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Appropriation and uses of a technological tool in a humanitarian context: The case of the first aid mobile application

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Abstract

The First Aid app has enjoyed largely positive feedback from Haitian Red Cross volunteers, who see it as a helpful source of tips for effective intervention during public health crises. However, research shows that there is a gap between the app's perceived usefulness and its lukewarm reception in terms of actual use. Beyond the usual determinants of the application appropriation process, it is important to take into consideration the main obstacles volunteers face – particularly material obstacles (problematic Internet access, issues due to mobile phone brand, etc.). We must take these diverse factors into account to effectively evaluate the appropriation process beyond declared intentions of continued use.

Keywords: Mobile application, Haitian Red Cross, First Aid, Appropriation, Use, Volunteer.

Résumé

L'application « Premiers secours » bénéficie d'une perception globalement positive des volontaires de la Croix-Rouge Haïtienne, qui y voient une véritable aide-mémoire favorisant des interventions efficaces lors des crises sanitaires. L'enquête montre cependant un décalage entre cette l'utilité perçue et l'usage en demi-teinte de l'entité technologique. Au-delà des déterminants du processus d'appropriation de l'application, il est important de prendre en compte les principaux obstacles auxquels les volontaires sont confrontés, notamment ceux d'ordre matériel (problème de connexion internet, problèmes liés à marque de téléphone possédée, etc.). C'est en tenant compte de ces divers facteurs que l'on pourra efficacement évaluer le processus d'appropriation, par-delà les déclarations d'intention que sont les continuités d'usage.

Mots-clés : Application mobile, Croix-Rouge haïtienne, Premiers secours, Appropriation, Usage, Volontaire.

Appropriation and Uses of a Technological Tool in a Humanitarian Context: The Case of the First Aid Mobile App

Introduction

Mobile phones and apps are becoming increasingly present in humanitarian settings (Elrha 2015). Their effectiveness during mobile health interventions has been amply demonstrated, as in the wake of the 2010 earthquake in Haiti or during the 2011 military intervention in Libya, thanks to the free platform ushahidi.com (Tan and Galien 2018). The development of a wide range of mobile applications has sped up and improved the efficiency of responses to public health crises, such as Ebola in Africa (Jia and Mohamed 2015) and the cholera epidemic in Haiti (Teng et al. 2014). However, though they are often portrayed as “technologies of hope” (Tournay and Leibing 2012) in humanitarian settings, these technologies continue to draw criticism and reservation from researchers. Some of them have suggested that we must put into perspective the “revolutionary” abilities often attributed to such technologies (Read et al. 2016) and assess them by taking into consideration their impact on the well-being of local populations. Others have focused on the difficulties their users encounter and the gaping divide between “technology designers and the populations impacted by humanitarian crises” (Mesmar et al. 2016).

Given this new reality, the Canadian Red Cross, in partnership with the Haitian Red Cross as part of the “Health Emergencies in Carrefour-Feuilles” project, decided to launch the First Aid app – an innovative tool created by the International Federation of Red Cross and Red Crescent Societies (IFRC). The goal was twofold: first, to enhance Haitian Red Cross volunteers’ ability to react quickly and effectively during health emergencies and provide the population with appropriate information, particularly in urban areas; second, to encourage citizen participation in health issues to the extent possible, in line with one of the targets set by the national health policy in 2012.

In this article I will explore how volunteers, as healthcare actors, perceive this new technological tool, detail the ways they use it, and discuss how they have incorporated it into their daily practices depending on how useful they perceive it to be.

Literature Review

There are, more or less, two major theories of appropriation. The first, known as design-in-use theory, takes its inspiration from sociologist Anthony Giddens' theory of structuration. It sees tools and their uses as consubstantial, indissociable and "based on social-cognitive patterns". The second, known as implementation theory, views appropriation as an interactive process between actors and tools, placing focus on its recurrent and continuous nature. In this respect, the appropriation process is inherently phenomenological insofar as technological objects can only be truly appropriated when they become an extension of the actor's "own body". As Havelange (2010, 226) explains very clearly, like Merleau-Ponty before her, tech objects can become a "force for engagement with the world" only when the individual goes through a process of physical, cognitive and social integration. In this article, I will refer to the concept of appropriation not only as a subjective relationship with a technological tool and an individual accomplishment, but also as a collective process. It is nonetheless important not to lose sight of the fact that not everyone has the same resources or dispositions to appropriate the tool – in this case the First Aid app – to the same degree. As a continuous process, i.e. one built over time, appropriation can also be defined as "the way a group uses, adapts and reproduces a structure" (Roux 2007). In other words, to understand appropriation "in action", one must study how actors use the tool. As Angélique Roux wrote, in line with the work of Taylor (1993), "It is only when technological elements are mobilised regularly that they structure action and become rules and resources in the construction of recurring social practices" (Ibid., 131).

