Selecting Creativity Techniques for Innovative Requirements Engineering

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Selecting Creativity Techniques for Innovative RE

Outline

- Why Requirements Engineering needs to be creative
- Availability of creativity techniques
- Giving the techniques a structure
- Using this structure for a selection
- Future work
Motivation – Do we need creativity techniques in RE?

Ideal World

Real World

Off-the-shelf
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Creativity Techniques

Creativity Technique

• Developed since 1950’s (Brainstorming)
• Currently ~200 different techniques
• Focused on different types of problems
  – New Ideas
  – Modify Ideas
  – Evaluate Ideas
• Focused on different users/groups
  – Place
  – Time
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Creativity Techniques

Available Techniques


Need to select appropriate ones
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Creativity Techniques

Example: Six Hats

- Creative
- Facts
- Positives
- Emotions
- Process Control
- Negatives

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Categorizing Techniques

Categorization to support creative process

- 3 main characteristics
  - Context
  - Operation Type
  - Activities
Techniques

Context Factors

Characterization according to context factors

- Single/Group
- Data/Technique
- Physical Interaction
- Emotions
- Time
- Webusable
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**Operation type**

Techniques support different operations

- Exploration
- Transformation
- Combination
- Validation

- Techniques can support multiple operations
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Techniques

**Activities**

Grouping techniques by their activities

- 6 groups
  - Brainstorming
  - Checklists
  - Different Views
  - Structuring
  - Experts
  - Random Input
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Example: Six Hats

- **Operation Type:**
  - Exploration
  - Combination
  - Validation

- **Activities**
  - Different Views

- **Context Factors**
  - Physical: no
  - Web usable: yes
  - Time: no
  - Single/Group: sg
  - Data/Technique: d
  - Emotion: n
Selecting Techniques

The need to select techniques

- List gives information, but
  - Still requires knowledge
  - Not very handy

- Automatic selection

- 2 Steps
  - Screen techniques
  - Select combinations
Selecting techniques

Screening techniques
Filter out techniques which are unusable, because of

- The group of users
  - Individual/Group
  - Homogeneity Cultural background
  - Domain (bank, engineering, health care)
- Trust
- Distributed Geographic Location
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Example: Screening techniques for idSpace

A web platform for

• cooperative,
• distributed product innovation

• Techniques need to be web usable
  – 136 / 186 usable
  – 9 / 186 usable with reservations
• Techniques that support single and group use
  – 84 / 136 usable

✔ Removed 55% of the techniques

idSpace
Selecting Techniques

Providing Subsets

Need to combine techniques to usable combinations

- Screening leaves to many techniques
- Creative process needs a combination that
  - Supports every operation type
  - Works together
  - Fits in time & place
  - Provides proper results
- Needs to be evaluated
Current State

Work so far

• Characterization of Techniques
• Possibility to define subsets
• Providing scenarios to evaluate the subsets

Future Work

Next steps to be done

• Integration of the data into the idSpace platform
• Evaluation of the selection methods