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# The Future Of Print Design: Embracing Interactivity And Engagement

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***Abstract:***

*The history of graphic design is intertwined with the history of print technology because practically all instances that are known to exist are the consequence of printing technologies. Nevertheless, the context in which print design is utilized in the modern day is characterized by a digital technical environment in which interaction and user participation are extremely commonplace. We have developed a list for both technologies that includes common media and the descriptions that are associated with such media. Providing an explanation of this nature is beneficial in establishing transitions between digital engagement and user involvement in print medium. We came up with a graphic design project in order to get a better understanding of this effect. In light of the experiences gained from digital artifacts, it was developed to make it possible to use it in a different way. In spite of the fact that it is limited to communication requirements, the result offers specifics regarding structure, organization, and handling. Each of these characteristics appears to be recognizable with some digital media. The final production of the project, combined with its visual record, demonstrates an object that is accessible to users, that they can browse, that they can select information from, and that they can participate in its final presentation.*

***Keywords: Print design, Graphic design, Interaction, Print technology, Digital***

## Introduction:

The field of graphic design has traditionally been concerned with the production and organization of information in order to ensure that certain items are able to convey their intended function in their entirety. This goal has cycled back and forth between the concerns of the client and the individual expressive issues of the designers and designers themselves. The majority of the items that are generated by print technology are positioned in the remaining portion of this arrangement. These items are typically not subject to significant alteration. When it comes to ensuring a materialization, dissemination, and interaction with final consumers, designers typically rely on print technology and the possibilities the technology has been shown to possess.

This method produces consistent outcomes, which in turn give rise to a number of preconceptions and generate expectations regarding the form that graphic messages should take. As a result, the material experience in graphic design is a challenging period in terms of the development and creation of fresh ideas, because each project ought to be a distinct answer. Afterwards, the objects

are grouped together, and the groupings, in turn, have specific names and assignments. Projects that are attempting to approach such groupings are diverse from one another in terms of their visual composition and the graphic elements that they exchange; yet, they rarely provide a distinction in terms of their behavior or the probable distinctive usage of their elements. On the other hand, digital technologies engage people, mostly through action-reaction moments. This is done in an essentially opposite manner.

Within the realm of interactive systems, it is impossible to avoid drawing parallels between the design of printed materials and digital artifacts. Whether it is because of the emphasis placed on transitions from one technology to another or simply because potential users who are able to effectively handle all of the digital artifacts that are available are amassing such experience much earlier in their lives.

This parallel, regardless of how unjustified it may be, brings to light the necessity of rethinking or adapting print design in order to accommodate the needs of their users, who are experiencing change and, as a result, are also confronting the objects that surround them through different perspectives.

It is easy to notice a problem that requires analysis and attention that interferes with users of print design if one has an awareness of digital interactive media and how they present themselves. As a consequence, have an impact on the work process of graphic designers throughout the conception stage. The notions of digital interaction, user participation, and personalization are presented in relation to visual design for the aim of achieving this goal. Graphic designers are typically entrusted with the responsibility of applying printing technology to the creation of items, and these concepts will serve as techniques to do this.

**Print Technology and Graphic Design:**

According to Bonsiepe (2012), graphic design is intricately connected to a certain technology known as printing. Printing is an essential component that must be understood in order to comprehend graphic design projects. Printing is relevant not only as a production method but also as a mode of communication. Since its inception, movable type printing has determined the majority of the features and effects that are associated with products that are manufactured from it. According to McLuhan (1962), the printing of movable type also signified a transition from the technology of the middle ages to the technology of the modern era and required a condition of reproduction and product. In point of fact, it established a connection between what was the utilization of several senses for the purpose of achieving a dominant vision. This preponderance of vision is evident in the fact that graphic designers are placing an increasing significance on it when they are constructing their projects, which ultimately results in the formation of an interpretation of their own work. According to Cooper et al. (2007) and Neves (2016)a, an extended work that is intended to be seen but does not have any behavioral meaning to generate an experience.

