

Interaction Design:

Where's the graphic designer in the graphical user interface?

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Abstract

This paper will, from a visual communication perspective, explore the role over the last 40 years of the graphic designer within graphical user interface design. I am specifically interested in how graphic design has had to respond to designing for interactions in the new digital media. To do this I will also examine how interactive design has impacted upon graphic design and vice versa. In order to conclude on the present position I will explore the roots and formation of the graphic design discipline formed sixty-six years prior to the formation of the new discipline of interaction design. There are parallels between the two. Focusing upon a literature review of academic visual communication literature this paper scrutinizes limited writing within it on graphical user interfaces. It analyses and evaluates the visual communication literature dialectically through a filter of interaction design writers' selected writings. In tone and structure this paper is designed to address a proposition that has seldom been addressed fully from my chosen perspective. My research position is shaped by a desire to explore the graphic aspect of graphical user interfaces rather than from the technology/HCI/computer science disciplines. This paper adds to the discourse on how interactions can be facilitated by better graphic design in order to expand visual communication literature and application to practice. The conclusions in the paper set the context for a deeper enquiry into graphical user interfaces from a visual communication perspective, as part of my continuing PhD research.

Key words: Interaction and Interface Design, History, New Media

1. Introduction

Can't see the wood for the trees? Where's Wally?

In the 21st century, within the design of graphical user interfaces for online and offline digital products, where have all the graphic designers gone?

In this paper I will explore, from a visual communication perspective, the question of locating the role of the graphic designer in graphical user interface (GUI) design. In the seventies and eighties graphic designers Norm Cox, Karen Elliott and Susan Kare all worked upon GUIs for computer companies such as Apple, Xerox and Microsoft. Working in software development, they opened up a whole new field for graphic design, designing

icons, menus and windows¹ in collaboration with their computer science colleagues. During the early development of GUIs for the PC² it was the responsibility of graphic designers to organize and fine-tune “*the visual relationship between interface and screen design*” [4]. But how did this field develop to the present day. To understand this I will contextualise graphic design with interaction design in order to spotlight differences and parallels to interaction design. Finally I will conclude and answer where the graphic designer are currently located in the design of GUIs. In the next section of this paper I will review the academic literature and position the exploration of my opening proposition.

2. Literature Review:

The academic visual communication literature that deals with interaction design is modest, whereas interaction design literature from its science root is abundant. Academic papers on interactivity, human factors, cognitive psychology, Human-Computer Interaction (HCI) are available within specialist journals and conference publications. Experts such as Donald Norman and Brenda Laurel are prolific commentators upon human factors and interface design respectively, each writing and editing seminal books upon interactivity. Bill Moggridge, a pioneer of interaction design, has edited and written a definitive book on interaction design history, *Designing Interactions*. But actual visual communication literature is scant in comparison. Graphic designer and critic Michael Rock bluntly puts it “*We don’t have a couple of centuries’ worth*” of design books [24]. Rick Poynor, design journalist & founder of Eye magazine, takes Rock’s point further, “*Graphic design as a profession has long had an aversion to theory*” [24].

The sources from this literature search form the basis of my findings. Sources I have identified and used principally focus upon Poynor, supported by writings from graphic design critics Rock, Bruinsma, Burgoyne, O’Reilly, Crowley, Macdonald, Frascara, Heller, and new media journalists Aymer and Roach. The findings and statements located from this literature I have dialectically tested against sources from the historicity of GUI development by Perry and Voelckner and Johnson et al, and selected writings by Norman, Laurel and Moggridge. Blog postings by HCI expert and writer of Apple’s HCI guidelines Bruce Tognazzini were also referenced.

