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16 User Experience in Remote Context

Emerging Needs

Maria Lucia Leite Ribeiro Okimoto

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16.1 INTRODUCTION

This decade stands out in human development worldwide, with changes resulting from the pandemic SARS-CoV-2, generically named COVID-19. Not only has the health protocols for disease prevention been changed, but together it has also brought about profound social changes across the planet. The first sign of change appears in human behavior. Unfortunately, the urgency of the current pandemic situation, resulting from the SARS-CoV-2 virus, did not allow humanity to go through an adaptive stage. And the health measures imposed by WHO to reduce the impact of the virus through social isolation brought with it several consequences. Thus, the global crisis resulting from the pandemic brings a strong transforming trend reaching beyond the health systems, the economy, politics and culture. And humanity, still supporting these changes, has been adapting very quickly, seeking its self-regulation. This concept of self-regulation is one of the conceptual elements, a component of the complex biological system, as pointed out by Varela, Maturana and Uribe (1974).

This is a time of transformation and adaptation of life to new world trends. And certainly the year 2020 will be in the eyes of the next generations as a landmark of historical transformation of humanity. Within this new context, some expressions appear and become popular, such as quarantine, social distance, restriction to circulation, confinement and lockdown. The user experience takes on new dimensions, hugs are replaced by emojis, face-to-face meetings and classes by remote

conferences, traditional tourism by virtual tourism, offices by Work from Home and artistic presentations by lives. In this way, humanity has sought to reinvent itself, readapt, change habits, rethink concepts and rediscover new values. Behavior, the way to manifest and transmit information and emotions are being drastically replaced in this period.

16.2 USABILITY, USER EXPERIENCE AND USER CONTEXT

Usability is typically defined as the “capability of being used,” in other words, the capability of an entity to be used (Bevan, Carter, and Harker, 2015). Usability is part of the user experience (UX). According to ISO 9241-210: 2019, the user experience is defined as user’s perceptions and responses that result from the use and/or anticipated use of a system, product or service; whereas users’ perceptions and responses include the users’ emotions, beliefs, preferences, perceptions, comfort, behaviors and accomplishments that occur before, during and after use. The user experience is a consequence of brand image, presentation, functionality, system performance, interactive behavior and assistive capabilities of a system, product or service. It also results from the user’s internal and physical state resulting from prior experiences, attitudes, skills, abilities and personality and from the context of use.

The user context is the basis for assessing usability and user experience. One must understand the specific contexts of use, considering the characteristics of the users, objectives and environments of particular interest to the user. For digital systems, the user context is included in ISO/IEC 25063: 2014.

Considering aspects of accessibility and aspects of context of use, we can take population data as a reference to realize the percentage of users who need some kind of help so that they can effectively access information and interact, in order to expand autonomy. In Brazil, we have a population of approximately 208 million and 900,000 people. Of these, 24% declared to have some disability, according to IBGE (2010). In this scenario, more than 50 million people are excluded due to the lack of accessibility resources. Accessibility is important for people with different disabilities and abilities: either by using the keyboard for navigation without the “mouse” or by the difficulty or inability to see the screen, by cognitive difficulties, by the use of the Brazilian virtual sign language, VLIBRAS or by other particular issues.

16.3 CONTEXT IN THE PANDEMIC PERIOD

The global pandemic scenario has changed the experiences of users and UX professionals. There were few specific studies in this period of the pandemic observed from April to November 2020 that deal together with the theme of user experience and remote activity. However, the actions of the NN/g (Nielsen Norman Group) stand out in the promotion of instructions and training for professionals and of UX tests remotely. Kate Moran (2020) from NN/g presents a study on behavior changes before and after COVID-19. According to the author, before COVID-19, the population routinely performed the following actions: commuting every day to an office; taking children to school or daycare; exercising in a gym; socializing in large groups

at bars; buying products in stores; going out to eat in restaurants; going to a movie theater; going on international vacations; visiting a doctor's office; visiting a government office to complete paperwork. After the health rules and recommendations of the World Health Organization, many actions were modified, and during the period of greatest rigidity with restrictions, and recommendation intensifying social isolation, while remaining local rules to prevent contamination. And, even a few months after the most critical periods, Moran (2020) still observes the following changes in people's routine: no commuting and working from home; homeschooling or caring for children at home; exercising at home, outdoors or not at all; buying products online; ordering food to be delivered at home; renting a movie at home; going on a local road trip; using a telehealth app from home.

