

The pros and cons of using self-service kiosks in hospitals

A study into the opinions of key-actors about the self-service kiosk in order for ChipSoft to improve their services.



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Abstract

BACKGROUND Many hospitals engage in active patient participation. Patients are increasingly encouraged to have an active role in their own care. To facilitate patient participation, self-service technologies have been introduced. Self-service provides patients more control over their own healthcare process. One of the self-service technologies that is increasingly getting the attention of hospitals is the self-service kiosk. ChipSoft is a Dutch software company that made the self-service kiosk available for the healthcare sector. ChipSoft recognises an increasing demand for the self-service kiosk from hospitals. The expectation is that more and more hospitals will use kiosks as it puts control into the hands of the patient. The increased demand makes that ChipSoft wants to further improve the kiosk in order to increase its effectivity. Therefore, it is important to evaluate the kiosk in order to know what aspects of the kiosk can be improved. An adjusted version of the HOT-fit evaluation framework is used as a guiding principle for the evaluation.

OBJECTIVE This study aims to examine the pros and cons of the use of self-service kiosks in hospitals in order for ChipSoft to improve their services by analysing the opinions of different key actors about the influence of the self-service kiosk on hospital services and care processes. The central research question is: *“What is the influence of the self-service kiosk on hospital services and care processes according to different key actors?”*.

METHODOLOGY Qualitative and quantitative research methods were used to study the opinions of different key actors. Semi-structured interviews were performed at four Dutch hospitals: Antonius, Bravis, Canisius-Wilhelmina and Tjongerschans. Interviews were held with four project managers, four IT specialists, four outpatient clinic unit leaders and three hospitality employees. The inclusion criteria stated that they needed to work at the hospital for more than half a year before the kiosk implementation. An interview guide was prepared based on key concepts of this study’s conceptual model. Qualitative data was analysed according to deductive thematic analysis and coded with ATLAS.ti 7. Quantitative methods were used to include patients. A self-established questionnaire, based on three validated questionnaires, was used to measure user satisfaction and the usability of systems. In total, 75 questionnaires were completed and data was analysed using descriptive statistics and chi-square tests.

RESULTS This study has identified multiple pros and cons related to the kiosk’s system quality, information quality and service quality. Concerns about the ease of use included that the start screen and scanning of identity documents is not user-friendly. Besides, the system lacks flexibility as it does not support foreign languages and scanning of foreigner ID’s. However, the fast response time of the kiosk and improved privacy were identified as pros. The kiosk provides enough information for patients, but lacks the ability to create management reports. Furthermore, the text on the screen is readable, but most words and icons were changed by hospitals as they were regarded irrelevant. For the service quality, a disadvantage was that there has to be the assurance of assistance. All hospitals had to deploy hospitality employees in order to assist patients in using the kiosk.

This study also examined the influence of the kiosk on the actors. Resistance was present at first, as the kiosk was seen as impersonal and as a threat to the job of secretaries. Over time, the acceptance of patients and hospital staff increased. All interviewees and 92% of the patients stated to be overall satisfied with the kiosk. Furthermore, the influence of the kiosk on the hospital structure and environment was assessed. Hospitals needed to adjust the signage within the hospital and extend the internal communication to make patients more aware of the kiosk. Improvements in the external

communication were important as well to inform patients about the new check-in process. The kiosk also influences the population served. Hospitals need to consider the difficulty of the kiosk for patient groups such as wheelchair users and visually impaired.

Lastly, the net benefits of the use of kiosks were studied. Multiple benefits were discovered. The kiosk improved the efficiency of the check-in process in hospitals as it provided a better flow of patients and created uniformity at all departments. Besides, it led to error reductions as the kiosk is more consistent and reliable in querying data compared to a desk employee. However, since the control is delegated to patients and mandatory questions are not possible, errors could remain. Other benefits are that the use of kiosks decreased the waiting times for check in, decreased the workload of desk staff and assured that less desk employees were needed in the hospital.

DISCUSSION The findings confirm the usefulness of the adjusted HOT-fit evaluation framework used in this study. The framework successfully aided the evaluation of the performance and influence of the kiosk on hospitals. The overall evaluation shows that the system quality and information quality still can be improved. Until then, hospitals themselves need to take additional measures to assure an optimal quality for patients. However, the kiosk provides user satisfaction and creates multiple benefits. Therefore, the added value of the use of kiosks in hospitals can be acknowledged. Service quality, system use, hospital structure and environment can be influenced by hospitals and they are in the lead to change these aspects. In line with other literature, it has been shown that extensive promotion and communication about the kiosk is necessary to stimulate its use. Besides, it is important that hospitals deploy hospitality employees and provide the option of a manned counter to make the check-in process less impersonal.

Further research could focus on how the entire patient population can benefit from the kiosk. A large-scale qualitative study among patients can yield information about patients' needs in order to further improve the design of the kiosk to fit these needs. Other research can be conducted to determine the effectiveness of the self-service kiosk compared to a manned counter. By investigating aspects such as costs and FTE's, the effectiveness of the kiosk can possibly be demonstrated in a quantitative way.

The strengths of this study are that it is one of the first that examines the influences and effects of using self-service kiosks in hospital settings, it uses a multi-stakeholder perspective, it uses a combination of qualitative and quantitative methods and this study included multiple hospitals varying in type, size and location, making them representative for the whole hospital sector. Limitations of this study include the possibility of interview bias, the fact that results may not be applicable to kiosks of other suppliers and that the pros and cons were studied regardless of how the kiosks were implemented in hospitals.

CONCLUSION The present study was designed to assess the influence of the kiosk on hospital services and care processes. The results indicate that the use of kiosks leads to a more efficient check-in process. Besides, it decreases waiting times for patients and provides satisfaction to the actors involved. However, hospitals need to bear in mind that the implementation and use of self-service kiosks is not a stand-alone process. Hospitals are in charge to make sure that the structure and environment of the hospital fit the kiosk check-in process. ChipSoft, on the other hand, needs to upgrade the quality of the kiosk. They should among others create a patient-focused design and should engage in constant updating of the kiosk.