

A comprehensive approach to support the analyst before, during, and after requirements elicitation interviews

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Software requirements are

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Flawed 'upstream' require-

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neers working in projects

often take it for granted

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like business requirements

requirements (as formulated, for example in project

high level

Why interviews?

Elicitation has considerable impact on software quality

August 2009

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SOFTWARE ENGINEERING COMMON TRENDS IN SOFTWARE

FAULT AND FAILURE The benefits of the analysis of software faults Our results also show that requirement and failures have been widely recognized. faults, coding faults, and data problems are However, detailed studies based on empirical data are rare. In this paper, we analyze the fault types of software faults. Furthermore, these

the three most common and failure data from two large, real-world case results show that contrary to the popular belief, a significant percentage of failures are localization of faults that lead to individual linked to late life cycle activities. Another

BREAKING NEWS

studies. Specifically, we explore: 1) the

on requirements specifieations are thus in vain [.-] AN EMPIRICAL ANALYSIS OF RISK CO

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Current trends in elicitation



Requirements and features from social media and online reviews



Large groups of people in the process

When are we eliciting?





Why interviews?

- Elicitation has considerable impact on software quality
- Interviews are considered among the most effective technique for knowledge transfer
- Interviews are widely used in the industry

Common problems in interviews



- Use of jargon
- Tacit knowledge
- Domain knowledge
- Ambiguities



- Unexperienced analysts
- Lack of specific education to become an analyst
- Lack of "soft" skills

•

Types of solutions



Support for Requirements Elicitation Interviews

The overall approach

"Before" support: analysis of common mistakes and development of trainings to avoid them;

Computational thinking skills to the interviewees

"During" support: use of biofeedback and voice analysis to support the analyst during the conversation;



"*After*" support: development of techniques to analyze the interviews after they have been performed.

NSF SHF: Small: RUI: Before, during, and after requirements elicitation interviews: a comprehensive support for improving the quality of requirements (Award #1718377)

Before support





"Create" better analysts

- Identify students and young analysts' common mistakes
- 2. Investigate "remedies" for the mistakes
- 3. Develop a training to better educate analysts

Examples of common mistakes



Examples of common mistakes





Guidelines to Mitigate Unexperienced Analysts' Mistakes

Ruth Petit – Bois, SWE Senior



Education for the Interviewees

Hypothesis: Interviewees with a basic education on SE/computational thinking are "better" interviewee

- Mini trainings
- General education courses





During support



Initial experiment

RQ: Can we use bio-metric sensors and voice analyzers to determine the perceived relevance of certain topics during requirements elicitation interviews?

- Three roles: User, Observer, Requirements Analyst
- Survey concerning the profile of the subject
- Emotions Calibration
- Interview (38 Questions Facebook related): recording of voice and bio-feedback
- Post-Interview Questionnaire
- Data storage





Calm	Neutral									Excited
0	10	20	30	40	50	60	70	80	90	100
Relaxed				Neutral						Stimulated
0 !	10	20	30	40	50	60	70	80	90	100

You are judging this image as





You are judging this image as









You are judging this image as





Interview

Usage Habits: How many hours do you use Facebook per day? **Privacy:** If someone shared a photo of you in an embarrassing,

incriminating, or shameful situation, how would you react?

Procedure: Can you explain me how to add a new friend on Facebook?

Relationships: Have you ever wanted to delete or deleted a family member (even of the extended family) from your set of friends?

Money: Would you agree to pay a subscription to use Facebook? If yes, how much would you consider a reasonable amount to pay?

Information: Is the information on Facebook more or less reliable than other sources?

Ethics: FB censures some photos and posts if their content is signaled as inappropriate. Do you think this is correct?

After support



Our idea





Research plan



Hypothesis: Review of requirements elicitation interviews allows identifying ambiguities that can be leveraged to ask useful follow-up questions in future interviews.

An exploratory study

Misunderstanding, conflicting situations...

A controlled experiment with two independent groups of students from University of Technology Sydney and Kennesaw State University

An industrial case-study

Real-world Case Study

• The protocol is applied in real world



- The useful of the questions generated by the protocol will be measured
 - Perceived usefulness
 - Actual usefulness

Conclusion



Support for Requirements Elicitation Interviews

Collaborators



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