In this article, I do not aim to oppose design and appropriation since, as it has been pointed out elsewhere, design can be amended or "influenced by past or present uses" (Ibid.). In this respect, appropriation constitutes a process through which technological objects are adapted and integrated into daily practices at the microsociological (individual) or macrosociological (organisational structure) level" (Jelassi and Herault 2015).

Materials and Methods

This study is underpinned by mixed methodology (quantitative → qualitative). First, questionnaires were administered to volunteers (some involved in the "Health Emergencies in Carrefour-Feuille" project and others not), then self-administered via Google Forms (n=166) using snowball sampling. Next, focus groups (eight participants each) were held (n=6) with the same actors to better understand their perceptions and the relationship they had developed with the app. Finally, six (6) volunteers were monitored for six months to provide a clear picture of the relationship they had developed with the app.

I entered the data collected over the course of the study into an Excel spreadsheet and analysed them using SPSS 25.0.

Results

Sociodemographic data

The sociodemographic data highlight two important pieces of information. First, the sex ratio is imbalanced (56% men and 44% women) and respondents under 35 years of age (65%) and with higher education degrees (85%) are both overrepresented. Second, more than two-thirds of respondents reside in Port-au-Prince (48.80%) and Delmas (21.08%), and the vast majority have been with the Haitian Red Cross for at least 10 years (91%). At the time of the study, only 51% were involved in the "Health Emergencies in Carrefour-Feuilles" project.

	Effectif	Proportions (en %)
Sexe		
Homme	93	56,02
Femme	73	43,98
Âge		
18-23	9	5,42
24-28	44	26,51
29-33	55	33,13
34-38	40	24,10
39-43	15	9,04
44 et plus	3	1,81
Scolarisation		
Primaire	1	0,60
Secondaire (jusqu'au secondaire I)	6	3,61
Secondaire (jusqu'au secondaire 4)	34	20,48
Bac +1 à Bac +3	77	46,39
> Bac+3	48	28,92
Lieu de résidence		
Port-au-Prince	81	48,80
Delmas	35	21,08
Pétion-Ville	20	12,05
Tabarre	20	12,05
Carrefour	5	3,01
Croix-des-Bouquets	3	1,81
Léogane	2	1,20
Durée d'affiliation à la CRH		
< 1 an	15	9,04
1 à 3 ans	38	22,89
4 à 6 ans	63	37,95
7 à 10 ans	38	22,89
> 10 ans	12	7,23
Engagement projet		
Oui	85	51,20
Non	81	48,80
Ensemble	166	100,00

Table 1: Respondents' sociodemographic characteristics

Half-hearted appropriation of the app

Despite their generally positive perception of the application, the number of times each volunteer declared consulting the app remained fairly low overall, at least at the time of the survey. For example, only 32.53% and 23.4% reported having consulted the app 2-4 and 5-7 times respectively since they had downloaded it. Figure 2 reveals that, over 10 uses, the number of respondents decreases. The data from the qualitative investigation explain this situation. First, not all of the volunteers downloaded the app at the same time. Downloads were extremely spread out over time, as shown in Figure 1. Second, the low number of uses can also be explained by the fact that the introduction of the app as a tech tool to support and guide volunteers during interventions remains a relatively new experience, which requires an adaptation process.

