
UNDERSTANDING HOW
GRAPHIC DESIGN IS
ANIMATED THROUGH USE

**THEORETICAL FRAMEWORKS FOR THE CONCEPTUALIZATION OF
GRAPHIC DESIGN IN USE**

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ABSTRACT

The practice and theory of graphic design are surprisingly unimpressed by notions of use. This paper seeks answers for this absence in the discipline's focus on the visual. Visual studies presuppose a disembodied viewer rather than a user of graphic design artifacts. To enable a user-centered perspective in graphic design, three theoretical frameworks are presented and discussed: Distributed Cognition, Activity Theory, and Actor-Network Theory. All these approaches move away from a narrow visual and product centered perspective to a broader contextual view on the socio-material relationship between subjects and graphic design artifacts and the activities they're engaged in. Examples of how the theoretical framework can guide research and practice in graphic design are given.

Key Words: Activity Theory, Actor-Network Theory, Distributed Cognition, Graphic design, Poster, Relational Design, Use, User-Centered Design.

Citation: JAN-HENNING RAFF (2013). Theoretical frameworks for the conceptualization of graphic design in use, *Iridescent: Icoagrada Journal of Design Research*, 2(2).

FULL PAPER

Introduction

This paper proposes three possible theoretical frameworks for understanding how graphic design is 'animated through use'. When talking about graphic design, it is understood as the discipline that produces visual artifacts such as books, posters, advertisements, visual identities, etc. This distinction is necessary if we are to consider graphic design as a separate practice from e.g. interaction design. Although these fields are merging and a sharp distinction is more difficult to draw today, graphic design as a distinct practice still exists. Its classical forms and genres are not vanishing but complementing digital design.

Theoretical progress, however, has been achieved in more technologically driven fields of design. Interaction design for example, has drawn on other disciplines such as ergonomics, psychology, and the social sciences. On these scientific foundations, a user-centered perspective on design has been developed and is now commonplace. It has brought important innovations and new theoretical insights to interaction design.

This approach is rarely taken in graphic design, where the category of use is noticeably absent. Reviewing past issues of scientific design journals (*Design Issues*, *Visual Communication*; 2005–2010) the impression is reinforced that little or no attention is given to the aspect of use in graphic design. Exceptions are the contributions to the international issue of the Italian journal *Progetto Grafico International* that urge for a more user-centered perspective in graphic design. But

they either stick to the semiotic paradigm (Perri, 2011) or are trying to adapt the ‘ethics’ of user-centered design for graphic design (Farrauto, 2011; Perondi, 2011; Sfligiotti, 2011). As a result, the conceptualization of use remains more of a promise than a reality.

Why there is no user in graphic design

In the field of Human Computer Interaction the focus on use has been commonplace since the 1980s. Design methods that take users’ behavior into account like User-Centered Design (Norman & Draper, 1986) and Participatory Design (Schuler & Namioka, 1993) have positively influenced the development of both soft- and hardware. Meanwhile, with User Studies becoming mainstream these methods are undergoing a critical reassessment (Norman, 2005) and new models are being proposed now that ‘the user’ as a resource for innovation has been deemed depleted (e.g. Chow & Jonas, 2010).

Graphic design however, seems to be untouched by this progress. Why is there no discourse about use in graphic design? Apparently, graphic design does not deal with use but – as its alternative name suggests – with visual communication. Visual communication conveys a message to a reader, interpreter, or observer. This reader interprets a message depending on her/his prior knowledge and skills and her/his socio-cultural background. Accordingly, research in visual communication is preoccupied with images and texts and their meaning. Three important approaches exist: rhetorical, semantic and pragmatic approaches (cf. Barnhurst, Vari & Rodríguez, 2004: 629-631; Hope, 2006: 3). The rhetorical approach analyzes how images and texts are configured to convince or persuade people. Semantic approaches treat the visual as text, analyzing its internal structure. The pragmatic (not pragmatist) approach looks at the processes of production and reception of visual artifacts.

