Mapping user test results and complexity analysis to uncover user experience issues

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Introduction

• The Client has made extensive use of the complexity analysis (CA) software evaluation methodology
• CA is a quantitative approach to software usability engineering which assigns complexity scores for dimensions such as error feedback [1]
• Results from CA have been used as justification for significant design changes

Purpose

• Systematically evaluate how well complexity analysis results map to usability issues unveiled via user testing
• Investigate possible evaluator effects and how well complexity scores correspond to time-on-task

Method

Select task

Perform CA

Launch database on EC2 cloud

Conduct user tests

Find trends

Statistical analyses

Results

• The following graph demonstrates that CA does very well in predicting interaction times

Relationship Between Interaction Time and Complexity Metric

Interaction Time (min)

Sign In  Enter Cloud  Launch DB  Terminate DB

Step In Task

Novice User  Intermediate User  Complexity Metric

0.89 < R² < 0.99

Unidentified user interface issues

• The following graph demonstrates that CA is not able to anticipate all user-identified issues such as minute interface features

Weighted User Identified Issues By Category Compared To Totals Per Complexity Dimension

Usability Issue Category

User Weighted Usability Issues

Task Complexity By Dimension

Results

• The following graph compares complexity scores for subtasks (lower is better)

Complexity of task "Deploy Database on Amazon Cloud"

Sign in

Enter cloud

Launch

Terminate

Recommendations

• The core of the CA tool is to remain unchanged, given the interaction time results
• Rating definition changes can be made to account for minor interface usability issues
• Individual dimensions are not good predictors of interaction time, and thus changes can be made

Future Work

• Further investigate how to link the two methodologies
• Account for expert users

References


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