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# CONTEXTS OF GRAPHIC DESIGN IN ADVANCED NEW MEDIA

***Graphic design is a polysemantic term even thought it is not entirely applicable in the current digital environment. New expanded media, technologies and techniques have required not only new determination of graphic design but mainly a new statement and mission of a graphic designer. The paper provides basic information about graphic design in historical context and discusses both traditional and new theories about the design disciplines, outlines an approximate future development, and visualises two relationship charts between terms that have been involved in graphic design.***

***The first section describes methods of creating traditional interface in paper media. The second section explains and compares recent thoughts about graphic design and related disciplines in digital environment. The third section assumes moves to development and advance in new media according to user behaviour and sophisticated design. The fourth section characterizes possible future development and the graphic designer's function in the future digital environment.***

## Introduction

Traditional graphic design forms could (and even should) be practised by individuals depending on their relative skill, expertise and inclination. Recent development of traditional design as well as new media has expanded to new divisions, unprecedented collaborations and specializations in news intermediate fields. Currently a graphic designer connects various media into one multimedia form. Design and related disciplines as architecture, environmental design, programming production and other technical support staff are moving and changing their meaning.

The goal of the paper is to explain, compare and visualise new design terms within their appropriate contexts, and to clarify the relationship among them on the background of the traditional significance. The paper aims at the analysis of contexts and consequences, anticipation of the design process, human computer interface in digital environment, and understanding a designer´s role in the future.

I suppose that physical interface between users and artificial systems (computers) will fade and move to the mental interface according to the sophistication of technology development. The changes will determine the manner of sharing information in mouldable advanced New media environment according to user needs trough Metadesign /bottom-up/ together with the User Centred Design /top-down/ to achieve common ends.

## 1. Traditional media

The media before computer era /b.c./ are called traditional media. The most important and the most frequented term in this era has been the graphic design, which was credited to W. A. Dwinggins, a letterer, calligrapher and type, book and advertising designer as well as novelist, playwright an marionette impresario, who in 1922 proposed the term as definition of his own multifaceted professional activity (1).

The original term was certainly broad enough term to include layout or board person, comp artist, airbrush artist, illustrator a lettered. During the 1930s, graphic designers who were also involved in package and product design, as well as those who occupied in industrial design called themselves 'designer for industry' (1). The machine age led them to bring a new form of cross-disciplinary. Independent design firm took responsibility for the conception and production of complete projects rather than specialized aspects of the whole. In the post war period as dedicated design departments and so-called design laboratories developed within progressive corporations, cross-disciplinary programs grew in popularity as well as necessity. The graphic designers had to know how their work fit into the larger context. Previously alone disciplines were integrated into overall practices and designers had to be fluent in much more than their own specialties.

Starting in the 1950s, in an effort to expand graphic design in the international business world, designers referred to themselves with more inclusive designations 'visual communicator, visual designer, graphic communicator, communications specialist etc.' (1). Yet even in 1990s, graphic disciplines were more complex and seem to be identified but a lot of changes in graphic design and visual communication (terms that are used interchangeably) again initiated questions about their meaning.

### 1. 1 Graphic design

The OED includes 24 definitions of the word design. The most relevant are the phrases 'to form a plan... to purpose or intend (a thing) to be or do (something)...'(10). Design is of course a word with multiple meanings, but some typical connotations in more established design disciplines and in design theory include the parallel emergence of question and answer, the activity of exploring possible futures, the synthesis of reason and emotion, the intervention on many simultaneous levels in a design situation. Webster defines the graphic design '…as the art or profession of using design elements (as typography and images) to convey information or create an effect; also a product of this art' (8). The primary definition is simple about communicating to other human beings through word and images. Generally, graphic design is the applied art of arranging image and text to communicate a message.