A review of two important scientific visual communication journals (Design Studies and Visual Communication, 2005–2010) reveals their focus on the visual and the absence of a conceptualization of use – with the exception of Whyte and Cardellino (2010) who examine ‘visual practices’ in organizations. Some researchers warn that the preoccupation with the visual leads to an ‘ocularcentrism’ (Julier, 2006: 66). Centered on the eye, visual studies reduce the reader to a disembodied actor facing a dematerialized artifact. Consequently, they leave out the very situation of the embodied subject in relation to the material artifact.

The products of visual communication are material artifacts to which subjects relate as embodied actors in specific socio-cultural contexts. When we speculate about graphic design with the body in mind the question of use immediately emerges. For example, a poster, commonly conceived as a visual plane, could also be described as printed matter that is attached to a vertical surface, and is to be read while standing. A poster is not only perceived visually but has to be ‘used’ in certain ways. Likewise, a promotional flyer affords other uses. It can be carried around and read in different postures. Reading a book can’t be reduced to observable eye-movements but is always taking place in a

certain posture involving the hands.

These examples of ‘use’ may be all too obvious to the graphic designer, who is more or less conscious of its implications. Indeed, most formats and genres of graphic design have a long history. Books, posters, letterheads, signage systems, etc., are such familiar forms of cultural expression that their use seems implicitly inscribed in their design. Indeed, designers reproduce their patterns of use by convention, without needing to think about their actual use. In some branches of graphic design, however, usage posits a challenge: Signage systems, packaging, forms, or instruction manuals have specific qualities of use that have to be taken into account in their design. They are not inert artifacts but take part in human activities. In such activities they undergo changes: they are extended, enhanced, transformed, and even redesigned in use. Here, obviously, graphic design gains new insights from studying usage.

In addition, the observed ‘paradigm shift’ in graphic design practice ‘moving from form to content to context’ (Blauvelt, 2008) calls for a rigorous theoretical analysis of use. Blauvelt has labeled this new paradigm Relational Design because it goes beyond form and content. Relational Design practice explores the social contexts of actual use, and critical practitioners such as the Dutch design studio Metahaven embrace these broader contexts. They use their practice to ‘speculate on the future’, they use ‘design as a tool for prototyping rather than implementing stable solutions’ (Metahaven, 2009).

As we can see, there is a need for a theoretical foundation to the study use in graphic design. The aim of this paper is to catch up to current research into use in other fields of design, and make it accessible and transferable to contemporary graphic design practice and research.

Theoretical frameworks to study graphic design in use

The preoccupation with the visual and the obviously ‘inscribed’ usage of the traditional forms of graphic design are reasons why use is rarely explored in practice and research. In order to open the discipline up to the concept of use, broader perspectives on human cognition, activity, and agency must be introduced. Distributed Cognition, Activity Theory, and Actor-Network Theory provide possible theoretical frameworks for this challenge. The purpose of presenting these frameworks is to sensitize and inspire research and practice. They are not theories that offer ready-made solutions for practical problems. Rather, they present a consistent language to reason about a specific problem.

What is common to the three approaches is their ‘post-cognitive’ stance (Kaptelinin and Nardi, 2006). All three strive to overcome the Idealist dichotomy of subject and object, body and mind. In Idealism, the subject acts on a representation of the world in her/his head. The world is separated from the subject. The presented theories however, presuppose that the material world is not divided from the empirical subject, and foreground the real interplay between subject and object. Neither subject nor object are in the center, instead, artifacts take part in human activity. Activity Theory in particular, analyzes the relation of mental and corporeal activity. Activity (and thus use) is not limited to observable, behavioral activity but expands to mental activities that are

mediated by artifacts.

Despite these similarities between Distributed Cognition, Activity Theory, and Actor-Network Theory, each assumes a different concept of man. Distributed Cognition is a critical extension of cognitive psychology, and so inherits its model of the human mind as a computer. The subject is seen as a potential source of error with limited cognitive resources, and therefore an ‘optimization’ of human cognition is required. Activity Theory started as a Marxist critique of cognitive psychology, and argues that the individual develops through socio-material interactions. The aim of Activity Theory is the ‘empowerment’ of the individual within society. Actor Network Theory has its origins in sociology. It critiques sociologists’ focus on human interaction, and instead searches for the ‘missing masses’, i.e. the role of artifacts in society (Latour, 1992). Actor Network Theory labels itself as post-human because it admits agency to non-human actors. This has led to interesting critical reassessments of expert behavior as materially and socially constrained activity. The aim of Actor Network Theory is the critical ‘deconstruction’ of human achievements (cf. Latour & Woolgar, 1979).