3. Interaction Design and the Graphic Designer:

As a discipline interaction design has only been around for 20 years, and it is still defining its interdisciplinary boundaries and theoretical foundations. Interaction design is about designing interactive products with human behaviour in mind, solving specific problems of how a human can interact with technology. The term to define this new design discipline was coined by Bill Moggridge³ in the late 1980s. Moggridge wanted to “*find the equivalent of industrial design within the electronic and software world (...) that’s the side of it that I wanted to try and fill with interaction design.*” [3]

Interaction designer Dan Saffer summarizes his discipline as “*It wasn’t product design⁴ exactly, but they were definitely designing products. Nor was it communication [graphic] design, although they used that discipline’s*

¹ “*to create a consistent quality in the graphics that is appropriate to the product and makes the most of the given medium*” [10]

² I use the term PC to refer to all personal computers running any GUI-based operating system (MAC, Unix or Windows)

³ Bill Moggridge – IDEO co-founder

⁴ Drawing upon knowledge of abilities and limitations of human manipulation of physical objects, product design has informed and shaped the development of interaction design. Cognitive psychology and ergonomic shaping combine to create usable physical products.

tools as well. It wasn't computer science either, although a lot of it had to do with computers and software" [25]. Interaction design was a gestalt of these disciplines and explored human behaviour interacting through the design. Theoretically it shares HCI research with GUI design that had a slightly longer pedigree and its roots were firmly within computer science. The human factor at the heart is the *raison d'être* of the design process. Neither the technology nor the visual design should be paramount it is the user that is. The user wants to just use the technology⁵ to perform the task they need to complete.

Human Factor expert Don Norman outlines four principles of good interaction through interfacing with a tool. They are applicable whether it is a form of GUI or a physical tool. Conceptually the user must be able to form a model for what the interface offers to do. The functions of the interface must be cognitively mappable to ensure ease of use, knowing what to do for each task. Once performed the result of the users actions in operation of the interface must be fed back. The interface itself must be visible to achieve all of the above [17]. These principles are what Bill Verplank⁶ refers to as 'know' (cognitive mapping and understanding paths), 'do' (using the interface's functions and the user taking control), and 'feel' (aural, visual and even tactile feedback) [16]. Since the early days of software GUI design, it had been the graphic designer who had responsibility to "*provide appropriate visual order and focus to the screen*" [10] within an interdisciplinary design team. It is prejudicial against the interdisciplinary nature of designing interactions to see graphic design as a 'key' discipline in the development of interactive products. Graphic designers, notes HCI expert Bruce Tognazzini, are limited to the interface's '*surface*' - how it looks and the design strategy behind communicating the content structure [28]. Gillian Crampton Smith, former school director of Interaction Design Institute Ivrea, sees graphic designers' role as more involved in the interactive design process "*designing what a package is and what it does, and then designing what it will be like*" [1]. Crampton Smith, a former graphic designer within software development is well placed to acknowledge the role graphic designers can and do play in interface design. The visual language of interaction design is built upon design axioms inherited from graphic design, learnt over decades of designing for print.⁷

Unfortunately there are misconceptions held by many professionals outside the discipline as to what a graphic designer does. They have been perceived as "*decorationists, elitists or servants of the consumerist machine*" [11] and their work as "*frivolous or shallow*" [18]. Over the last century graphic design is so "*deeply ingrained in the texture of daily life that it is taken for granted*" [6]. It has become pervasive and transparent. Yet graphic design is actually serving its purpose - visually communicating a message or visually structuring the functions of an interface. In the next section I will be examining this issue.

4. Practice, Prejudice and Perception:

In this section I will begin to chart how the graphic designer has contributed to designing interactions. To do so I will summarize the context in which their role is located, their practice and misconceptions of how that practice

⁵ David Liddle, designer of the Star GUI in the seventies, has identified that we are currently in the *consumer* stage of technological development. This is the third of three stages, where non-experts make a decision to use digital products during the pursuit of their everyday lives. The first stage is *enthusiast* and the second stage is *professional* [16].

⁶ Bill Verplank - MIT, Xerox, Interaction Design Institute Ivrea, Stanford University

⁷ "Much of the power of graphic design comes from a combination of visual 'movement', balance and delineation in a layout, the dramatic and subtle use of type, colour, space, line and image, and high visual quality in typography and photography" [12].

is perceived. I will frame how they reacted to digital media's impact on their practice, before finally discussing where this leaves their professional role.

