we did. There’s one which is Fenchurch Street...they’re actually pretty good. They’re not as personal-oriented / direction-oriented as the Legible London ones are, but they’re still actually pretty good.
F76	Researcher	What were you using them for? Was it for direction or to find attractions?
F77	D	Attractions.
F78	M	L pointed out a church that we could see from that junction, which is St. Margaret’s Church, but we identified our base by looking out our map and working out our relative position from there.
F79	Researcher	Do you see any application for this type of system, like expanding it, or involving more people, or on an ongoing basis in this city?
F80	S	Yeah, I think perhaps visitors to this City want to feel like they’re getting inside knowledge. But about what you said about Legible London, it comes down to authority and trust....
F81	M	Very much so.
F82	S	...You have to trust, to some extent, that somebody is guiding you and giving you information. H and I were talking earlier about our little maps [Google Maps distributed as part of the activity], there was ‘London Street’, where in fact we were in New London Street...
F83	H	...but Google says ‘London Street’. We were on the wrong street. We passed New London street because we were looking for New London Street [In fact, one is a continuation of the other].
F84	S	Google Maps generally does lead you astray. That undermines its validity.
F85	Researcher	But you still trust it, most of the time?
F86	S	Mostly. You still use it because it’s convenient, but with that proviso that it might not be right.
F87	L	I generally find the [on-street, installed] maps useful, but it’s the in-between directions to specific points along the way where this sort of thing would be useful, because I have a terrible sense of direction. So, being able to catch little indicators along the way would help.
F88	H	I agree with that.
F89	Researcher	So the maps would be the main anchors in an area, and then there would be something else to fill in the blanks?
F90		[General agreement]
F91	L	In some cities you see footprint paths that guide you from one place to the next. They start at a central map and take you in a few different directions.
F92	D	Somewhere in America they have red stones in the road.
F93	Researcher	Have you ever followed one of these trails?
F94	L	I can’t remember where I’ve seen them, but yeah, I have.
F95	Research	Did you know what it was leading to, or did you just trust?
F96	L	I’m pretty sure at the beginning of the pathway it had some basic information and maybe some certain points along the way, giving the distance.
F97	M	One interesting thing along those lines, in London, is around the Barbican Centre. From Barbican tube to the various theatres, they’ve actually got painted lines on the pavement. You choose which theatre you want to go to and you follow the painted line.
F98	Researcher	If you wanted to, you could subvert that, painting a different colour line leading to nowhere, so there’s that element of trust again.
F99	S	H, you mentioned something about Labyrinth...
F100	H	You know Labyrinth [the movie], with David Bowie, where she’s lost in the labyrinth and she pulls out a tube of lipstick to point her own way because she feels like she’s going in circles, and then you see that a little gremlin pops up from under the pavement with the pave-stone above his head, and he turns it and puts it back down, and she turns around and this arrow is pointing not the way she pointed it.

F101	Researcher	Well, you may have given me an opportunity to quote Labyrinth in my research paper! Was there anything else from the activity that stood out for you as interesting, unusual, enjoyable? Any final thoughts about something we missed in our discussion?
F102	S	I put it on the [Dictaphone] recording, but it's quite interesting to compare the activities, the showing and the finding.
F103	Researcher	Is there one you liked more or found more satisfying?
F104	S	I quite liked the showing.
F105	H	I liked finding, because it was like a game. I think one thing I noticed and didn't really have to think about because I had S's good sense of direction which I don't, but as you were picturing showing the other team trying to find what you were going to show them, you had to remember that they would be coming from the opposite direction, and if I had been on my own, I'm sure I would have done the entire exercise backward. I would have forgotten that's not how the game is set up.
F106	M	The directional thing is one that we thought about very early on. But also, it's interesting because all of the routes, it's quite possible to approach from multiple potential directions or different sides of the road. Around the Eastcheap area, lots of pedestrian crossings. We were pondering when we were setting the direction for Monument: 'What's enough here?'
F107	Researcher	[To new participant and older Londoner who just joined the discussion]: Do you find that you use any of the maps that are out on the street? Do you need them?
F108	V	Oh yes. There are still tons of alleyways.
F109	H	That was one thing: not knowing what side of the street you might find the right thing on, because when we did the one where we wanted you to look up at the vertical garden, I did it on the side that we were on, but I thought 'Oh, what if they're over there?' so I went over and did it on the other side too.
F110	M	We did come across it and went on the other side.
F111	Researcher	So, you did see both signs?
F112	M	Yeah.
F113	S	There's a lot of clutter on the streets on Lime Street, where the utilities are marked up; it's just ridiculous. Anything you want to put it in the way of signs is just competing.
F114	L	That's one of the issues more generally in a city like London, most city centres probably, there's so many different things you're paying attention to at any given moment. That balance between something that will get your attention and something that is too obtrusive is not an easy one to strike.
F115	Researcher	You want to whisper to people, but whisper right in their ear.
F116		[General agreement]