In the following sections the theoretical concepts of Distributed Cognition, Activity Theory, and Actor Network Theory are presented and their implications for graphic design are discussed. A common graphic design artifact serves as example: a public poster for an event (of any kind). Although the future of posters has repeatedly been questioned (e.g. Müller-Brockmann and Müller-Brockmann, 1971: 239) posters are still ubiquitous, at least in Western cities. They are one means of advertising a product or service in a specific environment, and are often an important part of an advertising campaign. Posters are a means of mass communication, as their target audiences can’t be fully controlled.

In material terms the poster is attached to a vertical surface in the public sphere (or in publicly accessible private property). The individual poster’s immobility is overcome by the distributed presentation of copies. It follows that the message of a poster is not directly addressed to a specific recipient, but instead is absorbed by the passersby.

‘The persistence of posters’ (Blauvelt, 2011) may be due to their enduring task of ‘public expression’ as opposed to the ‘personal expression’ of the blogosphere. Additionally, though being a low-tech product the medium actually benefits from progress in high-tech digital printing technology (Blauvelt, 2011). Maybe the classical poster will be relegated to a niche existence but new ‘media facades’ or ‘flat screens’ inherit its potentials and audiences. Since capitalist enterprises compete for the limited purchasing power of consumers ‘there can be no limit to the effort to saturate public space with advertising.’ (Sontag, 1970)

Reconstructing the use of posters with the help of theoretical frameworks posits a particular challenge. Other graphic design artifacts such as books or signage systems expose their use qualities more willingly. But our challenge here is to reconstruct use from a rather simple, non-interactive artifact. In graphic design the usage of a poster is reflected in terms of its legibility and visibility. This admittedly narrow definition will nevertheless allow us to explore new conceptualizations of graphic design in what follows.

Distributed Cognition

Distributed Cognition (DCog) was conceived as a supplement to cognitive psychology. In opposition to cognitive psychology, however, proponents of DCog claim that ‘the “mind” rarely works alone’ (Pea, 1993: 47). Instead, mental activity is accomplished by incorporating the work of other minds, the environment, things, and symbols, which all together form a distributed network. ‘The environments in which humans live are thick with invented artifacts that are in constant use for structuring activity, for saving mental work, or avoiding error, and they are adapted creatively almost without notice.’ (Pea, 1993: 48). Kirsh (1995) describes how the spatial arrangements of things may be used to simplify choice, perception, and internal computation. Mental activity is facilitated and structured by external resources, which means that ‘agents project structure onto the world’ (Kirsh, 1995: 33). One prominent practice is the ‘offloading’ of cognitive resources into the environment. For example, an office worker uses piles of paper as reminders for tasks (Malone, 1983; Sellen & Harper, 2003). Kirsh (2005) shows how taking these aspects of cognition into account may enhance visual design.

With DCog we can appreciate how graphic design artifacts take part in cognitive processes. Let’s have a look at a promotional poster for an event in the street. Someone passes by the poster and shows an interest in the promoted event (specific form and content are not important at this point). The best way to remember the event would be to detach the poster and carry it away – but this is neither practical, nor desirable. Instead, according to DCog theory, the memory of the poster in its specific spatial context may become a cue enabling the passerby to remember the event. Indeed, location is an important cue for retrieving information from memory (Baddeley, 1990), and thus the poster becomes the mental representation of the event. The visual qualities of the poster itself and the contextual properties of its specific location, help to ‘offload’ the cognitive effort required to remember the event. Later, one can look up the event on the Internet or visit the poster again (although the poster may have disappeared). Another option is to take a personal note of the information given on the poster, perhaps by taking a photo of it. Either way, the poster is entered into a person’s distributed cognitive system. It takes part in a broader context. Designing a poster is thus not only about creating an isolated artifact that a potential viewer may digest. According to DCog the poster may become a part of peoples’ personal information systems. Designing a poster means designing a part of a cognitive system.