The technology behind printing has evolved and been expanded upon

over the course of time. When lithography was first developed at the tail end of the eighteenth century, it made it possible to reproduce images more accurately, particularly drawings. This, in turn, contributed to the expansion of journals in the late nineteenth century (Satué 1994). With its impact based on detail, photography, which arose in the late nineteenth century and was used to produce images, was also a significant means for reproducing texts. Photography was used to generate images through the use of detail. The work that commercial artists do on a daily basis was instantly affected as a result of these ongoing developments as soon as they came into existence. According to Hollis (1997), the medium that they utilized for their work had some kind of social and political consequence, the impacts of which were similar to those of the technology that was utilized.

However, the effects of graphic design's preferred medium, printing, predate the nineteenth century, which marks the beginning of the industrial revolution. This was already established by another large-scale reproduction phenomenon, the press with movable type. Although industrial procedures of large-scale reproduction influence object conception and designers' practice (Forty 2000), the effects of printing already existed before the nineteenth century. As a result, graphic design, which sprang from industrial possibilities, already owed its ability to communicate and influence, in large part, to the graphic legacy that was abundant in text-image connections during the centuries that came before.

**Print Design:**

Putting more emphasis on visual components diverts attention away from worries regarding the media and the ramifications they have. According to Satué (1994), Hollis (1997), and Meggs (1998), historical reports of graphic design projects often consist of descriptions that include both temporal and geographical incidence. These descriptions include the mention of objects within the context of their attained graphical structure. In addition, the work methods that are implemented in the professional activity of graphic design nearly never differ from one another and are centered on graphic composition. As was previously mentioned, "new forms are nurtured in response to commercial pressures and changing technology, yet at the same time graphic design continues to feed off its own traditions" (Hollis and colleagues 1997). As a result, the fabrication of forms, which will solely function as containers for information, becomes an essential component of practice. When graphic designers take particular components and set them in an object that has a predetermined format, production, and function, they are able to create something.

Established contact between objects and their users, which is the outcome of these circumstances, does not, in the majority of instances, foster new ways of assimilating information or engaging the attention and interest of individuals who are involved in receiving communication. According to Redstrom (2005), concerns with formal composition might stifle the development of alternate solutions, even if those

solutions are found to be more fascinating than the original aim.

Table 1 contains a list that provides a broad description of the most common item designations used in graphic design. This list was created with the goal of manufacturing printed materials. Along with a brief explanation of each one, which was derived from the categories that were described by Tschichold (1998), Newark (2002), and Bonsiepe (2012).

As a result of a linear and sequential treatment, these are examples of conventional print media, which continue to conform to the general consensus regarding the acceptance of such things. All of them have the potential to become quite exciting when viewed as visual creations; nevertheless, when viewed as media that can be experienced, they follow repeating solutions. They have become unchanging, not only in terms of their physical existence, but also, and most importantly, in terms of how they interact with users.

And at the same time, they differentiate themselves from digital electrical technologies and compete with them.

**Digital Interactive Systems:**

On the one hand, there is a concern for formal organization in print design, which is the outcome of the practice of graphic designers. This is done so that the combination of all graphic elements can produce meaning or convey attitudes (Frascara 1988). On the other hand, digital artifacts are intrinsically interactive (Bolter and Gromala 2003). To put it another way, they are a dynamic achievement in a context (Dourish 2001) that allows for the transmission of a message to take place. Even if this engagement is made possible not by a digital product in and of itself, but rather by an intermediary using a physical material existence, such as a computer, this interaction is still possible. According to Nunberg (1993), interaction is then coupled with a great capacity to host and send enormous volumes of information. Another essential quality of these kinds of objects is that they require human input, which is a requirement for interaction. There is a specific period of time during which digital artefacts are utilized. During this time, the transmission of messages is frequently interrupted and users are required to make requests for information. Artefacts that are produced from digital technologies are able to respond to human demands and transform their contents or behavior in accordance with the requests that they receive. Programming is the process of determining how information seems to be available, taking into account all of the possibilities that are being explored.

The initial functionality of the majority of digital artifacts is based on concepts that were established during the 1960s and 1970s of the twentieth century, and these concepts were later altered to meet the needs of the market and users. According to Tapia (2003), each of these digital artifacts continues to be dependent on the goal for which it was created as well as the intention to discover its significance.

