

An evaluation of five bedside information products using an user-centred, task-orientated approach

Bottom Line: When evaluating electronic products designed for use at the point of care, the user preference and ease of interacting with a product become as important as more traditional content-based measures of quality.

Focused Question:

Does the study show the value of *UpToDate* in supporting clinicians with patient care?

Does the study demonstrate that users like using *UpToDate* and why?

Citation:

An evaluation of five bedside information products using a user-centered, task-oriented approach

Rose Campbell and Joan Ash

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Search terms:

N/A – Article suggested by colleague

Summary of the aim and methods of the study

- The study aim was evaluate five bedside information products,(ACP's, PIER, DISEASEDEX, FIRSTconsult, InfoRetriever and UpToDate) to assist those making or supporting purchasing decisions
- A set of 15 clinical test questions was developed from previous studies.
- Participants were randomly allocated 3 test questions, which they then attempted to answer using each of the 5 information products.
- Each participant was allocated a different set of test questions for each resource and did not attempt the same question on more than one resource. As part of the overall study design, the questions were randomised such that each question was paired with each resource at least once.
- The order in which the resources were tested by participants was also randomised.
- Training in use of the resources was not provided as part of the study; however, participants were allowed to familiarise themselves with each resource before attempting the test questions.
- To simulate a clinical situation, participants were asked to spend a maximum of 3 minutes on each question. The number of questions successfully answered using each resource was recorded.
- Participants were also asked to complete a user satisfaction questionnaire, based on previously published questionnaires, for each resource after attempting the 3 questions allocated to that resource.

- The questionnaire used a 5-point Likert scale with participants asked to rate attributes such as clarity, ease of use, speed and accuracy of content.
- A final question also asked participants to indicate which resource they liked the best and which they liked the least.
- Participants also completed a background questionnaire, again based on previously published questionnaires, covering aspects such as age, gender, experience with searching and previous use of various information resources, including the 5 resources being tested.
- The authors have provided all the questionnaires and clinical questions used in the study (Appendices A-C)

Main Results:

The results are broken down into three areas:

- *Characteristics of participants*
- *Answering clinical questions*
- *User satisfaction*

Characteristics of participants

- Participants ranged in age from 28 to 49 years (mean 35 years), and were experienced computer users with over 94% using a computer at least once a day.
- The male (42%) and female (58%) split of the group was roughly equal.
- The participants' occupations were physician (44%), medical informatics student with previous clinical experience (28%), pharmacist (17%), nurse (6%) and MRI technologist (6%).
- Participants had been in their current profession for a mean of 8 years (range 1 to 20 years).
- Whilst 72% of participants reported familiarity with *UpToDate*, no more than 12% of participants reported familiarity with any one of the other information resources tested.

Answering Clinical questions

- Participants were able to answer more questions with *UpToDate* (average 2.5 questions) compared to the other resources, which ranged from an average of 1.6 (ACP's *PIER*) to 1.9 (*DISEASEDEX*) questions answered. This difference was found to be statistically significant using the Friedman test.

User satisfaction

- The user satisfaction survey results showed no significant differences in perceptions of the different resources in relation to accuracy, currency of content, speed or amount of information provided.
- *UpToDate* scored significantly higher (Friedman test) on ease of use, clarity of screen layout and how well it satisfied participants' needs.
- Overall, 13 participants (73%) rated *UpToDate* the best, 3 (18%) preferred *FIRSTConsult* and 1 (6%) rated ACP's *PIER* best. Conversely, *InfoRetriever* was rated worst by 6 participants (38%), 4 participants (25%) each rated *DISEASEDEX* and *FIRSTConsult* worst and 2 participants (13%) rated ACP's *PIER* worst. A chi-squared analysis found these rankings to be significantly different.

Comments:

- The methodology used in this study is clearly explained, and each stage of the research uses, or is based on, previously published techniques.
- The test clinical questions and the questionnaires used in the study provide a validated method that can be used by others to evaluate similar information resources.
- The methods lacked a synopsis on the products being evaluated, so it is not clear if like is being compared to like.
- The study used a small number of self selected participants; however the researchers recognised this shortcoming.
- It was not stated how the pilot group was selected or details of their background.
- A third of the participant group were medical informatics students with previous clinical experience.
- Participants were asked to complete the tests in their own workplace and in their own time; however, it is not clear whether the authors had any checks in place to ensure that participants adhered to the 3 minute limit per question or that the test environments were comparable.
- The study results demonstrated that participants were able to answer significantly more questions using *UpToDate*, and that this resource was rated more highly in the user satisfaction survey. The researchers state that 72% of participants were already familiar with *UpToDate* whilst very few had previously used any of the other resources being assessed. Prior experience may have biased participants in favour of *UpToDate*.
- Unfortunately, the small number of participants in this study who were unfamiliar with *UpToDate* precluded any analysis of the results on the basis of previous experience with the resources tested.
- Overall, this study indicated that, of the 5 information resources assessed, participants preferred *UpToDate* and were significantly more successful at answering test clinical questions it.

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