The obvious design lesson here is that a poster should provide distinct visible or physical cues that can be entered into peoples’ cognitive systems. Another way to facilitate the processing of the message is to offer some information on the poster that may be taken away. Currently, one solution here are Quick Response Codes i.e. small two-dimensional printed barcodes on posters that may be scanned using the camera of a smart phone (<http://www.qrcode.com/en/index.html>). The code contains information such as the link to an Internet site. In this way, the poster’s information is transferred to a personal information system. Designing with Dcog in mind, means to treat graphic design artifacts as only one, but

nevertheless active, part of peoples' cognitive systems.

Activity Theory

Activity Theory (AT) originated in Soviet psychology of the 1920s, where it was developed by Vygotsky and later, Leontiev (1978; 1980). Vygotsky and Leontiev presupposed that human actions are cultural-historical products that should be analyzed within broader contexts than those confined to the laboratory settings of cognitive psychology. As a result they proposed a minimal meaningful context for human activity. In an activity, subjects make use of artifacts (including non-material artifacts such as languages or other symbolic systems), which mediate between the subject and their goal, and so are considered tools. The tool enables and – as a specific way to access the world – structures the activity. The tool, therefore, both enables and constrains action (Wertsch, 1998). AT analyzes tool mediation from a developmental perspective. External tools mediate an activity, but they become obsolete when that activity is internalized. For example, children use their fingers to count or accomplish simple calculations up until the time when these external symbolic operations become mental operations. AT does not solely promote the process of internalization. The externalization of tools is often necessary, especially when difficulties arise. The example of the child shows how AT tries to unite behavioral and mental operations within the concept of activity. Studies that employ an AT framework, show how tools seldom appear ready-to-use, and are often invented and redesigned by the subjects (Béguin & Rabardel, 2000; Kyhlbäck & Sutter, 2009).

AT has been proposed as a conceptual framework to model and study design activity (Tarbox, 2006; Kang, 2009; Tan and Melles, 2010). Equally, AT helps us understand the use of graphic design. First, it enables us to reconstruct the context in which graphic design artifacts are used, where the artifact is often only one part of a larger system. From there we can narrow down its actual uses to more concrete actions, and then to specific corporeal or mental operations (AT proposes a hierarchical structure for this). Given a concrete activity, we can then ask how the graphic design artifact is mediating this activity as a tool.

This is rather hard to do for posters, which are generally designed to be 'happened upon'. One seldom deliberately visits posters, except in dedicated poster exhibitions. People passing by posters are already involved in an activity, and at the very least, they are going from A to B. Some of these routes are routine routes such as going to or from work. On the way one regularly encounters posters, and such accidental encounters with posters are routine. Posters may then become a tool for being up-to-date, or for planning ones cultural life, and in these cases one expects posters to change regularly. A poster alone is not a tool for planning, but within a routine activity, posters may become tools for planning. Although visible behavior hasn't changed, the existing activity system is enhanced by another activity.

One could also deliberately enhance an existing activity, such as going to lunch, by paying increased attention to promotional posters. Additionally, from the developmental perspective of AT we could imagine that for someone who has just moved to a town posters promoting

events provide a valuable source of information, and he/she may even develop some routines to visit posters. Eventually, when the new inhabitant has made some acquaintances, the posters may become less important or even obsolete as a source for news, and more direct forms of communication replace the tool. This example shows how AT facilitates the reconstruction of social interrelations taking place within an activity. Engeström (1987) has proposed a model for studying activity systems within larger contexts, where rules, community, and division of labor provide the framing. AT then becomes a research tool to investigate the social functions of graphic design from the bottom up. In such inquiries the graphic design artifact is like a probe that explores social relations.

