

Design Pattern Impact on Reliability and Usability an SMS

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Abstract—Blah:

Index Terms—

1. Introduction

2. Background and Related Work

2.1. Design Patterns

2.2. Reliability

2.3. Usability

3. Systematic Mapping Approach

We followed the systematic mapping study approach defined by Kitchenham et al [X]. and refined by Peterson et al. [X].

3.1. Research Questions

- **RQ1:** What design pattern types do research study when considering usability and reliability?
- **RQ2:** What recommendations have been made regarding application of design patterns and in the context of usability and reliability?
- **RQ3:** How is the impact on usability and reliability from design patterns currently evaluated?
- **RQ4:** What type of projects or domains were studied?
- **RQ5:** Where are papers concerning design patterns and reliability and usability published?
- **RQ6:** What types of studies are conducted regarding design pattern impact on usability and reliability?
- **RQ7:** In what phase of development do proposed results apply?
- **RQ8:** What tools are utilized for the research and to which languages do they apply?

3.2. Data Sources

The data sources for this paper included IEEEExplore, ACM Digital Library, SpringerLink, Web of Science, and the Science Direct database. In order to provide a broad overview of the field and ensure relevant papers were selected we limited our search to the years between 2009-2019.

3.3. Search Queries

The search query used in this paper was created from keywords based on our research questions and included: usability, reliability, design patterns, and pattern.

The specific search query used in this paper was: ((usability OR usable) AND (reliability or reliable) AND “design pattern” or pattern).

3.4. Inclusion Criteria

- Only papers whose main focus is on design patterns and their effect on usability or reliability were available for inclusion.
- For papers where multiple iterations of the same paper exist only the latest version was eligible for inclusion.
- Papers that included either reliability or usability and design pattern or pattern as keywords to identify the paper topics.

3.5. Exclusion Criteria

- Papers not written in the English language.
- Papers whose title or abstracts did not contain the selected keyword phrases.
- Papers which discussed the impacts of design patterns on quality attributes excluding reliability or usability or their sub-characteristics.

3.6. Quality Criteria

3.7. Snowballing Approach

We utilized the snowballing approach defined by Wohlin et al. [X] to find further sources overlooked by the initial search. Specifically, we utilized the following approach:

4. Threats to Validity

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4.1. Conclusion Validity

4.2. Construct Validity

4.3. Internal Validity

4.4. Reliability

5. Results

6. Conclusion

7. Recommendations

References