The design process as a whole begins with the first ideas about

a project and does not end until the print piece is produced. The designer develops ideas inside the context of the objectives and user needs. The design process can be divided into a few relative self-employed phases illustrated in Figure 1. Each step in each phase is affected by another and they must occur before the next step can begin. All of the steps in the process will occur whether it is by default or with purpose. Even though we don't know a full definition of the term graphic design, we can understand it trough its function and creation of the paper media. The graphic design effect in traditional media can be divided according to paper media as interface between information sufficient and users to editorial, book, typography, advertising, corporate or environment design, illustrated in Figure 1a. Now in age of expanded media, it is not a sufficient way to define the widening range of the graphic design opportunity.

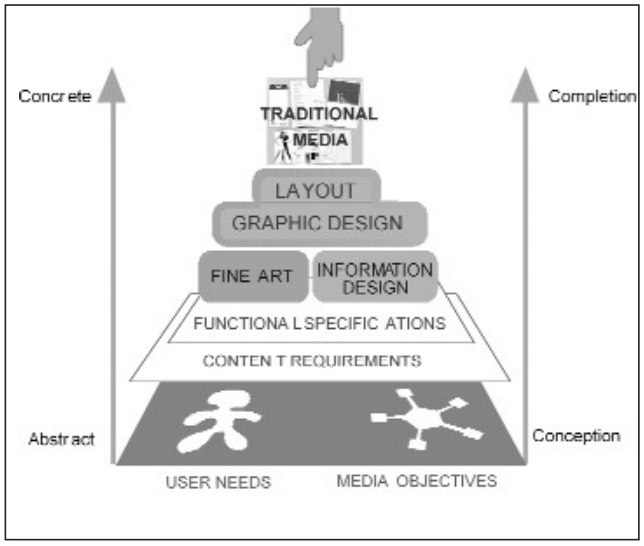


*Figure 1 shows a process of creation the paper media according to key phases*

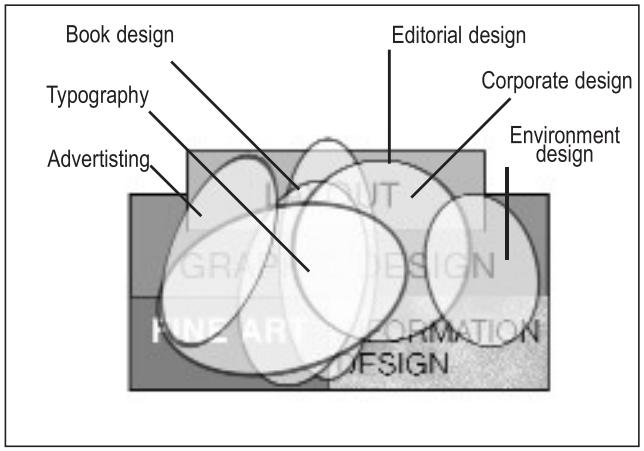


*Figure 1a depicts some graphic disciplines to make the traditional media*

**1. 2 Layout**

Traditional graphic design directed the viewer's attention through the layout. Layout is the arrangement, or composition, of elements in two-dimensional space. The OED explains that layout is the act or process of planning or laying out in detail. Word lay out as verb is synonyms to such verbs as design, arrange, map (out), plan, set out (8). Designers often use a grid system to help with organization of visual elements. Invisible linear extensions (subjective lines) are such a strong device for relating compositional areas that designers also use them in the form of grid system for the layout and organization of blocks of type, logos, and graphic information (16).
Before layout can begin, design decisions must be made about what elements will be included. The final design becomes the model on which layout decisions are based, and the objectives established at the beginning of a project become the objectives form the layout as well as the design. The system can be applied to one image or made to relate a completely corporate campaign. The modern layout has involved from symmetrical page by experimented and implicated visual perception principles. Differences between traditional page and modern page are linearity, or the sequential organization of information from 'top to bottom' (1) on the page. Linearity is based on scroll analogy in which information is perceived as a continuous, sequential flow.