The design lesson here is that for posters to become tools they must exploit existing activity systems. Posters and their location have to be designed around such activity systems. Thereby, they may reinforce or contribute to a change of social activity systems. Thus, the study of the use of graphic design artifacts has to go beyond the immediate issues of perception; and in the case of posters, beyond the issue of readability. The AT framework usefully complexifies any notion of a universal user, and also allows a poster's life to be understood beyond the moment of its apprehension.

Actor-Network-Theory

Actor-Network-Theory (ANT) originated with Bruno Latour, Michael Callon, and John Law, and tries to blur the distinction between intentional subjects and inert objects. According to them the world consists of human and non-human actors – both social and technical parts (signs, things) – having different degrees of agency. These actors may (or may not) work together and this cooperation results in networks with differing stability. ANT integrates the role of technical artifacts within networks, and offers a broader context for studying these practices. The human is just another actor in a network – that is why ANT is regarded as a 'posthumanist' theory (Schatzki, 2001: 2).

But how can things around us have agency? The key is ANT's concept of 'delegation to nonhumans' (Latour, 1992: 232). When humans produce an artifact it may be described as delegating: Humans delegate tasks to a non-human actor. The non-human actor follows a 'script' that the human actor has written for it. Put simply, a non-human actor, such as a machine, replaces human labor. This is one reason why ANT speaks of actors. ANT now looks at the new actor that acts independently. Having a dedicated behavior, the new actor imposes scripts back on the human: 'The nonhumans take over the selective attitude of those who engineered them.' (Latour, 1992: 233). Latour gives the example of an 'unfriendly' door that replaces a human doorman. The door automatically closes with a certain force thereby discriminating against small and old people. Hence, the prescriptions imposed by non-human actors on human actors are not only physical constraints, but carry with them beliefs about how the world should be: non-human actors are also moral actors. The automatic door suggests to the aged: 'What do you want here? This is no place for you.' The world is full of such delegated actors that may be compared to humans. ANT invites us to imagine

artifacts as our counterparts. When artifacts are conceptualized as partly social beings, they are not only waiting to be used, but take part in social relationships. As with human beings, such relationships may be stronger or weaker, hierarchical, intimate, etc.

How can we transfer these ideas to our graphic design artifact? We may begin asking: Which tasks have been delegated to a poster? What would a human actor in place of a poster do? Let's imagine this for a moment. A human being replacing a poster would probably wave at us, beckoning us to approach. When we're within speaking distance he/she would invite us to an event, or advertise a product. This behavior is more obtrusive than the behavior of the poster. Indeed, an individual poster, however visually aggressive, is nice and quiet compared to its human counterpart. But, the individual poster's modesty is outweighed by its omnipresence. Another copy of the poster is waiting for us around the corner. The poster is a stalker!

We see now how human work has been delegated to the poster: The chore of standing and waiting for passersby is delegated to a visual plane that can be attached anywhere. While the poster performs this task more reliably, it is rather unskilled in addressing passersby personally. On the other hand, the poster prescribes behavior on us: it requires us to approach. If we really want to absorb its information we have to stop. But stopping in the flow of passersby is sometimes difficult. People may denigrate this as 'hanging around' (Goffman, 1966). That means, socially accepted behavior toward a poster is achieved only when one passes by the poster and absorbs its information 'en passant'. This way the poster's message is disclosed through a more and more acute angle. The best viewing angle is achieved when the body is oriented orthogonally to the poster. But this posture requires us to turn our head, distracting us from our goal. Standing before a poster is only acceptable when we make our behavior 'visibly-rational-and-reportable-for-all-practical-purposes, i.e. "accountable"' (Garfinkel, 1967: vii) as waiting. Indeed, longer exposure to a poster is only acceptable at places where idling is expected: on railway platforms, in subway trains etc.

The poster implies methods of use that go beyond the constraints that its visual attributes prescribe. In fact, the poster is an actor within a network: the street and its unwritten laws are reinforced by the 'morality' of the poster. ANT understands networks as arrangements of human and non-human actors that transform one another through their interaction. A disruptive transformation occurs when a poster is taken home. Susan Sontag has described such usage of posters. She notices that 'the voting American and European bourgeoisie' (Sontag, 1970) voluntarily puts posters of events, movies, and political posters on the walls of their homes. There, the posters become 'a souvenir of an event' or more often (as the promoted event was not attended) 'substitutes of experience' (Sontag, 1970). Sontag is very critical about this use: 'Collecting posters is a species of emotional and moral tourism, a taste for which precludes, or at least contradicts, serious political commitment.' (Sontag, 1970) The home use of a poster is seen as an act of symbolic appropriation without real commitment.

