

# 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**

## **References**