Considerations between UX Heuristics and Physical Space*

Pedro Soares Neves
Research colaborator of: University of Lisbon Faculty of Fine Arts / Artistic Studies Research Centre (CIEBA/FBAUL);
Associate Laboratory of Robotics and Engineering Systems / Interactive Technologies Institute (ITI/LARSyS/IST);
Interdisciplinary Centre for History, Culture and Societies (CIDEHUS/UE)

*Inspired in Urban Creativity 2020 online conference talk of Jon Yablonski Multidisciplinary designer, speaker, writer, and digital creator based in Detroit, author of Laws of UX: https://youtu.be/UihDLNS-RLk?t=2827

The book description to Jon Yablonski's seminal book 'Laws of UX – Using Psychology to Design Better Products and Services' describes the current prerequisites in the scope of digital interface design, as follows: "An understanding of psychology—specifically the psychology behind how users behave and interact with digital interfaces is perhaps the single most valuable non design skill a designer can have. The most elegant design can fail if it forces users to conform to the design rather than working within the 'blueprint' of how humans perceive and process the world around them. This practical guide explains how you can apply key principles in psychology to build products and experiences that are more intuitive and human-centered."

The subtitle "Using Psychology to Design Better Products & Services" hints at the fact that psychology is transversal to every human, thus can be applied not only to digital experiences, but to any form of design. This mindset provides the basis for the following considerations on relationships between UX Heuristics and physical space.

"A heuristic technique, or a heuristic, is any approach to problem solving or self-discovery that employs a practical method that is not guaranteed to be optimal, perfect, or rational, but is nevertheless sufficient for reaching an immediate, short-term goal or approximation." (from Wikipedia). Thus, heuristics as a technique is agnostic regarding its digital or non-digital usage.

Nevertheless, in the scope of possible/imaginable generic applicable ideas, there are some specific heuristics that, maybe, can be used to mediate between digital and analog worlds, in terms of UX heuristics.

Jacob's Law
Users transfer expectations they have built around one familiar product (or space) to another that appears similar. Existing mental models must be taken into account for designing new solutions, to help users to focus on the task rather than on learning new models.

This idea is present, e.g. in architects' good practices, in the sense that a spatial design is a narrative that uses, amongst other things, voids and mass, inside and outside as a language. Within this narrative, past experiences are taken into consideration and are translated into spatial structures and appearances. Also, design standards (as in Neufert and Christopher Alexander) are very useful for all public space design and are, hence, a very developed area of knowledge that, here, connects also with fields such as engineering or ergonomics.

Also Jacob's Law along with Personas are useful to allow the user to decide her/his individual rhythm for learning new models, instead of imposing a new reality to be decoded, including the possibility to shift to a new model at a later moment or to shift to the previous one, if needed. In terms of spatial design, this option will usually be more difficult to apply in physical space than in the digital realm.

For example, designs for moving urban furniture exist for a long time and are considered good practice, but still implementation is very limited due to high maintenance costs. Maybe, by introducing layers of buffers in the design process, users can be integrated in the project via participative processes or simple updates of the project's progress. See also Roger Hart's (1992) Ladder of Participation, which defines the following stages of the participation process: Manipulation; Decoration;Tokenism; Assigned but Informed; Consulted and Informed; Adult-Initiated; Shared Decisions with Children; Child-Initiated and Directed; Child-Initiated, Shared Decisions with Adults. (ref: Hart, R. A. (1992). Children's participation: From tokenism to citizenship. Florence, Italy: United Nations Children's Fund International Child Development Centre.)

Peak-End Rule – Daniel Kahneman

Daniel Kahneman did an experiment with hot and cold water, which proves that psychologically, people are not able to derive a representative average of physical or emotional experiences, but instead mainly consider extreme values and the development of their experience over time, especially towards the end. (ref: https://www.youtube.com/watch?v=sIC-Sa9Rny0)

Knowing how to use this rule when designing both a physical or digital project is essential. Naturally, this usage changes according to the kind of project and, in this case, to apply the rule spatially can be a very interesting challenge.

The digital sphere can influence spatial design and vice versa. For example, Mailchimp became aware of the most stressful moment of its service for customers, which usually occurs when people press the send-button for a newsletter. Hence, in their online experience design, they illustrated the successful completion of sending the newsletter with an empathetic animation of a 'high five' by their mascot (Freddie the Chimp).

In physical space there can be similar benefits, e.g., after a lang way up the hill to a medieval city-center, where we oftentimes find benches and trees to rest in a public square after ascending. So, organically, urbanists took the user experience into account, when designing spaces that were expected to be enjoyed and lived, instead of merely used.