These forms of media have an indirect impact on our perception of printed matter because they allow us to observe other ways in which objects can be presented to the people who experience them. According to Blauvelt (2008), the relational practice that they exhibit, which is both performative and

programmed, makes an effort to transcend the object itself.

After that, the presence of electronic media gives rise to notions about the demise of print (Nielsen 2000). On the other hand, its effect might be interpreted as a search for an expanded interactive capacity in any project that operates in the environment of digital technology in the present day. It is possible that this will cause us to reevaluate our beliefs on the processes involved in graphic design. The fact that the products generated by printing technology and digital technology are so immediately accessible demonstrates that there are worries regarding the moment when they are used. In order to extract a collection of alternatives that can then be implemented in written matter, digital media, which are becoming progressively closer to their consumers by permitting contact and involvement, become a resource that can be observed.

**User Participation:**

A distinction needs to be made between participation in a design process and involvement in an experience of an object, which is a result that comes from the work of a designer. This distinction is necessary in order to have a better understanding of the connection between interaction and user participation and its application to a graphic design project. What we are attempting to comprehend and build are the various levels at which a user might contribute in order to enhance or personalize the object that is being discussed. Additionally, what kind of impact does the expectation of participation have on the designers' process when it comes to the idea stage?

In light of this, it is appropriate to shift away from participatory design, which involves potential users in the design process, and instead place an emphasis on the utilization of artifacts. Taking this perspective into consideration, digital technologies present consumers with a variety of opportunities. User engagement can be synthesized in a variety of ways, such through a reduced degree of inventiveness (Moggridge 2010), through features that signify change when imagining items (Giaccardi, 2003), or by a range of possibilities to pick from (Negroponte 1979).

As a matter of fact, we are also able to acknowledge the many different levels and types of collaboration with graphic design. The communication process operates under the assumption that an object is only useful when it is received (Barthes 1964; Joly 2007); objects are designed with human factors as a condition, including concepts such as scale, readability, and cultural codification, amongst others (Dreyfuss 1960, Muller-Brockman 2012); or the acquisition of particular objects constitutes an act of consumption. However, this transmission is only able to occur in one direction because it is unable to process a response from the object. The presence of people is present, but there is no opportunity for interaction between them. Users are only expected to take action, which can be demonstrated by their commitment to a specific event, idea, or purchase. This is the all-encompassing expectation. When this limitation is taken into consideration, the possibility for participation in printed materials has not been adequately investigated. This, despite the fact that

there was already a recognised requirement for user interaction (McLuhan and Fiore 2001). Not only by a desirable extension of designers' attention to scope of action (Maldonado 1999), but also by a call for understanding use (Margolin 1997), which can find chances in the reconversion of things and in the way users act on them. This is a call for designers to understand use.

Customization, which can be regarded as an attempt to transform mass manufacturing into things that are uniquely tailored, is one method that can be utilized to enable user participation. This objective is something that is difficult to accomplish due to the fact that the factors that give an object its personal quality cannot be considered in a comprehensive manner in the past, while working on a project that is intended for a big number of people (Norman 2004). According to Mugge, Schifferstein, and Schoormans (2004), customization started to be interpreted by the general public as a method of providing a variety of possibilities, and as a result, it evolved into a process that merely increased the number of alternatives. According to Norman (2004), there is a distinction that can be drawn between what is tailored and what is personalized.

The concept of customization was swiftly adopted in digital settings, which resulted in the formation of distinct habits among users: "people like to change things around to suit themselves." According to Cooper, Reimann, and Cronin (2007): 555, "even beginners, not to mention perpetual intermediates, like being able to put their own personal stamps on a program, changing it so that it looks or acts the way they prefer, uniquely suiting their tastes." The occurrence of this phenomena occurred in such a manner that it went beyond the realm of personal computers: "Net Geners have grown up customizing everything – from their iPods to their ringtones" (Tapscott 2009: 161).