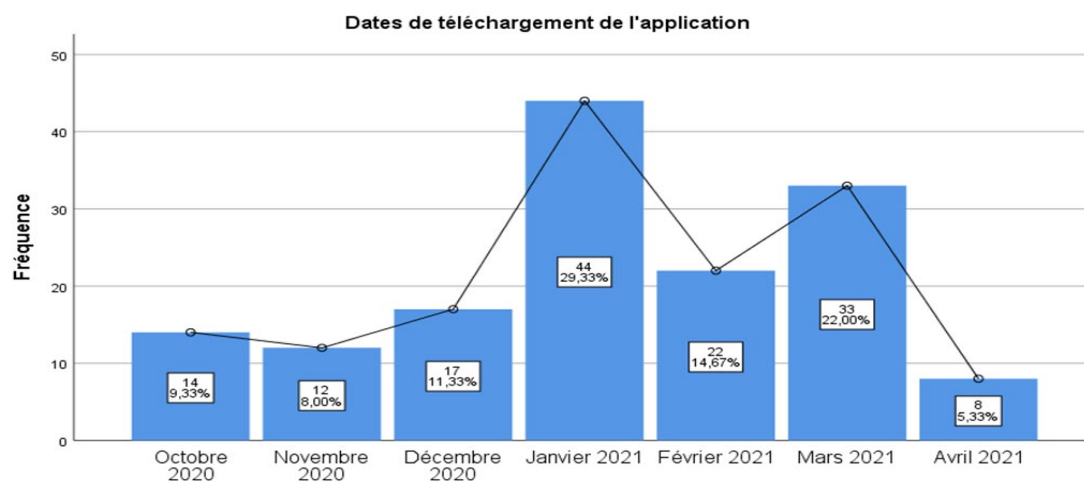


Figure 1: Download date by volunteers

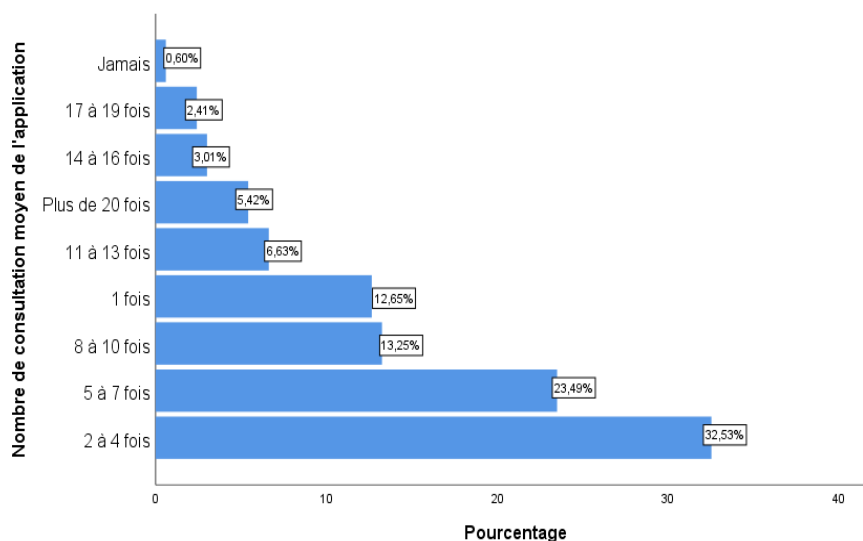


Figure 2: Breakdown of respondents according to the average number of times they consulted the app

Similarly, the average amount of time devoted to learning how to use the app remains rather low at under an hour. Since downloading the app, 36.14% of respondents said they had spent 15 to 30 minutes learning to use it; 23.49% spent less than 15 minutes, and 15.66% spent between 30 and 60 minutes. Only 24% of respondents said they had spent more than an hour learning to use the app (Figure 3).

The data show that age is the principal determinant when it comes to the amount of time devoted to learning to use the app (Figure 4). The 29 – 33 and 34 – 38 age groups said they had spent more time than any others learning the app and getting to know it better (Pearson's chi-squared = 45.367, df = 30, p -value = 0.036, 0.05 significance threshold). I did not discern any statistically significant relationship between the amount of time devoted to learning to use the app and other sociodemographic variables.

