Evaluation of Task Based Digital Work Environment

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Abstract

A task-based Digital Work Environment (DWE) has been designed and developed at Nanyang Technological University, Singapore to support the Division of Information Studies (DIS) Masters students’ information requirements for their dissertation work. This paper traces the evaluation studies of DWE to gauge the usefulness and effectiveness of its three different approaches to information organisation namely, alphabetical, subject category and task-based. The findings show that the task-based approach is most effective in terms of speed of accessing information resources.

1. DWE Design and Development

A task-based DWE is designed and developed [1] to provide a one-stop information access point for both internal and external information resources that are accessed by the academic community. A job analysis was first carried out to identify all the main tasks and sub-tasks associated with dissertation as a representative task to create a task hierarchy and information resources required for the dissertation task through a focus group study [http://InformationR.net/ir/7-2/paper125.html]. The DWE uses a task-based approach to organise the information resources for access according to different user categories (e.g. faculty, student). This was augmented with three additional information resources organisation approaches, namely, the alphabetical resource approach (AR), the subject category approach (SC) and a hybrid approach (HY) combining all these three different approaches.
2. DWE Evaluation and Analysis

Evaluation of the DWE An evaluation was conducted on the DWE prototype through a questionnaire in a controlled environment on one-to-one basis to assess the various approaches used for organising the information resources. The criteria used are time taken to access the desired information resource, the usefulness, ease of use of these approaches and qualitative comments from the participants. Ten representative tasks according to task characteristics were designed for evaluation.

A total of 60 graduate students of DIS participated in the evaluation. They were divided into 3 groups of 20 students each. Each group was asked to evaluate two different approaches (each with 10 tasks) with the task-based approach being commonly evaluated across all 3 groups (i.e. AR-TB, SC-TB, and HY-TB). A total of 1200 tasks (200 each for AR/SC/HY and 600 for TB) were carried out in 3 months.

Participants Profile – Demographic data There were an equal number of 30 male and 30 female participants. The majority 53.4% (or 32) participants fell within the age range of 20-29 years old, followed by 40% (24) between 30-39, 5% (3) between 40-49 and 1.6% (1) who is 50 or over. A total 86% (or 52) of participants had 4 or more years of computer experience. Forty-nine (81.7%) participants had experience using online databases, 78.3% (47) in e-journals, 71.7% (43) in digital libraries, 68.3% (41) in CD-ROM databases and 36.7% (22) in e-books.

The univariate tests carried out for the different approaches (F2, 54 =17.51 and p < 0.0001) and within non-task-based approach (F 1,54=105.46 and p < 0.001) in terms of location time showed statistical significance. Further, stepwise multiple regression analysis was carried out on individual task to find out which independent variable (participant’s age, computer and digital resources experience) is the best predictor. It was found that the information resources location time was greatly associated with age, gender and computer experience.

Effectiveness of organisation of information resources Based on averaged figures using Likart scale of 1 to 5, participants expressed higher ratings for HY for 6 tasks (with mean ratings of 4.35, 4.1, 4.05, 4.3, 4.3 and 4.10 for Task #3, #4, #6, #7, #8 and #9 respectively). The participants therefore expressed effectiveness of more than 80% for all tasks in terms of information resources organisation.

Ease of identifying information resources For Task #1, TB was given the highest rating (mean=4.14) followed by HY (mean=3.95) on Likart scale. For Task#2, the order was AR (4.35) followed by TB (4.33). Task #3 had an equal mean rating of 4.33 for both AR and HY. HY was preferred for Tasks #4, #5, #6, #7, #8, #9 and #10 with means of 4.05, 4.00, 4.10, 4.40, 4.30, 4.10 and 4.35 respectively. SC was less preferred for Tasks #5, #7 and #9 with means of 3.15, 4.00 and 3.7. It can be seen that that participants find it easier to locate information resources using the HY approach.
3. Conclusion

The evaluation findings showed that the task-based approach was effective over the other approaches. Participants preferred either the task-based or hybrid model in terms of usefulness of the organization of information resources. However, the participants rated the hybrid approach as the most effective in terms of ease of identifying information resources.

References