Evidently, depending on the local culture, there may be differences in people's behavioral changes. And these changes can be more complex, due to the virus itself and the age group of the population that has the greatest restriction, these being people over 60 years old. In addition to this impact of restriction on mobility, economy, education, hospital infrastructure, public policies and consequently the entire global production chain were affected. The magnitude and exact nature of the changes can only be tested in a few years. However, individual behavior change will certainly be part of people's experience, and according to Moran (2020), this may be a short-term change, but it may also have long-term consequences for all related sectors. On the other hand, with regard to emotional impacts, which emerge from the consequences of the restrictions of the pandemic state, people who are more sensitive and in situations of greater vulnerability in this case are subject to a greater risk, tending to depression and anxiety.

Pfefferbaum (2020) considers that public health emergencies can affect health, safety and well-being causing insecurity, confusion, emotional isolation and stigma to individuals, as well as affecting the communities, due to the economic factor, loss of job and school and lack of financial resources for medical assistance, among other factors. The authors consider that the consequences may have repercussions on the emotional part or with changes in unhealthy behavior, through the excessive use of chemicals, alcohol and other illegal substances. The authors point out that other research indicates that emotional suffering is ubiquitous in populations affected by disaster situations, and that this fact may echo in populations affected by the COVID-19 pandemic. About this issue, Pfefferbaum (2020) describes psychological sequelae in quarantined people and health professionals and the main symptoms are stress, depression, irritability, insomnia, fear, confusion, anger, frustration, boredom and stigma. Even symptoms that persisted were identified, even after the quarantine was lifted.

Thus, it is a consensus to affirm, corroborating with the arguments of Moran (2020), that this year people have different expectations and concerns than they had in 2019, and some of these differences may be lasting. And in this context of a pandemic, there was a need to break paradigms to readjust human supplies. At first, the traditional way of acquiring and purchasing food and the place where the work was carried out was broken. In this change, the bases of human survival prevail, to remain protected individually, or family, as well as for their economic protection. In

this first paradigm break and behavior change, there was a considerable growth in online shopping. In this way, we can perceive the role of self-regulation of the human biological system, as pointed out by Varela, Maturana and Uribe (1974). This change favors opportunities for this “new user,” as their needs change radically. Thus, it is a strategy for obtaining necessary inputs—electronic commerce. A large flow of new potential customers with different emerging needs quickly appear in this scenario.

And technology has been the means of interaction and the solution to meet the basic needs of this global society during the pandemic period. Thus, remote working raises social and technical issues. The crisis has sparked a mass shift to working from home. As a result, the use of remote collaboration tool, particularly video-conferencing platform, has surged. Another major impact of a paradigm shift was on distance learning. The technologies of distance learning have increased significantly in recent years, gaining confidence little by little, above all, in the professional training of adults. Distance learning with its own rules has, in this short time of the pandemic, passed from a complementary system to a necessary and emergency teaching support. Thus, remote education has expanded at an accelerated rate, being above all a means of access to all levels of education, from the preschool phase to the highest level of postgraduation. And in this way, people started using digital platforms and media for all possible day-to-day interactions, sharing cake recipes, solving small problems and other tips on an innate need to share their actions, skills and knowledge.