Graphic design, as we understand it, didn't become a discipline encompassing visual communication until 1922. It was American typographer and printer William A. Dwiggins who coined the term graphic design⁸ “*to confer a loftier professional standing*” [9], that would push the skills to the fore of typographers, artists and designers working like artisans in printing, commercial art studios and type foundries. Filtered through a Modernist philosophy of “form follows function”, it really wasn't until the fifties, with its roots “*thoroughly implicated*” in consumerism⁹ [6], that the discipline really began to assert itself with confidence. Graphic design became socially and environmentally commonplace, part of society's “*perceptual vernacular*” [18] due to the advance of capitalist consumerism. Through the fifties, sixties and seventies the discipline grew more confident in its abilities and successes. By the eighties graphic design had become ubiquitous, and the decade would be known as the ‘design’ or ‘style’ decade, both an accolade and a criticism.

Interaction design expert Brenda Laurel¹⁰ reflects that labels such as ‘*dictators of style*’, *decorationists*, *elitists*, ‘*servants of the consumerist machine*’ were unfair misconceptions of graphic designers’ profession, marginalizing their contributions despite the pervasiveness of them within society. Most of its practice is subjective, instinctive and implicit, alternating between the “*consideration of objective information and intuitive leaps*” [7]. Graphic design, when designed well, can “*inspire a behavioural change*” in its audiences [8]. Unfortunately graphic designers do have a problem of remembering they are designing for an audience and not themselves. Issues of audience became problematic with the introduction of interactivity. All designers, but especially graphic designers, have been accused of *hubris*. The skill of the graphic designer is in the layout and control of the design elements to visually communicate, but with interactive digital media this design control was now in the hands of code and browsers. Designers lost focus, or vision, on how they could control the design process and the visual outcomes. They were unsure on how to apply their design methodologies to this new medium. A different ‘mind-set’ needed to be applied, from static to dynamic. Seduced by combining “*aspects and characteristics of other media*” and restricted by a traditional linear viewpoint on communication, graphic designers in the nineties began to retreat from GUI design [4], [5], [14].

In examining the ascent of the graphic design discipline through the 20th century it has led to examination of what role, traditionally, a graphic designer occupied. The possibilities of what graphic designers could be involved in the digital world greatly expanded in the nineties away from print¹¹. The mainstream flirted and then lost interest. Collectives, individuals and companies such as Anti-rom, Tomato, The Designers Republic and Sunbather, pointed a way for design to embrace interactivity, motion and film [20]. Ironically by embracing these new possibilities graphic design began to obscure its own discipline's identity. In the next section this will

⁸ In spite of Dwiggins' best efforts, the term graphic design has become interchangeable with the terms visual communication, communication design, and information design.

⁹ It is therefore understandable that a commonly perceived notion of a graphic designer solely as a problem-solver of design solutions for clients.

¹⁰ “*When their (graphic designers) work is directed toward the marketplace, they rarely participate in the ‘research’ that determines what product should be produced by whom – or why. When their work focuses on the investigation of design through form and process, they often stand accused of irrelevance or indifference.*” [11].

¹¹ Graphic design as fashion; in motion; as interactive; with music.

be explored in greater detail.

5. Repositioning of Identities:

Locating the graphic designer in GUI design may be just a problem of semantics. In the previous section the obscuring of the discipline's identity was raised. This section will explore how graphic design has reacted to the new digital media. In the conclusion that follows the results of that reaction will be addressed.