According to Cooper, Reimann, and Cronin (2007), the fact that individuals have the ability to make their own choices through customisation, personalization, or co-creation has become a positive element. However, it also has the potential to work as a facilitator when it comes to the use of particular products. Users are exposed to a certain amount of familiarity, which may be of assistance in the completion of particular tasks.

Through the process of inflicting adjustments on the look or functionality of items, each individual invests energy in it, which is subsequently utilized for the purpose of individual expression. According to Mugge, Schifferstein, and Schoormans (2004), this level of individual expression has an effect on the proximity of an object to a person and may be essential in determining the chance of the thing being used in a convenient manner. "Supporting personalization is a powerful and graceful way to acknowledge and celebrate difference" (Laurel 2001: 51) is a statement that can be used in reference to the act of distinguishing between what is created in a manner that is distinct. Moreover, to be able to serve in the design of printed materials, just as it is seen to serve in the design of digital artifacts (Moggridge 2010).

**Graphic Design Project:**

For the purpose of developing a project including graphic design, we need to come to an understanding that no printed content is interactive on its own. For the goal of implementing user interaction and participation, as listed from digital technologies, the project that we established had the objective of investigating whether or not there were favorable or unfavorable situations in print design.

For the tenth edition of the Master of Science in Science and Geographical Information Systems (C&SIG) program, which is offered by the Higher Institute of Statistics and Information Management at the New University of Lisbon in Portugal, a fold out was produced. This fold out also serves as a little brochure. It serves as a promotional item for this master's degree, which was taught both in a traditional classroom setting and through online platforms. In order to split all of the material, these two aspects were taken into consideration. One thousand four hundred copies were printed using an offset printing method with four colors. Figure 1 and Figure 2 depict the final version of the document.

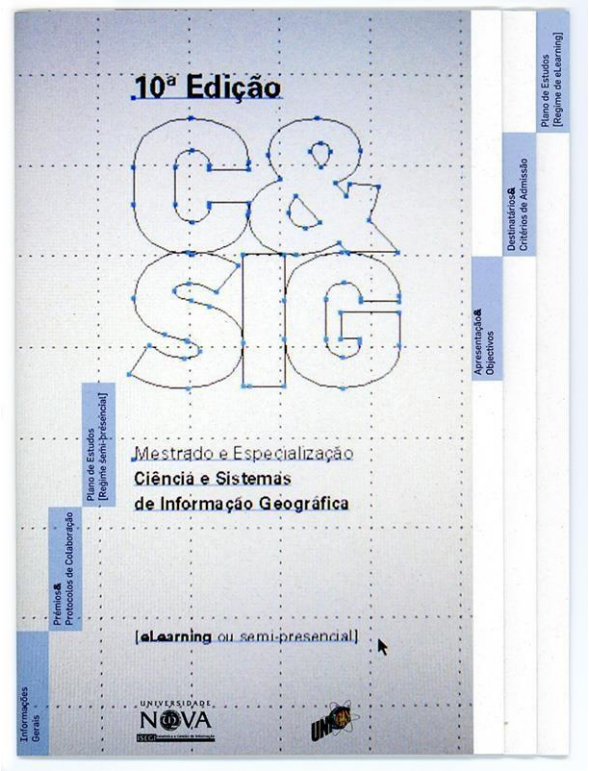


*Figure 1. Fold out/brochure final presentation.*


*Figure 2. Double side view of produced object.*

Just like on a website, there are sections that are dependent on the operation of hyperlinks, which enable users to navigate between different types

of information. On every portion, rectangles were positioned with indications of the information that was available for that particular section. Users are always aware of what occurs before or after each segment when they are reading each section in this manner. Depending on the order that users believe to be the most appropriate, these rectangles serve as links that can be utilized to visit other portions of the website. The use of this item as a brochure is reversible, which means that there is symmetry in the structure of the parts that serve as dividers. This symmetry makes it possible to reach the final page of one side and then immediately begin accessing pages on the other side.

A portable and practical object that could be handled was the primary concern, and it was also important that the object incorporate a system that would provide permanent access to all of the information that was required. The various sections were taken into consideration in order to devise a system that would allow them to be discussed without a predetermined chain of events.