Chen et al. (2020) investigate user experience in digital teaching platforms in China during the COVID-19 pandemic. They point out that social education has shifted from face-to-face to online in order to avoid large gatherings and crowds for blocking the transmission of the virus. The authors argue that these platforms provide strong support and aid for education during the pandemic period and bring to users a new experience, but also bring a lot of controversies. Because of that, it was necessary to analyze changes in user concerns on these platforms before and after the epidemic. And they analyzed the impact of the virus on user experience and deeply retrieved users' requirements, about seven major online education platforms before and after the outbreak of COVID-19, by combining the emotional analysis, hot mining technology, as well as relevant literature. In this way, they developed a systematic method with weighting of the variables, thus adopting a comprehensive evaluation method to analyze user experience before and after the outbreak of COVID-19, and finally finds out the change of users' concerns regarding the online education platform. The authors evaluate in terms of access speed, reliability, timely transmission technology of video information, course management, communication and interaction and learning and technical support and explore the supporting abilities and response levels of online education platforms during COVID-19, and puts forward corresponding measures to improve how these platforms function.

Initially the authors first collected comments from users of seven traditional online education platforms, and then punctuated the emotional aspects in the comments and presented a platform rating index system. Weight to the index was defined, thus the variation coefficient method and the entropy method were used for the calculation. Based on the index weights obtained, the user experience of each platform

before and after the outbreak of COVID-19 was assessed in order to analyze the impact of the pandemic on the user experience.

Surveys related to user experience must also meet the ethics in research recommendations. In Brazil, the National Research Ethics Commission (Conep) of the National Health Council (CNS) guides the adoption of the guidelines of the Ministry of Health (MS) arising from the pandemic caused by COVID-19, in order to minimize potential health risks and the integrity of research participants, researchers and members of the Research Ethics Committees.

16.4 STRATEGIES FOR CONDUCTING USER EXPERIENCE STUDIES IN THE CONTEXT OF A PANDEMIC

The remote communication strategy extends to all areas, and in the context of the user experience, takes advantage of new dedicated digital platforms with video resources, just as it did for use in distance learning. In this way, the user experience remotely expands and consolidates protocols and techniques already developed, including some strategies considered complementary, such as remote usability testing, in the face of direct approaches, of interaction between the UX professional and users.

The first environments for usability tests, considered as observation aquariums, sought to block the physical presence of the evaluator in order to reduce the emotional and distraction aspects of the task. And these usability test environments, even if in person, sought to have a specific environment in order to isolate the researcher's in-person variables from the participant. According to Bradner (2004), almost 20 years ago, the remote usability test started to become popular through the use of technology. For remote usability tests, the digital conference telephone call system was used, using call audio in conjunction with screen sharing. One of the tools used was Microsoft NetMeeting or Live Meeting. This technology was the first step to allow remote-assisted performance observation in a virtual laboratory. Some advantages of the remote test are pointed out by the authors, and the fact that physical restrictions on access to the site and physical space for testing are eliminated, also impacting on the final cost-reduction of this process.

The face-to-face interaction brings us some advantages for the established practices of UX, which is the easiness for the participants to build a bond of trust and professional relationship than remotely. An effective point of face-to-face interaction is greater concentration, since the participant is immersed in that context that involves the product. Thus, the time for concentration and attention may be longer according to Kapla (2020). However, in the event of a pandemic and possibly on other particular occasions, we cannot always perform user experience activities personally. There can be many unforeseen events: limitations of budget, time, travel or other unforeseen circumstances can make the face-to-face form impossible. At this moment, when the planet is going through a pandemic, this may be the most efficient and safest solution for everyone, whether they are participants or professionals.

Kapla (2020) points out the benefits that remote UX sessions offer: flexibility in project funds, the remote sessions reduce travel expenses; increased inclusiveness, the location and space are no longer limitations with remote sessions; participant

convenience—promotes greater convenience to participants that does not require them to leave the office or home, also saving time.

So the main point of investigation of UX is to identify the new habits and behavioral changes of the new users during the pandemic. The experiences of the NN/g Norman Group, reported by Moran (2020) in user experience with different companies, emphasize that each user group is unique, and that's why everyone needs to do their own research. Depending on who is your user populations, their behavior and preference changes may be different from another user population. Moran recommends that when assessing COVID-19's impact on your users, consider whether there are behavioral shifts; psychological shifts; changes in user groups; regional effect; and temporal effects.

