

## From “Face to Face” Sessions to Education on Smartphone: What are the Implications for Persons with Chronic Diseases?

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**Abstract.** The use of digital solutions is rapidly expanding, including for the prospect of reducing social inequalities and geographical disparities as respect to access to health care and therapeutic education. Here, we question the transformations caused by the switching from therapeutic patient education sessions conducted face to face to the use of virtual digital applications developed on smartphones. From the perspective of developing health literacy, we analyse three complementary corpus: 9 in situ observations of educative sessions involving 34 patients, 27 observations of users of tablets with interactive application and 12 semi-structured interviews conducted with adults at home. Switching from face to face education sessions to education proposed on available smartphone application questions the changes of the trainers' and carers' roles and postures, the activities of the learners, the continuity of the educational process, and the contexts in which chronic illness is updated. The results obtained here question the development of digital education, while pinpointing numerous precautions to be taken for this development and the practical use of digital technology. Our analysis invite to continue innovations but suggests to accompany the advent of digital technology in the field of health and patient education by well-documented and grounded scientific work.

### Introduction

The rapid development of the digital economy, the current context of explosion in the number of persons with chronic illness and the relative shortage of health professionals in numerous countries constitute a set of conditions encouraging the development of new ways to support people in managing health and diseases. The need to integrate all potential and contexts of individuals and resources in the use of digital health in what was defined as "e-Health literacy" has been underlined. [1] However, in the medical field, including diabetes, current data indicate the limits of the introduction of digital technology in the field of therapeutic education. [2] Hence there is a need to examine the main issues of a passage from educational sessions to substantially equivalent content available on a smartphone application. Indeed, the transition from paper to technological tools is not without consequences on cognitive and social elaborations [3], which individuals conduct in relation to the contexts in which knowledge are updated. The perspective adopted here considers that the use is the subject to the double mediation with technical and social issues to consider: it is a social construct in social practices in which the forms of the use and meaning given to replenish the practice [4].

### Population and Method

Our analyzes are based on work that began in La Reunion in 2013, which brought together three complementary corpus:

Corpus 1: 9 records in educational sessions conducted in the University Hospital of La Reunion. A total of 34 adults with type 2 diabetes attended the sessions. The interactive work proposed at the meeting was based on an arrangement of the device previously validated by the medical and social sciences. [5]

Corpus 2: 12 semi-structured interviews carried out at home, with persons with type 2 diabetes. These interviews were fully transcribed and analyzed through the N-Vivo 10 software QSR International, respecting the principles of discourse analysis, with the contexts of enunciation [6, 7]. The analysis focus on what patients say about their relationships to education, learning and new technologies, as well as what they do when they become users of a technological tool available to them to analyze their dietary practices.

Corpus 3: 27 user comments (20 patients, caregivers 7) when put in a position to discover scales food on digital tablet and use it in hospital. The 20 patients were solicited at times when they were available, and their participation was made on a voluntary basis. With a duration of 15-75 minutes, the observations took place in the hospital room or in the education room. Of the 30 chronically ill persons which were asked to use the tablet equipped application on food, 10 of them refused (4F, 6H). Among the 20 patients who agreed, 8 are less than 49 years (F 7, 1H) and 12 have between 49 and 69 years (6H, 6 F); 3 are executives, 5 employees, retired 5 and 7 are without work. Ten caregivers agreed to participate but only 7 of them took time to answer questions.

## Results

In a context of high prevalence for diabetes [8], the results show that the transition from paper to the smartphone is more problematic than previously assumed, including with low literacy people.

Observations of the face-to-face group sessions (with printed educational materials) showed that the total number of speaking participations of learners exceeded those of trainers whatever the trainer. Discourse analysis showed that the 3 categories of health literacy [9] could be identified during each of 9 sessions: *access to information*, *understanding*, and *decision taking*. *Access to information* was the most prevalent, followed by *understanding* and then *decision taking*. The number of utterances relating to the context of the session exceeded the number of those relating to the own context of learners, underscoring the difficulty of trainers to contextualize / re-contextualize the work exerted by patients on the disease and its daily management [10]. These results highlight some strengths of face-to-face sessions, but also their limits.

By combining data collected on discourses about disease, education and learning (the person wants to know and explore more or not), and on the attitude using tablet (the person is comfortable or not to comfortable with the device), 4 dominant positions were identified: 1- comfort in using the device and want to know more; 2- discomfort with the device, but desire to learn and know more; 3- comfort in using the device, but no want to know more; 4 discomfort with the device and no want to know more. Crossed with data from semi-structured interviews of 12 patients seen at home, these observations emphasize that the difficulty for many to work on ICT (here, a third of adults declined any use of tablet). Technical worries in accessing information tend to puzzle what is already at stake in face-to-face situations. However, the relationship to the patient's context is different as the application directly questions the patient's ordinary practices, and this potentially represents an asset.

## Conclusion

The transition to smartphone alters the activity of learners, this has an impact on the relations they weave to knowledge, health and their disease. In face-to-face situations, learners have the opportunity to exercise cognitive activities involved in understanding the phenomena to study: they observe, experiment, make assumptions, compare, deduce, analyze and put elements linked together, while appreciating the support of educators trained for this purpose. On the tablet, these cognitive processes are less facilitated. The results of the present study therefore question the changes in terms of the role

of the trainer, of the activities of learners, of the position of the education process through the disease road, and of the promises regarding procedures and analysis of results yielded by learning sessions. Further investigations are needed but caution is required, especially by taking into account time and the chronic dimension of learning and disease. Finally, these results question the conditions for a transition that could be done by combining both face-to-face and remote work of learners instead of thinking the use of one over the other.

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