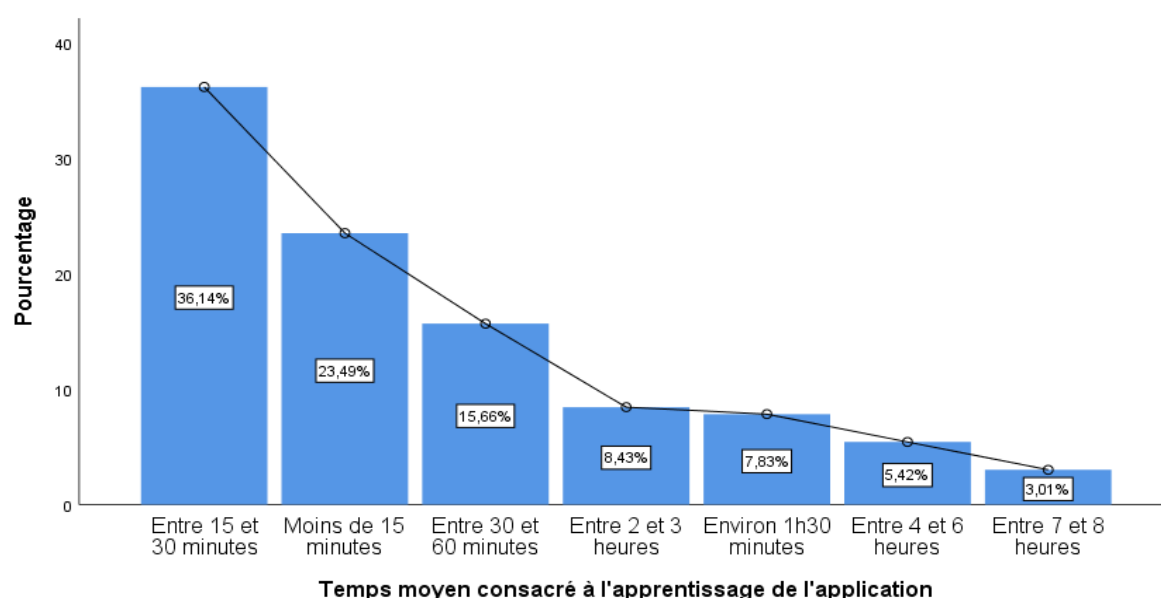


Figure 3: Breakdown of respondents according to the average amount of time spent learning to use the app

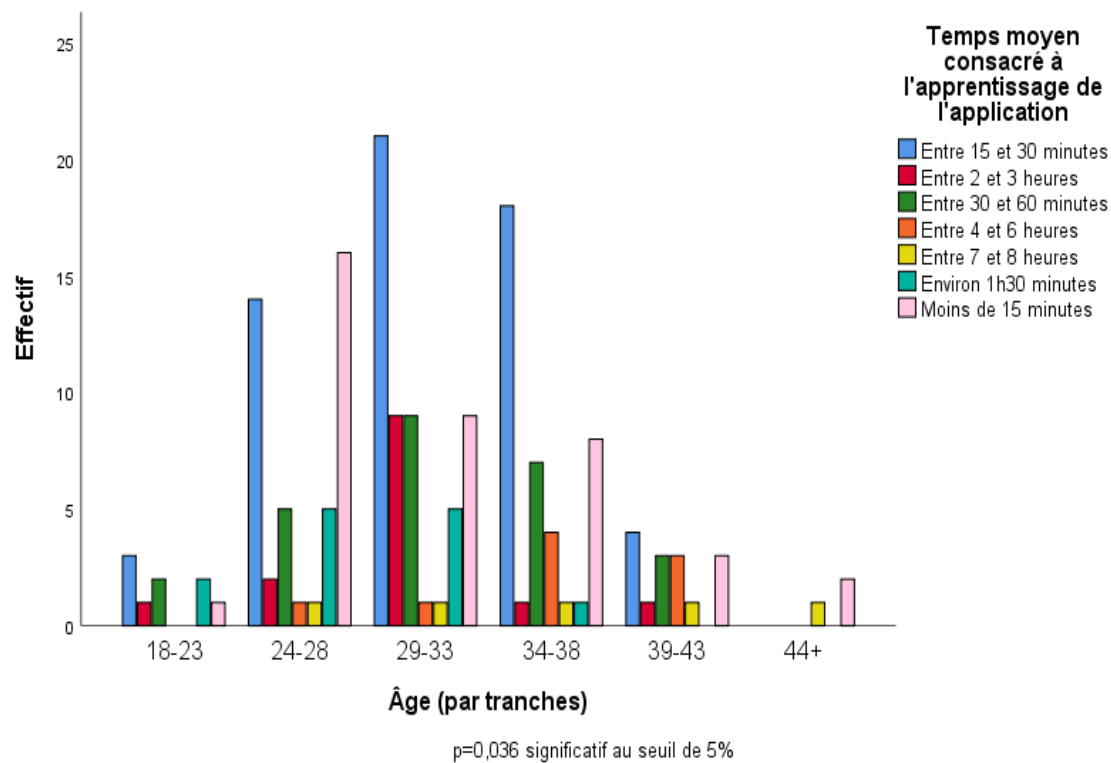


Figure 4: Average amount of time devoted to learning to use the app according to volunteer age

