



DESIGN CULTURE(S) | CUMULUS ROMA 2021  
JUNE 08.09.10.11, SAPIENZA UNIVERSITY OF ROME

# The concept of Interaction Design under review: literature review and interviews with qualified informants

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**Abstract** | The article mentions a parallel about the conceptual strands for the Interaction Design theme. It relates what had already been addressed in the literature with in-depth interviews with professionals and educators, providing a unique record of this field in the city of Rio de Janeiro. Thus, it can be postulated that the material is related to the descriptive analysis of the concept of interaction, recognizing a multifaceted and human prism in its conception. This proposition is relevantly because of the Interaction omnipresent character permeating the entire process of production and consumption of information in the present times. By the conceptual relationship between information and interaction emerge a new literacy. Therefore, the matter of this research may be review of the design interaction concept and how it's iterative intrinsic with humans- interfaces with technology, into continuous cycle of redesigning our perspective of living.

**KEYWORDS** | INTERACTION DESIGN, USER EXPERIENCE, EMOTIONAL DESIGN

## 1. Introduction

The article analyzes the concept of interaction, recognizing a multifaceted and human prism in its conception (Lévy, 1999). This proposition also related to Card, Mackinlay & Shneiderman (1999) insight concept during interacting with visual information. Such dynamics can be related to interaction through accessible connectivity, as well as the way in which the construction of this dialogue between people, tasks, goals and aspirations is projected. It may rise to a point of interest and concern when thinking about more social developments for the interfaces developed by such professionals involving information and communication technologies.

## 2. The research prior definitions

The research is essentially theoretical in nature, including a descriptive section, and its main objective is to critically investigate both the concept of Interaction Design and its more contemporary understanding. The research seeks, initially and using a bibliographic review, to understand the concept of Interaction Design. In the second part, it takes a very empirical character, where interviews with professionals and educators stand out.

More specifically, the theme of the research is related to a descriptive analysis of the concept of Interaction as a key issue for building the concept of Interaction Design, in a dialogue with Information Science, Usability and Information Architecture.

## 3. Review of the literature references

### 3.1 Information and interaction

The objective here is presenting conceptual issues that are related to the theme, but from a perspective of Communication and Information Science, as a priority, since such theories will impact Interaction Design as an area of knowledge. As example of one of the key issues, Drucker (2002) should be remembered, as he emphasizes that, in a world where technology is not natural, but rather created by man, technological changes will always express a new worldview. And the artifacts of such new expression will always come from the creative vision of man. However, Information Science (IS) will be construed as the driving agent of this theoretical and conceptual journey. As Saracevic (1998 *apud* MIRANDA; BARRETO, 2002) indicated by highlighting that the IS's interdisciplinary nature is inexorably associated with Information Technology (IT). It is an activity that takes part in the evolution of the Information Society. Therefore, it refers to information boom as a social issue that began in science and has now spread to any and all human endeavors. According to Hobsbawm (1995 *apud* BARRETO, 2002), and Asimov (1988), based on the analysis of the last fifty years of the 20th century, mankind saw more innovations being inserted in its coexistence than in the

rest of human history. In addition, Tomaél, Alcará and Di Chiara (2005), related such achievements to two subsequent components: availability and exposure of information.

The reach of information meaning as proposed by Barreto (2002) refers to the individual as a cyclical procedural flow for life, which usually provides a starting point for discussing the transformations that arise from ICTs (Information and Communication Technologies), from the emergence of new knowledge-related demands. For Tomaél, Alcará and Di Chiara (2005), where human beings are leading players, sharing information and knowledge will only bring results if this implies a learning process, as simple access to information and knowledge without such a process will not change reality, and will therefore lose sense.

Thus, one should keep in mind Dixon's statement (2000) when he says that, if people begin to share ideas and realize the importance of this process, sharing itself will create the culture of learning. Meaning arises from exchange, and especially from interaction.

