

Use and Acceptance of Mobile Technology by Hospital Nurses in Germany

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Abstract. *Introduction:* The aim of the study was to measure and describe user behavior, information and communication technology (ICT) competence and technology acceptance of hospital nurses. *Methods:* 36 nurses received for six weeks a mobile phone or a tablet pc with mobile application and answered one questionnaire before and after the six weeks. *Results:* The participating nurses show a high technology acceptance and private daily use of technologies. Younger participants judge their ICT competency higher than older nurses. The perceived ease of use is significantly higher in younger participants. The perceived usefulness was evaluated heterogeneously. *Discussion:* Despite the barriers mobile technology is perceived as useful for nurses in their daily work. Factors influencing personal, institutional and device acceptance were determined in this study and can be helpful to facilitate the process of implementation of mobile technology.

Keywords: mobile device, technology acceptance, hospital, nurses

1. Introduction

The use of mobile technology at the point of care in hospitals is increasing [1]. Nurses play a key role because they are constantly at the point of care, and a lot of the patient data are gathered by them. Support through mobile technology is seen as chance for minimising the workload of nurses [2]. Nevertheless little is known about the technology acceptance of mobile devices by nurses in German hospitals. Therefore the aim of the study is to measure and describe user behavior, competence and technology acceptance of hospital nurses.

2. Methods

Tablets or smartphones with applications for evidence based practice and education were provided for six weeks. Two questionnaires were used. The first questionnaire was used to determine experience and usage of technology, computer anxiety and ICT competency. The second questionnaire was distributed after the use of the mobile

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devices and measured the technology acceptance according to the Model of Venkatesh & Bala [2]. This model concentrated on the perceived usefulness and ease of use as essential aspects. The items of the questionnaires were distributed on a 7 point Likert scale (1=totally disagree, 7=totally agree). Descriptive statistics (frequency, mean, median, percentage) were used to analyse the data. The Mann-Whitney-U test was applied to compare attributes of participants. Ethical approval was obtained.

36 nurses completed both questionnaires and used the mobile devices.

3. Results

24 nurses aged 18-35 years and 12 aged 36-55 years took part. Nearly 90% of the participants were female. 63.9% of the participants reported daily private use of information and communication technologies. The mean of the ICT competency was good. Younger participants judge their ICT competency higher than older nurses.

The perceived ease of use of the devices was rated 6.5 on a Likert scale of 7. The perceived ease of use is significantly higher in younger participants ($p=0.02$).

The perceived usefulness was evaluated heterogeneously. Nurses who used mobile devices for more than 120 minutes within the six weeks rated the importance of the mobile device higher than those who used it for less than 120 minutes.

4. Discussion

The participating nurses report a high level of private daily use of information and communication technologies and ICT competency. A high technology acceptance is seen and is influenced by age. The perceived usefulness seems crucial for the successful implementation. It seems to be important to support the workflows and to involve experienced nurses in the development of technological innovations.

Limitations are the small number of participants and the restricted applications of the mobile device. Therefore the results need to be confirmed in further studies.

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