A variety of uses for the app

Data indicate that progressive appropriation of the app is a process that is indissociable from its uses, which are likely to vary depending on the type of reported emergency and preventive intervention required. Quite a few volunteers reported using the app either to help victims of an emergency or for preventive initiatives. As for the types of emergencies reported (Figure 5), the most frequent were burns (43.48%), haemorrhages (39.13%) and unconscious victims (30.43%), while strokes (13.04%), heart attacks (10.87%), psychological distress (13.04%), epileptic seizures (8.70%) and diabetic emergencies (2.17%) were least frequent. Similarly, in terms of preventive initiatives, the topics most often reported (Figure 6) by respondents were burns (35.42%) and haemorrhages (25%), which far surpassed wounds (12.5%), epileptic seizures (10.42%), strokes (8.33%), psychological distress (6.25%) and the Covid-19 crisis (6.25%).

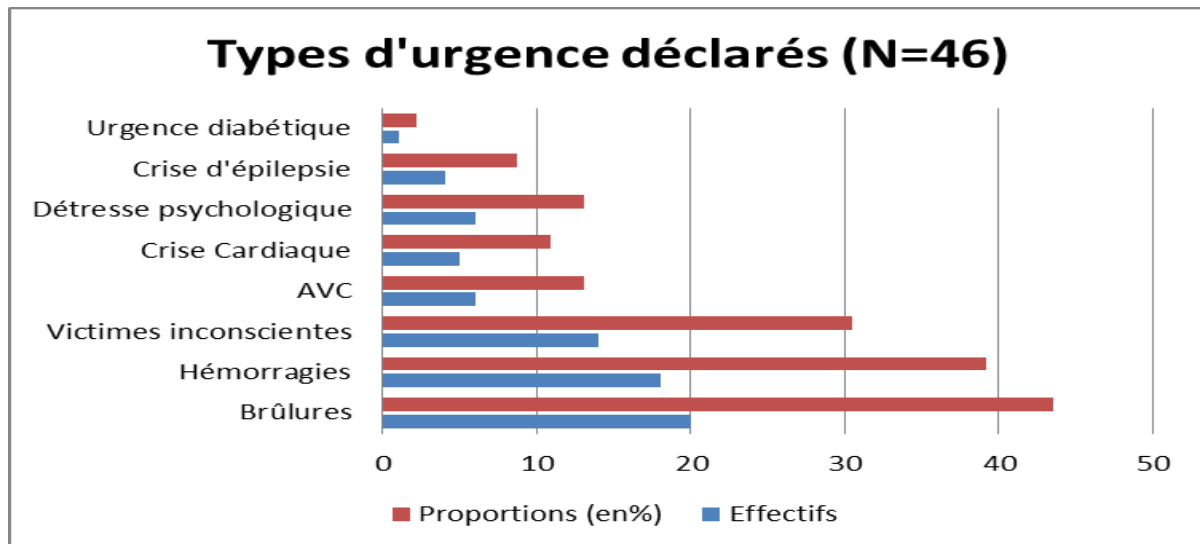


Figure 5: Reported app uses in health emergencies

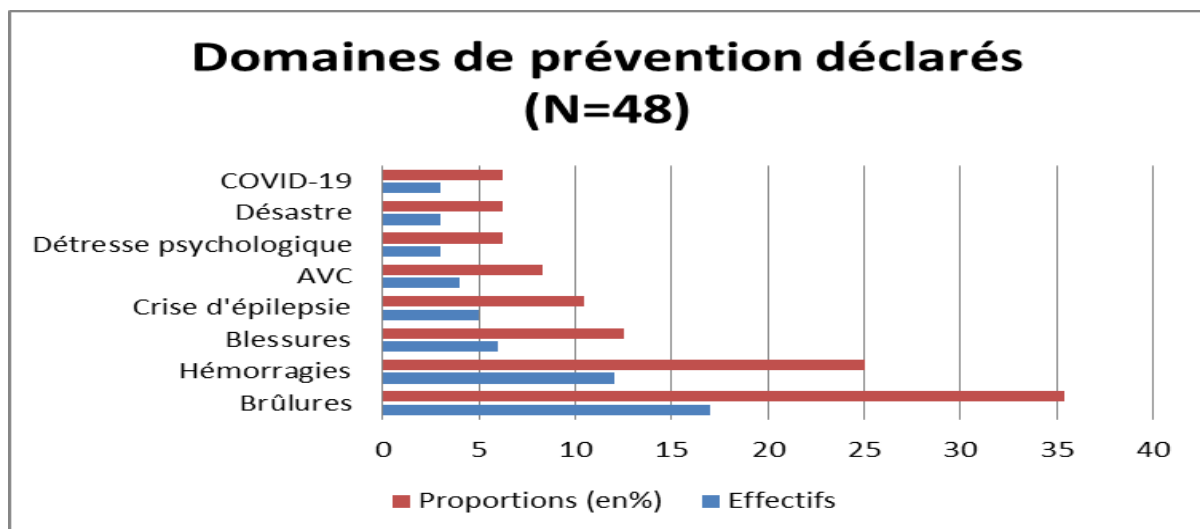


Figure 6: Areas in which the app was used for preventive initiatives

Analysis and discussion

The social introduction and appropriation of the First Aid app will not be automatic simply because the app benefits from positive perception from a majority of volunteers. Appropriation is a social-cognitive process which takes time and involves both the way an individual personally invests in the technological tool, depending on their personal and cultural values, and on how they integrate it into their practice (Barcenilla et al. 2009).

Though many volunteers downloaded the app during the Covid-19 crisis, they did not consult it often or spend much time appropriating it, most likely due to lack of interest, but also because of their *habitus* (Bourdieu 1980), i.e. abilities incorporated (Leplat 1997) up to

that point in their volunteering practice. In terms of use, volunteers only occasionally used it, either during emergency interventions (28% of respondents) or preventive initiatives with vulnerable populations (29% of respondents). This can be at least partially explained by the fact that volunteers did not all download the technological tool at the same time. The qualitative survey showcased the main reasons behind the varying download periods: no mobile phone or a defective one with limited storage capacity for some volunteers and Internet access or electricity issues for others.