**2. New media**

The media post computer era (p.c.) are called New media. The term New media has been used since the 1970s by researchers leading social, psychological, economic, political, and cultural studies of information and communication technologies (1). Webster defines New media as '…integration of computers, computer networking, and multimedia.' Many definitions of New media or new communication technology are simply lists of particular technologies or systems or their features. Many focus on computing technology (or the convergence of computing and telecommunications) and the sense of interactivity[1] that New media give users. New time based media are often contrasted with the, one-way information flows of traditional mass media. The term New media on design field represents Web site and CD/DVD-ROM interface design. Web design is the design or designing of a Web page or Web site, CD/DVD-ROM design is the design or designing of software and others multimedia products.
Generally, researchers concerned with technological, economic or behavioural issues have tended to define New media in terms

[1]Interactivity can include the amount of control the audience has over the tools, pace, or content; the amount of choice this control offers; and the ability to use the tool or content to be productive or

of system features and services, industry structures or the psychology of media users (2). The only difference between current and past practice is the type of work available. When the internet was first invented, Web design consisted of a very basic language that included some formatting options, and the unique ability to link pages together using hyperlinks. The Web in these days is a global[2] hypermedia[3] system but the development of increasingly sophisticated technologies has fostered its use also a remote software interface (5). According to Garret 'this dual nature has led to much confusion, as user experience practitioners have attempted to adapt their terminology to cases outside the range of its original application.
Figure 2 shows more frequent disciplines that currently fall under the graphic design or are areas where graphic designer is currently finding work as a collaborator in broader design activities. Among therm are Web design and CD/DVD-ROM design, which has become an entry point for a wide range of artist and designers illustrated in Figure 2a.

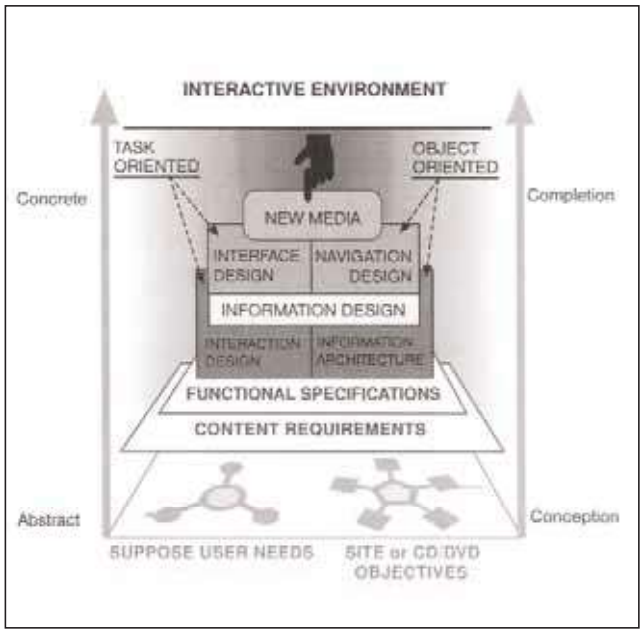


*Figure 2 shows a process of creation of the New media some new graphic disciplines according to key phases.*

[2]Global means that it exists in distributed form on computers located throughout the world, and it can be accessed from computers located throughout the world.
[3]Hyper means that it is a collection of electronic documents that are linked together, each containing embedded references to other documents. Media means that the documents include not only text but also graphics, sound, animation, and video.

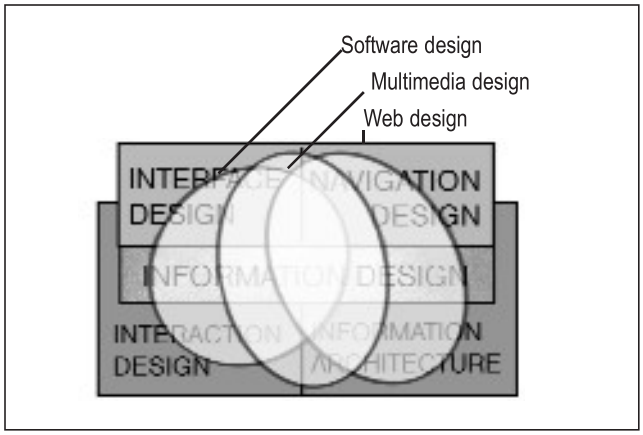


*Figure 2a depicts some new graphic disciplines to create the interactive media.*