We endeavored to alter the construction of visual elements so that they were in line with the masters' message and its various contents. The graphic decisions were guided by both mapping and the frequent usage of information technology tools in geographic information systems. A vector drawing program was used to create layouts for the opening page as well as for the interior portions of the document.

For the purpose of capturing work experience in such areas, photographs were taken of the computer screen using a grid in conjunction with the software interface, with the selection of all elements in the layout having been undertaken.

While this was going on, we were preparing a file to initiate folding for production in a page layout program. Within this file, an identifying side placement scheme was constructed for each section based on Neves (2016b), and it corresponded to each type of information.

Because of the outcome of the project, it was possible to verify several benefits that are accessible to anyone who would use this brochure or fold out. In addition to the benefits of production and portability, it presented opportunities throughout the process. Although the knowledge is condensed into a single material existence, each user has the ability to select between two distinct applications, allowing them to access the information in two separate ways. Additionally, users are provided with the ability to carry out certain actions, such as viewing additional content, in order to complete certain information.

**Conclusion:**

The fold out/brochure project is an example of a practice-based method that seeks to maximize the benefits of graphic design practice by combining two unique technologies in a way that is complementary to one another. Graphic design, on the one hand, has a history, tradition, and practice that are strongly connected to printing technologies, which are the primary factors that determine the majority of the outcomes of such project activities. In contrast, the production of interaction, which is now present in a significant number of digital

artefacts as a result of the extensive transmission of information and communication technology, is a phenomenon that has become increasingly prevalent.

Due to the fact that it has been used as a foundation for the development of digital technology, printed matter has only allowed itself to be marginally tainted by an explosion of notions and the possibility of participation with a binary system. Because of the growing prevalence of digital interaction processes, it is essential to ensure that printed matter, which is the outcome of graphic design projects, is kept in close proximity to the individuals who really use it. Otherwise, there is a possibility that it will become insufficient due to a lack of ongoing innovation.

Interference of technologies that cause interaction is a communicative and time-based idea in graphic design. This concept encompasses the examination of the behavior of printed matter and how it might offer something back to the people who use it. Because of this, it necessitates modifications to the generally accepted design approach. When we talk about conventional, we are referring to the one that comes to an end when a final shape is decided upon for an object. When compared to the anticipation of a gesture or a request and the subsequent alteration of interfaces, which occurs in the majority of digital creations, this is a significant departure.

The existence of a collection of interdependencies that appears to surround the action is indicated by the "final form" of a graphic design object, which is meant to be the case. Users, their requirements, and their desires play a significant role in the conception of design objects; nevertheless, in a reversible manner, users are not constituted until after an object has already been created. Something that has been adhered to in a steadfast manner, without any link to the capabilities of the users at the present time. In order to find some creativity, we need to make an effort to challenge people and not limit visual communication to contemplation. Since users already possess the knowledge and skills necessary to make decisions regarding innovation. Within this difficult setting, interaction emerges as a characteristic that is prevalent since it involves the participation of individuals. As a consequence of this, the authorization to take part in the completion of objects is contingent upon an interaction sequence that was developed specifically for this reason.

Printed matter has been prepared for a certain and predetermined production process, which is also the job that graphic designers have been prepared for. The same way that it is difficult for a coder to predict the needs of people who use digital gadgets. When compared to what is found in printed text, however, the discovery and development of a set of actions and reactions is conducted differently. Objects that are intended for print production typically determine a communication that is unidirectional; they are replicas on a vast scale that do not allow for personalization or authorization from the participants.

A present concept of graphic design and its dependence on technology, as well as its existence as a practice and as an innovative technique, is called into question as a result of this study's findings. In addition to putting an

emphasis on the composition of items and the way in which users experience them, it also raises questions about the implications of technological use and the techniques that graphic designers employ in their work.

From this point forward, it is the responsibility of graphic designers to create avenues that are not constrained by technology limitations. These avenues could potentially allow graphic designers to actively contribute to the development of new and possibly more effective methods of communicating and relating to individuals.

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