Biases and limitations of the study

The results presented and analysed in this article have two main limitations. First, it would be difficult to extrapolate them to the entire volunteer population (estimated at 10,000 according to the Haitian Red Cross) since time constraints prohibited probability sampling. Second, since the study took place right after the app had been downloaded, it is important to bear in mind that volunteers probably didn't have time to appropriate the technological tool and engage in optimal use. A longitudinal study is the only way to ensure rigorous, long-term analysis of both how the app is perceived and received and the different logics behind appropriation and use.

Recommendations and conclusion

It is essential that a plan be put in place to better assess continued use (Jelassi and Herault 2015) in the medium and long term and, as a result, the degree to which volunteers appropriate it. Such a plan would also make it possible to better assess discontinuation of use and, most importantly, the real impact of the technological tool on both volunteers and the populations in question.

Social acceptance of a technology depends on a number of factors, including the degree to which volunteers take health problems seriously, and the context in which they have access to the technology. The study revealed mixed results in terms of appropriation and use of the First Aid app. The average number of times volunteers consulted the app and the amount of time they spent learning to use it remained overall low. This attitude is undoubtedly due to the fact that the app is a new experience for volunteers. Though use remained infrequent on the whole, the data also showcase a wide range of uses for both health emergencies and prevention initiatives with vulnerable populations.

The data show that it is too early to affirm that "forms of structuration" in Anthony Giddens terms (i.e. the processes of appropriation) impact the "structure" of the technological tool or even that of the group of volunteers. Sustainable appropriation of the application should be considered not only at the individual level but also at the collective level. To this end, the technological tool should be fully incorporated into the volunteers' training and practices instead of depending exclusively on their motivation as individual users.