### 3.2 Interaction Design, beyond user experience

In the quest for understanding the concept of interaction, one may realize that Design, as a project activity centered on human beings, consists, in its way of seeing, in interpreting, in coexisting with the social environment in a holistic and ethical way. Based on such Interfaces, it is suggested, according to Royo (2008), that definition reaches a broader context, so that Interaction Design can be characterized in a more evolved stage of this conception, as follows: a space that sets the boundaries of interaction design with a view to its form, language and actions that fully anticipate interaction with information, respecting users' native skills in order to facilitate its use to fulfill a specific need. In this case, it may be synonymous with user's experience, but it certainly goes beyond a handling-based quality.

Another similar view found during this review proposes, recalling Lima and Dias (2012), that Usability is linked to the system's ability to interact with the user. Therefore, it appears to be a property of the interaction between product, information, user, task and context. At this point, once again, interaction is seen as a key element and as a connecting agent for the others. That said, users' involvement can be revisited at three different levels: tasks, emotions, and qualities associated with the product.

In this case, now talking about affection, pleasure, enjoyment and fun, all these elements can be critical to stimulate both interaction and the discovery of new ways of interacting. In this regard, it makes sense to revisit Desmet's proposition (2004) when he describes emotions as a mechanism that signals when events are favorable or unfavorable for a particular interest. Certainly, they are not properties of technology, but they can be construed as feelings arising from the experience of use. Therefore, it is possible to recall another objective of Interaction Design by highlighting that it should stimulate interaction and exploration. And this will not happen by chance but is rather the result of a careful interface design. However, one must not forget the role of equalizing competences and challenges as an equation to reach a stage of confidence and relaxation that can lead users

to a sense of Flow. This is the pleasure acquired by performing a task in itself and also as Williams and Dargel (2004) advocated.

In a slightly further elaborate proposition, Saffer (2007) said, when considering that Interaction Design is more related to human behavior than to the aspect of the screen. Together, Preece, Rogers and Sharp (2002) are referred to when they describe the same concept as the design of spaces for human communication and interaction. Now, after such substantiations, it can be highlighted that interaction design should aim to connect people through products and should be an informational space where communication can take place, as Krippendorff (2005) pointed out. In other words, the value is not in the things themselves, but rather in the knowledge contained therein and in the new knowledge generated by using it. To this end, Information Architecture (IA) will always bring very effective contributions, because, as a concept, it must be regarded from a perspective that involves the content, the business strategy and the user. Additionally, information must be seen as something that has to be designed and structured to be found, accessed and used. It is noted that, in a transversal way, interaction design is present, but it is also true that without information, such interaction cannot be sustained. Garrett (2003), on the other hand, broadens this understanding by believing that IA is about content design and user experience.

In turn, both IA and Interaction Design are part of a highly complex ecosystem of behaviors, being a part of the interactive human-information-technology dialog.

## **4. Interviews with educators and professionals**

The interviews with professionals and educators in the areas of Design and Communication sought to map out their understanding of such issues related to the subject of the research. In order to have a representative sample of different profiles and cultures, professors from two nationally renowned specializations, located in Rio de Janeiro, were selected, either because of their pioneering spirit or because of their recognition in the market. Therefore, such collaborators can be regarded as opinion leaders, educators and representatives of major companies in the interactive media sector.

The interviews had a pre-defined logic, and included a structured procedure, in which the concepts were presented sequentially, always one at a time, exactly as below.

1. Information.
2. Interaction.
3. Interaction Design.

*Table 1. Interviewee profile*

| Code           | Training                 | Trainer | Specialist |
|----------------|--------------------------|---------|------------|
| 1MMEBRGPU1212  | Design                   | Yes     | Yes        |
| 2MMLTPAPM1012  | Design                   | Yes     | Yes        |
| 3MMERFINPU0912 | Design                   | Yes     | Yes        |
| 4MFCHMGPU1212  | Design                   | Yes     | Yes        |
| 5DMLMACOP1112  | Design                   | Yes     | Yes        |
| 6MMFRFCOP1112  | Communication            | Yes     | Yes        |
| 7NMLCAGPU1112  | Design and Communication | Yes     | Yes        |

## 4.1 Information

The first word, printed on the sheets handed out to participants, encouraged interviewees to make remarks regarding the plurality of understanding, human dominance over its nature, the vast amount of information in current times, and its ubiquitous nature in post-Internet society.