**2. 1 Information architecture**

The phrase "information architecture" was used in the 1960s, by R. S. Wurman, a man trained as an architect but who has become also a skilled graphic designer and the author, editor, and/or publisher of numerous books that employ fine graphics in the presentation of information in a variety of fields. In his career as an architect, became interested in matters concerning the ways in which buildings, transport utilities, and people worked and interacted with each other in urban environments (14).

Information architecture in this time refers to the ways in which information is arranged on a Web site. A simple method of information architecture is to draw a site map. A site map is a graphic view of the Web site how the information in the web site is structured, and how you get to it. Each box on the site map will eventually become a page of the site. As Wands (3) explains: 'If there are multiple ways to get a box, there need be multiple navigational tools to get there'.
The role of the architect is to work with the data structure of the Web site. Information architects are responsible for determining how the Web site will work, what data formats are needed, determine what content and functionality the site will contain, how the information is grouped, what expectations of the users will be satisfied, specifies how users will find information in the site by defining its organization, navigation, labelling, and searching systems, what type of programming and software are appropriate.

**2. 2 Information Design**

Also Known as Communication Design or Graphic Communication. Information design, at its most rudimentary employs type and graphics to clarify and concretise mostly no visual information, such as facts and figures. This is not an entirely new form. Some kinds of images have been used throughout the century in public documents, from scientific reports to high-school textbooks. Over sixty years ago, it was improved by German

designer and social scientist O. Neurath (1). The images were in stages transformed to universal graphic symbols that were used in charts, maps and graphs to represent specific ideas. These images involved to 'pictorial sign symbols' and structured to lexicons of icons used to clarify all kinds of data what are known in these days (1).
Pictorial signs and symbols are used in traditional graphic design disciplines as well as navigational buttons on computer screens of Web site and CD/DVD-ROMs. The sign symbols or icons are only one small part of information design. According to Heller (1) information design 'is concerned with transforming data into information, making the complex easier to understand and to use'. Information design is a rapidly growing discipline that draws on typography, graphic design, applied linguistics, applied psychology, applied ergonomics, computing, and other fields. It emerged as an answer to people's need to understand and use such things as forms, legal documents, computer interfaces and technical information.
Information design does not replace graphic design and other visual disciplines, but is the structure through which these capabilities are expressed (4). The role of the information designer is to guide users away from confusion into understanding of subjects. Information designers consider the selection, structuring and presentation of the information provider's message in relation to the purposes, skills, experience, preferences and conditions of the intended users. To do this they need specialist knowledge and skills in graphic communication and typography, the psychology of reading and learning, human-computer interaction, usability research and clear writing, plus an understanding of the potential and limitations of different media.

**2. 3 Navigation and interface design**

The relationship between user and digital environment has been solved by Human Computer Interaction HCI, in this time traditional discipline yet. HCI has introduced a new concept to share information as User Centered Design (UCD) illustrated in Figure 3. Garret (5) says interface design by HCI concept is 'design of interface elements to facilitate user interaction with functionality and content requirements' that supports data transfer to a flat panel display in digital format. Jeeves (11) defines HCI as 'a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.
Figure 2 illustrates dual nature of the recent New media. While the task oriented interface is able to the interactivity like concept action – data when a user at first selects action (from menu bar alternatively by typing ) after that inputs data, in the object orientation interface is able to use a new concept object – action when a user at first selects object (often as GUI5) andafterward chooses action. For the concept object – action has been established term navigation design. Garret (5) says that navigation design is 'design of interface elements to facilitate the user's movement through the information architecture'. Navigations a way to pass from one page to another page into a home site or to other sites trough hyperlinks.The navigation elements are not only elements of navigation item of menu bar, controlling panels orwindows, but also each hyper media reference.