In terms of ANT, what happens here? Put in a private place, the poster-actor has changed. It's not a delegate of the person or institution

that organizes the event anymore. Of what use would it be to promote an event at home? The actor is here engaged in another job, it has become a delegate of the owner that addresses visitors with the message: the owner is a respectable person because he/she has attended this event or at least has enough taste to wish he/she had done so. Of course, the poster fulfills the need for decoration too. Whereas in public it may seem unacceptable to immerse oneself in the contemplation of a poster, at home it can be endlessly appreciated.

ANT invites us to imagine the human counterpart of an artifact, and reconstructing the delegation of human work to the artifact helps us do this. This unveils the sociality of artifacts, and the more or less acceptable prescriptions that artifacts impose on human behavior, to the point of revealing the ‘morality’ of artifacts, how they strengthen certain socially accepted behavior.

Conclusion

The presentation of possible theoretical frameworks to study graphic design in use has revealed different aspects of the relations between subjects and graphic design artifacts. These frameworks provide us with new perspectives to think about how graphic design is taking part in everyday practice. Distributed Cognition offers a concrete way to understand how graphic design artifacts are used as external resources that facilitate cognitive processes. DCog’s focus is on the optimization of cognitive processes by enhancing the engaged artifacts. Activity Theory offers plausible concepts with which to model activities and their mediation by artifacts. The artifacts may then be evaluated as more or less adequate tools in activities. Particularly, the developmental perspective of Activity Theory invites us to study and reflect how such tools evolve and eventually disappear in use. Finally, Actor-Network-Theory points us to the agency of these artifacts and their possible participation in socio-material structures. As it conceptualizes the power of artifacts to prescribe uses it unveils their ‘morality’.

All approaches move away from a visual and product centered perspective to a broader view on the role of graphic design in everyday life. The approaches do not conceive use in the narrow sense of handling artifacts, but it does not follow that implications for design can’t be directly derived from them. Surely, Distributed Cognition’s concept of ‘offloading’ cognitive effort to an artifact is easily applicable to graphic design artifacts. It is one important consideration for ‘print usability’. Transferring this concept to other graphic design artifacts like books, flyers, signage systems, etc., is effortless. Furthermore, design practice may find inspiration in the concepts of Distributed Cognition, Activity Theory, and Actor-Network Theory to model use cases, scenarios, and personas (Cooper, Reimann, and Cronin, 2007) in order to gather requirements and to derive constraints that guide the design process.

The theories also offer heuristics and frameworks for design research. They raise sensitivity and offer a shared language for research (Corbin & Strauss, 2008). Ethnographic methods like participatory observation and interviews are best suited to such studies, as they result in thick descriptions of practices. But designers may find it hard

to translate such descriptions back into ‘implications for design’, and so more reactive methods such as research through design (Findeli, Brouillet, Martin, Moineau and Tarrago, 2008; Friedman, 2008) where a prototype plays a role as a probe might be better employed.

Most importantly, the frameworks enable a critical perspective on graphic design. They carry us away from narrow graphic design problems by considering visual artifacts in their broader social contexts. Within these contexts the function of graphic design artifacts can be explored and discussed. What efforts do they leave to the subject? What questionable practices do they promote? Which social behavior do they sanction? The frameworks are an invitation to critical practice and research in graphic design.

Acknowledgements

The author wishes to thank the reviewers for valuable comments and critique on previous versions of this paper.

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Dr. Jan-Henning Raff holds a diploma in communication design from Kunsthochschule Berlin Weissensee (Germany). He has been research assistant at the media centre of Technische Universität Dresden (Germany) where he has built up and headed the department of media design (2004–2010). His PhD thesis is on everyday design practices of student learners (published in 2012).

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