Bibliography

- AL-HUNAIYYAN, Ahmed and Rana ALHAJRI. 2018. "Usage and Perceptions of Mobile Devices and Applications among HE Instructors." *International Journal of Information and Education Technology*, 8 (11): 834-837. <https://doi.org/10.18178/ijiet.2018.8.11.1149>.
- BARCENILLA, J. and J.M.C. BASTIEN. 2009. "L'acceptabilité des nouvelles technologies : quelles relations avec l'ergonomie, l'utilisabilité et l'expérience utilisateur ?" *Le travail humain*, 4 (72): 311-331.
- BARTHE, Jean-François, Christophe BESLAY and Maud MINOUSTCHIN. 2015. "Acceptabilité et appropriation sociale de la flexibilité énergétique par les consommateurs." In *Sociologie de l'énergie. Gouvernance et pratiques sociales* edited by [Marie-Christine Zélem](#) and [Christophe Beslay](#), 263-27. Paris: CNRS Editions.
- BOURDIEU, Pierre. 1980. *Le sens pratique*. Paris: Les Éditions de Minuit.
- Elrha. 2015. Humanitarian Innovation Fund: "Case Study. Mobile Technology: Listening to the Voice of Haitians." <https://www.elrha.org/wp-content/uploads/2015/01/FINAL-141215-Elrha-CaseStudy-MobileTechnology.pdf>
- GIDDENS, Anthony. 1984. *The Constitution of Society*. Berkeley: University of California Press.
- HAVELANGE, Véronique. 2010. "Action, empathie et motivation dans la phénoménologie husserlienne : implications pour les sciences et technologies cognitives." *Intellectica. Revue de l'Association pour la Recherche Cognitive*, no. 53-54 (1-2): 195-232. <https://doi.org/10.3406/intel.2010.1184>.
- JAURÉGUIBERRY, Francis. 2008. "De l'usage des technologies de l'information et de la communication comme apprentissage créatif." *Education et Sociétés : Revue internationale de sociologie de l'éducation*, no. 22: 29-42. <https://doi.org/10.3917/es.022.0029>.
- JELASSI, KAOUTHER and Stéphanie HERAULT. 2015. "Continuité d'usage et appropriation de l'internet mobile : un essai de modélisation." *Management & Avenir* 4 (78): 59-77. <https://doi.org/10.3917/mav.078.0059>
- JIA, K. and K. MOHAMED. 2015. "Evaluating the Use of Cell Phone Messaging for Community Ebola Syndromic Surveillance in High Risked Settings in Southern Sierra Leone." *African Health Sciences* 15(3): 797. <https://doi.org/10.4314/ahs.v15i3.13>
- LEPLAT, Jacques. 1997. *Regards sur l'activité en situation de travail. Contribution à la psychologie ergonomique*. Paris: PUF.
- LEIBING, Annette and Virginie TOURNAY editors. 2010. *Les technologies de l'espoir. La fabrique d'une histoire à accomplir*. Laval: Presses de l'Université Laval.
- MESMAR, Sandra, Reem TALHOUK, Chaza AKIK, Patrick OLIVIER, Imad H. ELHAJJ, Shady ELBASSUONI, Sarah ARMOUSH et al. 2016. "The Impact of Digital Technology on

Health of Populations Affected by Humanitarian Crises: Recent Innovations and Current Gaps." *Journal of Public Health Policy* 37: 167-200. <https://doi.org/10.1057/s41271-016-0040-1>.

READ, Roisin, Bertrand TAITHE and Roger MAC GINTY. 2016. "Data Hubris? Humanitarian Information Systems and the Mirage of Technology." *Third World Quarterly* 37(8): 1314-1331. <https://doi.org/10.1080/01436597.2015.1136208>.

ROUX, Angélique. 2007. "De l'usage à la pratique : les processus d'appropriation. Emprunts à la théorie de la structuration et empreinte du chercheur." *Communication et organisation* 31: 124-139. <https://doi.org/10.4000/communicationorganisation.168>.

BERGTORA SANDVIK, Kristin. 2016. "The Humanitarian Cyberspace: Shrinking Space or an Expanding Frontier?" *Third World Quarterly* 37(1): 17-32. <https://doi.org/10.1080/01436597.2015.1043992>.

SÜRMELI, Aral, NIRMALA P. Narla, Angela SHIELDS and Rifat ATUN. 2020. "Leveraging Mobile Applications in Humanitarian Crisis to Improve Health: A Case of Syrian Women and Children Refugees in Turkey." *Journal of Global Health Reports* 4(1). <https://doi.org/10.29392/001c.17892>.

TENG, Jessica E., Dana R. THOMSON, Jonathan S. LASCHER, Max RAYMOND and Louise C. IVERS. 2014. *PLOS Neglected Tropical Diseases* 8(7): e3050. <https://doi.org/10.1371/journal.pntd.0003050>