First interviewee, NMLCAGPU1112, when thinking about Information, contributes by recalling researcher Peter Morville. Then he talked about complexity, just like other collaborators, to the point of saying that such concept had not been properly defined. As a justification, he contextualized it as follows: "... it is a rather polysemic term from the point of view of Information Science. It can have different meanings and can be construed in different ways". Finally, he found a definition he prefers. So, he said: "I really like the view where information is seen for itself. In it, information is understood as an attribute of the universe, that is, of our world. And it has space, energy, mass, movement and information". Collaborator MMFRFCOP1112 said: "Information is, more than anything else, a function." Then he went on: "The function of any data is to become information". Interviewee MMLTPAPM1012 said: "Information is the medium in which we live". This collaborator justified his initial thinking by going beyond the context and postulating that one lives in the information medium whilst, at the same time, information frees the individual, giving them autonomy so that they (users) may do whatever they want. However, at the same time, Information would condition people in a variety of delimiting situations. Thus, the collaborator recalled Bill Viola, a New York born American video artist, when he said that the concept of information refers to its own access, as well as the waste of information due to overexposure.

## 4.2 Interaction

Interviewees shared different impressions, but with very similar guiding principles, particularly the way in which interaction has a broad human dimension and how it is both marked and shaped by the same existential plane.

Specifically, for educators and specialists (DMLMACOP1112), interaction has a temporal boundary. In this way, the current time, the way in which demand becomes evident, the inherent medium of use, the allowed density, the types of drives, the responses provided by the apparatus and the never-ending real time mutation must be contained in any definition related to such a concept. Due to the proliferation of interactive technologies, the interviewee believes we are living in the era of technological interaction ubiquity. Then he postulated that the types, density and depth of interaction may be different due to the characteristics of the devices. He also pointed out that the degree of depth and intensity is not always the same, as there are times when the user investigates deeper than others. With his own approach to the temporal issue of interaction, interviewee MMLTPAPM101 said after a brief pause: "Something that marks our passage through things". At this point, it has to do with the human ability to interact with objects or people. He goes on in his reflection: "... is the relational. In other words, it is what we seek, desire and that fulfills us in a certain way". Interviewee MMFRFCOP1112, in turn, said it is the systematization of a human relationship, especially for those who come from the areas of Communication and Design.

More specifically, NMLCAGPU1112 likes a concept of Interaction that comes from the investigations made by researcher Alex Primo (professor at UFRGS). This professor and researcher fail to understand interaction through a reductionist perspective. He sees interaction as a reaction and explains: "When interacting with a machine or software, a person will get a pre-programmed response within a selection of alternatives existing in the algorithm of that technology. In turn, the user will respond reactively - just like the artifact, but in another dimension. So, when it comes to Human-Computer Interaction (HCI), we are, in general, dealing with this type of interaction". However, there is still another level of interaction, seen as mutual. In such an interaction, a human can interact with another human or even with several users, but always mediated by a machine. Above all, within the same proposition, the interviewee highlighted that several people could interact with each other, all participating at the same time, although abiding by the same mediation dynamics performed by technology. Thus, the interlocutor could enable changes, certainly modifications, during the course of their own experience. To him, this means a level up in terms of interaction. Sometimes, aspects of the so-called reactive interaction can be found in mutual interaction, but this is not a rule.

### 4.3 Interaction Design

Here, questions related to dialog experience design arise in a specific context, using technological tools as a means, guided by the skills of those individuals who operate the interface.