Identifying the emotional peaks (good or bad) and the end points (e.g., on top of the stairs) allows designers to deal with them with care and delight, which will give character and emotional meaning to the actual user experience in digital and physical spaces alike.

User Journey

The task of mapping the emotional experience of the use of some service, product or space is typically called user journey. Shape and layers of these mappings can differ substantially according to the case study, depending on to how the passage of time, usage, and intended outcomes are associated with functional aspects. User journey mapping usually involves the creation of 'personas', that help to create empathy with the 'pains' and 'gains' of the particular type of use. NNg defeniition (ref: https://www.nngroup.com/articles/journey-mapping-101/) - A journey map is a visualization of the process that a person goes through in order to accomplish a goal.

An experience map, as an antecedent to a user journey map, is used for understanding general human behavior; in contrast, a customer journey map is more specific and focused on a particular business or product. As all the other examples given in this article, it is agnostic, regarding the digital or analog nature of the object of study, so the concept's application to the physical space comes very naturally.

The process of creating a map incites conversations on the case at hand and presents an aligned mental model to the whole team. The result of the mapping exercise is also an easy way to explain the process of digital and physical design to others; it reveals opportunities to address customers' pain points and alleviates fragmentation in the project process.

Hick's Law

The time it takes to make a decision, increases with the number and the complexity of choices available. Hence, look for simplicity of an experience, be direct. The mind is

a finite resource; our working memory transports experience from the immediate past, and the more information you have, the less you can focus. Conversely, if you remove some information, you can improve your focus.

So, when transporting this law to a spatial context, you can understand why sometimes we forget things, when we are moving through very stimulating spaces. For instance, the spatial feeling, the touch, sound, smell or visual impressions that we have in an elevator, will influence the actions that occur after the ride. Likewise, the information that is charged into our brain is challenged by stimulations to the senses, when we walk the streets. So, by focusing on emotional or sensual experiences in the design process we can influence user's behavior and create wholesome, efficient, yet inspiring experiences.

Some nice examples of a good usage of this law in the digital realm are onboarding experiences that teach you operational principles in a few steps and incite learning by doing. In a physical, spatial context, for example, bricolage centers work as a grey area between use and action, as they give the tools for doing it yourself (more about DIY here ref: Wolf & McQuitty (2011). Understanding the Do-It-Yourself Consumer: DIY Motivation and Outcomes. Academy of Marketing Science Review).

The process of communication must be clear, and excess information should be eliminated. Information can provide delight, when used in a meaningful and measured approach. In physical design we can take inspiration, e.g., from IKEA's business model (building partially) as a good example of the reduction of information for the sake of clear and simple instructions.

By reducing information and focusing on the most important tasks at hand, we can see DIY as a way for understanding complexity, while solving it at the same time.

Card Sorting

Designers and planners have their preferences, and card sorting helps to avoid that designers project their personal mental models on a particular project. Also, it is a very useful tool for organizing information in a way that people can find what they are looking for. Usually, content is structured based on what makes sense to the city council or to private owners, not necessarily on what is preferable to users.

Card sorting is a highly useful technique in information architecture; it is used to understand how users think about specific content. Translating it into spacial design terms can work in three main directions: first, as a methodology for understanding the future space's, for understanding the mental model underlying the space to be designed; second, to understand how information about and within spaces it is distributed, and when and why it will be useful; third, spatial elements transfer information between each other. Card sorting, therefore, can help designers, architects or planners to better understand and produce psychogeographical maps (ref: https://en.wikipedia.org/wiki/Psychogeography).

Concluding notes

First, this essay aims to point out the relevance of the cross pollination from different disciplines, related to umbrella terms such as user experience, urban design, architecture or urbanism. This awareness and the interlinking of different topics, methods and viewpoints, generates specific fields of interest, new research frontiers and new approaches towards designing digital and/or physical experiences that can improve the connection between overall applied performance.

Second, my text can also be read as a note about progressive enhancement: Design, first and foremost, aims for the lowest common denominator*, which is an excellent way for achieving the best output.

(note of the note)* User experience, design, architecture and urbanism have evident historical connections, which are in themselves sometimes not fully understood. An example of this can be found in the the ideas of, e.g., Walter Gropius or Adolf Loos. Progressive enhancement, to design first for the lowest common denominator, is a prime examples of this. Both concepts are essential to primordial ideas of design, connected with industrial revolutions, between wars, patterns of consumption and the production of consumer goods. But nowadays, re-adapted for digital and web design, entering the realm of digital spaces, these ideas look fresh, but, unfortunately, they also show us, how self-referential the internet is increasingly becoming, allowing for the dissemination of partial certainties and fragmented ideas in a new guise.