The NN/g Norman Group at their Web site <https://www.nngroup.com> provide training to conduct remote UX research. This group clearly and concisely presents the need to pay attention to UX practices for this new context. Also, they emphasize the need to adapt the methods, software and the context of isolation that the user finds. Best practices need to be reviewed and moderated and unmoderated remote user experience research improved. The team highlights specific recommendations within each sequential stage of the UX process planning: practice using technology; recruit additional users; plan technology challenges; provide instructions; and adjust the consent forms.

It is also recommended that a good training should be provided to researchers on new technologies, in order to increase the tool's familiarity, and to do previous tests with the team with the new technology. And particularly for remote and unmoderated sessions, it stresses the importance of clear instructions for entering and completing tasks. It is important to plan and conduct an initial pilot test with some users to adjust the technology and other factors as needed before starting the study. They emphasize that because they are remote tests, they can become unusable due to the technology itself, so having an additional number of users is quite appropriate in these cases, creating a proactive safety net.

They recommend that the researchers should always prepare an alternative form of communication with the user, which in a simple way can be through a telephone call. Another alternative is to use a Web link for interviews with users: preferably accesses that do not require participants to download anything to join the session. It is essential to provide instructions if the technology tool is complex or users are going to configure and use it for a long time. Evernote's shared notebook can assist as a tool to arrange the necessary forms, especially the consent forms. If it is necessary to record the face, voice or screen of the participant during a remote session, it is important that the consent form is updated with the appropriate permissions for each of these items, as well as other authorizations.

Remote user research can be conducted in the same way as UX that normally uses several research methods according to the objectives of the study. The NN/g recommends in remote and unmoderated sessions: tools to capture qualitative perceptions of video recordings and loud voiceover by users. The most used are Lookback, dscout and Userbrain. And for quantitative metrics, such as time spent and success rate, software such as Konzept App and Maze are used. The UserZoom and UserTesting platforms have qualitative and quantitative resources.

Today, in fact, there are many platforms for UX testing available, with costs relatively adequate to each situation, from a small usability test to others of higher cost that can provide greater variability of the user experience. The vast majority of platforms, including in the period of the pandemic, released videoconferencing systems with screen sharing, call recording and videos free of charge. Most meeting platforms allow you to schedule meetings in advance. Among the platforms used are Jitsi meet, Zoom, GoToMeeting, Microsoft Teams, Google Hangouts Meet, Skype Business, etc.

16.5 SURVEY OF PERCEPTUAL ASPECTS OF USERS OF DIGITAL PLATFORMS FOR REMOTE ACTIVITIES

A questionnaire was applied to survey the perception of the use of remote systems for the use of work activities. The research was carried out in the city of Curitiba, Brazil, in November 2020. The objective was to try to identify aspects of interaction with the platforms and the main difficulties and dissatisfactions for carrying out work tasks. The survey was conducted on Google Forms, which is a search management application launched by Google. In the survey, 49 people participated, with 16.3% in the 18–24 age group; 12% in the 25–30 age group; 12.2% in the 31–40 age group; 24.5% in the 41–50 age group; 24.5% in the 51–60 years age group; 6.1% in the 61–75 age group; and 4.1% in the 66–70 age group. Searching in this sample is to seek representatives of age groups that use digital platforms intensively.

Participants were asked about the context of occupation, work, study and type of professional relationship. It was also questioned whether they performed activities related to teaching, whether as a student or teacher. In this group of users, 55% exercise registered work activities, and 12% exercise professional activity independently, 22.4% are students and 16% do not currently have a professional activity. Of this audience, 83% use the digital platform for work or teaching. The time of use of digital systems was reported by 22.4% who used for more than 10 hours daily, another 22% used between 8 and 10 hours daily. A total of 42.4% use more than 5 hours daily. And 95.9% of users selected the notebook for the virtual meeting of work activities. For family reunion activities, only 40.8% of them used a digital platform for this purpose. And 57% of users reported using the digital platform for teaching purposes, while 34.7% of users reported that they teach remote classes.