**2. 4 Interaction design**

Interaction Design is a field and approach to designing interactive experiences. Interactive experiences, necessarily, require time as an organizing principle and interactive design is concerned with a user, customer, audience, or participant's experience flow through time. Interactivity should not be confused with animation in which objects may move on a screen. Interactivity is concerned with being part of the action of a system or performance and not merely watching the action passively. Interaction design describes the set of skills that are needed to design the forms through which we can effectively use information technology (13). According to Gerret (5) the interaction design is '…development of application flows to facilitate user tasks defining how the user interacts with site functionality…' and content requirements.
Interaction design is involving term which reflected technical and technological possibility therefore most designations on the design field not commonly agreed with original explication of interaction design as simple character user interface or graphical user interface GUI5. We recently know other user interfaces as multimedia user interface and virtual reality user interface.

**3. Advanced New media**

Advanced New media as new kinds of methods and techniques allow sharing information to advanced manners. This environment supported by artificial intelligence requires a new kind of expert of graphic design. Advanced New media change the structure and contents of our interests, the nature of our cognitive and collaborative tools, the social environment in which thoughts invent and develop, and mindsets. Fischer (4) reports that advanced New media increases the potential issues and research problems for new design methodologies, cognition and motivation the design of New media and new technologies. The changed conditions require a new view to design in future digital environment. Figure 3 illustrates effective solution trough intelligent interactive environment that include the most sophisticated methods of treating and structuring information by top-down way, jointly in conjunction a new form of self-organization design that Fischer (4) labelled the 'metadesign'6 and we denote as bottom-up way.

**3. 1 Metadesign**

In philosophy or human sciences, meta means, what goes beyond or what is more comprehensive or fundamental. In computer science metadata is data that describes other data (data about

a meta-language for interacting with a computer. Meta in consequence technology delivers not only content but also through its codes and structures, a specific meaning. This specific meaning is described by 'the meta information defining a relation between technology, structure, sign and content' (12). We can better express thenformation about Metadesign by comparison with traditional design in table bellow (4).

| Traditional Design | Metadesign |
|---|---|
| Guidelines and rules | Exceptions and negotiations |
| Representation | Construction |
| Content | Context |
| Object | Process |
| Perspective | Immersion |
| Certainty | Contingency |
| Resolution | Emergence |
| Top-down | Bottom-up |
| Autonomous mind | Distributed mind |
| Creation | Co-creation |
| Specific solutions | Solution spaces |
| Art | Interactive art |

Enforcement of the Metadesign is not simple. It requires a new way of thinking, active contributors and not just passive consumers. The bottom-up relationship between consumer-designer is supposed to change from passive consumer trough active consumer, end-user, user, power users, local developers, domain designer to 'meta-designer' (4). On the other side the develop design top-down will have to satisfy users needs with sophisticated User Centred Design.

### 3. 2 User Centred Design

User Centred Design (UCD) is a comprehensive product development methodology. It starts by clearly specifying the site objectives, and the user's needs, limitations and preferences. The HCD analysis is applied to the design of the product, and the testing of the product. A UCD approach meets both user's need and the business objectives. As Nomesa (15) has shown 'UCD is circular process and contains stages like requirements gathering & analysis, content design & structure , implementation, QA testing, deploy-ment, measurement and analysis'. UCD works with user at every stage of the process to ensure that the solution generated has the highest levels of usability and accessibility. The end result is a solution that has been adjusted to the requests of the user. The UCD process is continuous and the only way to ensure that the experience generated by the product remains effective requires that it must be measured.
Current trend in intelligent communication system is characterized by 'multiple communication modalities, distribution of information and control, and flexible adaptation to the user' (14). Distributed multimedia and global information network such as Internet are the key enabling technologies for such a system. Intelligent agent technology is a new approach to the intelligent system development which harmoniously works with distributed multimedia and Internet technologies. It also allows the developer to create intelligent system with greater adaptability to the user. Wyllys (14) explains that the most successful examples of intelligent agent understand user's language, infer user's real goals, derive plans to satisfy user's goals, and carry out the plans. Such agents also utilize various 'multimedia resources and other agents on the network, in order to communicate to the user in the most effective way' (14).