Interviewer MMERFINPU0912 comments on experience as a more contemporary concept, namely: "It is a way to design dialogues. As a designer, I believe that all interactive products come to solve an interaction problem". In this regard, the interviewee advocates Interaction Design as a means to get to the solution of such a problem. According to collaborator MMLTPAPM1012, Interaction Design has the following meaning: "It's how I design interaction. Even if it is idealized". Then, the interviewee tried to synthesize his thoughts, as follows: "It is when I design the experience the user will have in terms of interaction". For interviewee MMEBRGPU1212, it is when the specialist will act in the way of designing how people will interact with the system. At this point, the collaborator made a reference to the sense of materialization of product's key concepts. Interviewee MFCHMGPU1212 commented on how the designer should design the interaction of a product, advocating a very close relationship with Information Architecture. In the same way, collaborator NMLCAGPU1112 highlights that Interaction Design should have to do with the act of designing a certain product that will play the role of mediation between the different types of possible interactions, namely, either reactive or mutual. He continues linking the concept to design, research and a relative search anticipating how interactions will take place. On the other hand, participant DMLMACOP1112 said: "Design using all the multimodal capabilities of the tools". For this to happen, he refers to Design, in the sense of a project, making people use technologies in a natural way, without looking like they need a lot of effort and, above all, technologies that make sense, especially at the time of using. Thus, he states: "Do something that makes sense at that moment rather than through the free means of technology. Making sense is the greatest thing". To better explain his thinking, the interviewee goes on: "... not the free means of technology. One sees when something is forced and when something is natural. So, it closes, fits and there is real involvement". In conclusion, he says: "... how much people take ownership, take advantage of and enjoy their integration with information through the interface".

## 4. Conclusions

This final section is not intended to exhaust the issues raised, but rather to provide a parallel perspective on the central themes addressed herein.

Based on the bibliographic sources, it was possible to verify a relationship between Interaction Design concepts and the other concepts. The interaction, technology and information trinomial seem to have two modular transversal axes: design and users. Thus, the sense of design as an articulating field is reinforced, which interacts with technology,

making it unnecessary to legitimize a single immutable concept. However, certainly, information aims to change the way the receiver will perceive something and, because it is dynamic, it becomes complicated to define it in a deterministic way. Therefore, a first wording is created to characterize Interaction Design more fully, although other facets can still be addressed. These include the proposition of an intimate Information Architecture, almost internal to the individual, since, in order to design based on users' experience of use, it is necessary to have a better understanding of their habits, activities, mental work and feelings when dealing with the digital world of information. Additionally, based on Suri (2007) - an understanding that, as the interviewees have already pointed out, is not effective to train new information architects and interaction designers. At this point, a point of interest and concern arises when thinking about the more social developments for the interfaces developed by such specialists involving information and communication technologies.

In a slightly further proposition and based on what Saffer (2007) said when considering that Interaction Design is more related to human behavior than to the aspect of the screen.

Together, Preece, Rogers and Sharp (2002) are referred to when they describe the same concept as "the design of spaces for communication and human interaction." Now, after such substantiations, it can be highlighted that interaction design should aim to connect people through products and should be an informational space where communication can take place. In this way, it can also be assumed that ICTs are an interface to bring people together, since it is the means of this communication and not the end. This is justified when one accepts that the new logic is in the value of the information obtained from an interactive experience. In other words, the value is not in the things themselves, but rather in the knowledge contained therein and in the new knowledge generated by using it.

However, at this point in the discussion, consider that interaction begins long before the existence of a concrete product because, in theory, it is a productive and creative act of an individual who needs and longs for a tool capable to provide him with information - here a more internal space is considered for the external, that is, it speaks directly to the dream and ideal that will eliminate the bitter nature of such emptiness caused by the information gap to the potential user. At the same time, ICTs will intensify and enable end consumers to innovate interactive technological products and services. It is through this same interaction that people share meanings and senses digitally, since the Information Society operates based on information that is loaded with intention and feelings.

Therefore, the concept can be configured through the ubiquity of technological interaction, the first steps of direct manipulation and integration with users' studies tracing their informational needs, in addition to case studies covering a broader topic. Thus, ultimately, the Interaction Design seems to be, in this context, the design of plural experiences that will mark the passage through information structures that dignify human beings, thus enhancing their qualities, bringing meaning and improving their most intimate skills.

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