The digital platforms used were the following: Microsoft Teams by 37.6%; Google Meet 26.5%; Zoom 14.5%, Cisco Webex 6.12%, Discord 6.12% and with less use the Google Classroom platforms; Jitsi, Skype Business and Whatsapp. Below we list the comments of 32 users who responded about what they dislike most about conducting a remote virtual meeting activity on the platforms chosen for their activities.

- U01. I hate to use headphones, but it is necessary.
- U02. Access difficulty.
- U03. Not being able to know if students are actually participating.
- U04. People don't know how to use technology. Time is wasted, a lot of time, with things that are extremely simple and straightforward.

- U05. It takes time to understand the interface, which leads to delays in the development of the meeting.
- U06. Unstable Internet.
- U07. The concern with the status of the connection and also the context in which I am inserted. At home, there are several distractions and other responsibilities that influence and hinder concentration, such as sharing the same environment with another person who works remotely.
- U08. It is different from a physical meeting in the sense of public engagement.
- U09. Lack of help for people who don't know the platform, the lack of a tutorial makes it difficult.
- U10. Connectivity issues.
- U11. Delay to enter due to passwords, sudden disconnection of the call.
- U12. Due to long periods in front of screens, it causes discomfort in the eyes, in addition to sleep, and the greater ease in being distracted by other things.
- U13. I need more control of the speaker's window. To be able to transmit to another platform. To be able to quickly choose to teach between mosaic and just one window, using keyboard shortcuts.
- U14. People with camera off.
- U15. When the video freezes.
- U16. You have to close the microphone or there is a lot of noise.
- U17. Very tiring.
- U18. Interruptions.
- U19. Don't see the students' reaction. Most keep the camera closed.
- U20. The system can stop at any time.
- U21. Interruption when power is lost or when the connection fails.
- U22. I miss personal contact.
- U23. It is very tiring when the meeting lasts more than 2 hours.
- U24. I get discouraged when the transmission stops at my meeting.
- U25. Connection failure is annoying.
- U26. People do not turn on the video camera when sharing the screen.
- U27. In classes: the silence of the audience. The sloppy physical environment, lack of lighting, sound in the environment, low-quality Internet of participants.
- U28. Complexity.
- U29. Inconveniently opened video cameras.
- U30. When all participants turn off the camera, turning into a meeting of machines.
- U32. The digital platform is not so interesting to extend discussions, answer questions, interact to explore aspects of the conversation. In my opinion, this fact makes the relationship more impersonal, since the listeners are in the same virtual environment, but not with the same level of collective interaction.

It can be seen in the results that the negative experiences that were presented by the users are recurrent for several users with regard to the aspect of failures and interruptions due to technological issues. But the vast

majority of reasons for dissatisfaction refer to the behavior of users in front of the cameras, in an attempt to remain incognito in the virtual meeting. Fear of exposing the environment where you are, difficulties to isolate noise from your environment.

16.6 CONCLUSION

To the detriment of social isolation measures, professionals in the field of design and usability had to reinvent themselves and adapt, bringing new possibilities, given the need to stay at home. And this context brings us reflections on the conduct of user experience studies in a remote context. In this sense, in this chapter new paths were pointed out for professionals in the area which have brought significant results, providing greater security for the reproduction of techniques already established for face-to-face contact in the remote form.

But for that, as a post, it is necessary to understand this new context, the user, their expectations, fears and anxiety in the face of this pandemic and post-pandemic moment. Therefore, new adaptations to the methods of conducting research and data collection are essential, which at this stage is being revitalized and reframed.

Since the COVID-19 pandemic has drastically affected user behavior worldwide, different cultures have also responded in a unique way adapting to the restrictions of remote data collection methods, which do not allow personal interactions. The use of digital platforms has significantly remodeled and innovated the way we relate to people. Digital platforms undoubtedly have the potential to play an important role in the dissemination and reformulation of the user experience practice. And the COVID-19 pandemic is an opportunity to iteratively optimize remote abilities for the UX teams.

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