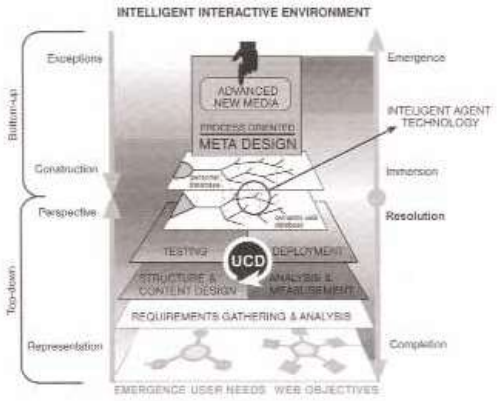


*Figure 3 outlined the model of interaction process in advanced new media according to two collaboration bottom-up and top-down ways.*

### 4. The designer in advanced New media

A few years ago, the technology did not allow for sophisticated design nuances. Today it seems that graphic design was never easy. The designer in these days is solely an architect, leaving the mechanical aspects of Web page CD/DVD-ROM construction to programming and production experts. Problems that were serious five years ago have been easily solved in the repertoire of contemporary graphic design.
In the try to redefine graphic design in the 1990s, the Web has involved traditional graphic applications, such as type and page layout, wed to non-traditional graphic design such as sound and motion (1). The role of designer has involved to two ways. Some New media designers come directly from traditional media, while others bypass traditional entirely. While designer in traditional media should understand prepress and printing limitations (can actually make without contact to press room), the Web and CD/DVD designer must work directly with the technology to achieve results. Different designers use different methods - combining market research, user testing, prototyping and trend analysis. A graphically designed object can be expressive or neutral, hard sell or soft sell, classical or radical. Graphic design may be utilitarian, but it is not void of the creative essence too.

Some designers may have personal styles, but none can be islands without bridges to clients, production personnel or other designers. Although good instinct is part of the designer's arsenal, there are more scientific ways to make appropriate design. The level of complexity or simplicity is determined either by the nature of the message or the preference of the designer. A good graphic designer is able to adapt existing historical or contemporary models and derive unique approaches. The future of graphic design rests in its ability to be absorbed into different sectors of human activity from art and sciences to entertainment. The volume of cross-disciplinary activities that affect designers today is going to grow in the future and "graphic design" will become a much more massive discipline that will include the ability to write, to design, to communicate, and to edit. To develop a useful theory of decision information processing, designer needs to further understand the process by which humans make decisions, how information affects this process, and how to construct effective interface technologies to enlarge user performance. Designer will become less specialized and more oriented to cognitive science especially cognitive psychology, philosophy and culture to create an appropriate structure of sharing information. This comes by patient study of user's knowledge representation and enthusiastic practice.
For a long time, designers have dealt with uncertainly defined problems, which caused them to develop a variety of skills and methods necessary to generate creative solutions. On the other hand, certain thought in the fields of human-factors have dealt with well-defined problems that generate specific knowledge.
A broader approach, combining these two ways of thought, is necessary to deal with the complexity of interaction in the future.

**Conclusion**

This paper has provided a brief overview of some terms of the major themes and influences that have shaped the field of graphic design. In addition, a try is made to project some current trends into the near future as a basis for anticipating some of the conditions with which designer will be faced upon, or even before, graduation.This paper is not intended to provide either a complete history of the past or a full scale future projection. It is, rather, to provide a context for the recommendations which follow. However, graphic design is also facilitated to enter other communication industries. This paper examines some of the options that graphic designers are offered today and analyse the widening expectations of users in relation to technological shifts that have allowed the graphic designer to branch away from traditional toward advanced New media. Understanding what design is and how it works in both philosophical and practical context will be more important than decorating some digital environment.

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