In 1984 Apple launched the Macintosh PC with the first consumer GUI, causing a design revolution. The development of the GUI had created a new field for graphic designers to master. With the increased processing power and ease of use of PCs during the eighties and nineties, graphic designers in interface design were still only a small sub-discipline of the main print-based parent. It wasn't until the nineties and the rollout of the internet, smart phones and PDAs that mainstream graphic designers would re-enter the area of interactivity. In retrospect, during the nineties many graphic designers flirted with the web and digital devices and then appeared to abandon them due to *"low resolution computer screens and its severe limitations of bandwidth and display technology"* [4] to developers¹². The web offered new opportunities for graphic designers but they were slow to develop their influence onto it. This meant, *"that individuals from other disciplines and backgrounds had plenty of opportunity to influence the field"* [13] and influence it they did. Web design critic Nico Macdonald observes that these individuals from computer science, cognitive psychology, and industrial design *"came to their new discipline with a less restricted view of its boundaries or possibilities than graphic designers"* [13]. This new discipline of interaction design had become identified as the main influence for developing all forms of GUIs. Graphic designers had lost the influence initiative. Developers had begun to acquire 'design skills' as a result of the very democratisation of production software the eighties GUIs brought. By the time that Macromedia Flash arrived offering graphic designers the illusion of control over their design whilst being interactive, it was too late [12]. Graphic designers had failed to truly understand that the user was at the heart of this new media. The failure of dotcom golden boy Boo.com in 2000 was extremely detrimental to graphic design¹³. The development of new design thinking had now been taken over by interaction design, resulting in graphic design as *"a discipline on the move"* [18], repositioning itself. Since the late nineties the status of graphic design as a pure discipline has been undergoing re-evaluation. This could be interpreted as a negative fragmentation of the discipline, but it is a re-strengthening of graphic design's roots. Modernist progenitors of the discipline such as Rodchenko, Lissitzky and Moholy-Nagy had naturally *"moved freely across the boundaries"* in the twenties and thirties *"that later, more professionally-minded generations attempted to cement in place"* [22]. Dwiggin's term of graphic design may have raised a collection of visual communicators from artisans into a profession in the early 20th century, but it had actually 'cemented' them into a fixed discipline that was biased towards print. *"If 'graphic design' now strikes some designers and design-watchers as too rigid a term, this is partly because it sounds like a largely technical procedure, but particularly because it fails to suggest the expanded possibilities of contemporary visual culture."* [20]. In the final section this

¹² "British designers who did engage with web design sooner rather than later included Neville Brody and Research Studios (founded in 1994), Malcolm Garrett and AMX (founded in 1994), Tomato, The Designer's Republic, Tim Fendley and Robin Richmond of MetaDesign London (...). Despite these few admirable in-roads, the wider influence exerted by traditional practices of print media tended to be negative rather than positive." [13]

¹³ *"'Boo.com was a victory of concept of form over concept of use,' argues industry veteran Dorian Moore. 'That site killed conceptual design. After that the focus moved to usability and efficiency.'"* [13]

repositioning will be addressed and the question of locating the graphic designer in GUI design will be answered.

6. Conclusion:

As graphic design history has revealed, the discipline that Dwiggins named¹⁴ 86 years ago knew no bounds when it came to working with other forms of media. The orthodoxy of the commercial print world subjugated many ‘mainstream graphic designers’ with its reliance on Modernist order over typography and layout, but design is a process and not an end in itself. Graphic design was an “open”, “diverse”, “inclusive” and “inventive” discipline [22], constantly challenging its own established ‘rules’. Designers who chose to design for interactivity had learnt, post-dotcoms, that they couldn’t innovate and experiment new graphic languages for interfaces without developing, or accepting a new mind-set towards deepening their knowledge of human factors. Through early interface experiments they learnt from failure and errors the rule that the user is king. They learnt to collaborate within multi-disciplinary teams of experts with different skill-sets to achieve their designs. Graphic design had repositioned itself as a discipline. In regard to designers who identify themselves as belonging to the ‘graphic design’ discipline, they also find that the discipline is open enough for designers to refer to themselves by whatever descriptive title they saw fit.

In the early days of GUI design within software Cox, Elliott and Kare all referred to themselves as graphic designers working within a multi-disciplinary team. Crampton Smith, another graphic designer working with code and interface design “moved freely across the boundaries”¹⁵ between disciplines eventually to move into interaction design. So in the 21st century, within the design of graphical user interfaces for online and offline digital products, where have all the graphic designers gone? It would be inaccurate to state they were always there but we had just lost sight of them. Interaction design as a discipline has certainly attracted designers, trained as graphic visual communicators, to change disciplines. Other designers remain identifiable as graphic designers working with interactivity. Semantically it is unimportant which discipline or what title designers of interaction identify with. What is important is whoever designs a GUI they remember Norman’s simple rules, and human who will use the GUI. As Bruce Tognazzini summarizes, “when the balance between interaction designer and graphic designer is skewed, you are likely to end up with a [GUI] that is really pretty to look at, but unusable” [27]. So to answer the proposition ‘Where’s the graphic designer in the graphical user interface?’ I conclude that the graphic designer has matured enough to not want to step forward to take credit from the multi-disciplinary team they design within, and would humbly turn the question around to ask “where does the user wish to be?”

¹⁴ In much the same way as Moggridge did with interaction design 66 years later.

¹⁵ [22]

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