Systematic mapping

SELSABIL DBOUBA, KHALED FAYALA,

CONSTANTIN MASSON, MAXIME GALLAIS-JIMENEZ

Introduction

Process Steps

| Definition of Research Question | Conduct Search | Screening of Papers | Keywording using Abstracts | Data Extraction and Mapping Process |

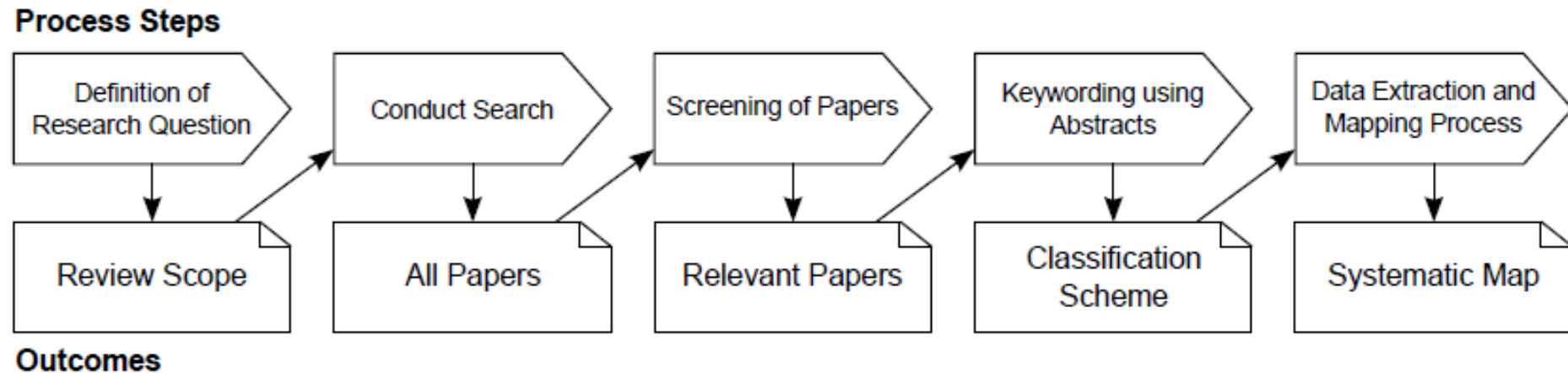| Review Scope | All Papers | Relevant Papers | Classification Scheme | Systematic Map |

Outcomes

Figure 1: The systematic mapping process.

Hypothèses de recherche

RQ1 : Quels sont les **critères** d'une utilisabilité efficace d'API ?

RQ2 : Comment **améliorer** l'utilisabilité d'une API ?

Choix des mots clés

API	Usability
API Software Library Application Programming Interface	Usability ISO 9241 Ease-of-use

Requête :

TITLE-ABS-KEY(((((''API'')
  OR (''Software library'')
  OR (''Application Programming Interface''))
AND ((''usability'')
  OR (''ISO 9241'')
  OR (''ease ?of ?use''))
OR (''API us*'')

Résultats avant filtrage

794 documents obtenus

TITLE-ABS-KEY (((("API") OR ("Software library") OR ("Application Programing Interface")) AND (("usability") OR ("ISO 9241") OR ("ease?of?use"))) OR ("API us*"))
Set feed

794 document results | View secondary documents | Analyze search results

Search within results...

Refine			All ⌄ Export	Download	View citation overview	View Cited by	Add to List	More... ⌄

Limit to   Exclude

| | Model-checking software library API usage rules | Song, F., Touili, T. | 2016 Software and Sys |
| | 1 | | |

Obtenir   View at Publisher

Year

2016	(63)
2015	(105)
2014	(78)
2013	(75)
2012	(85)
2011	(55)
2010	(62)
2009	(47)

| | The role of ultrasound in pharmaceutical production: sonocrystallization | Castillo-Peinado, L.D.L.S., Luque de Castro, M.D. | 2016 Journal of Pharm Pharmacology |
| | 2 | | |

Obtenir   View at Publisher

| | Searching crowd knowledge to recommend solutions for API usage tasks | Campos, E.C., de Souza, L.B.L., Maia, M.D.A. | 2016 Journal of Softwa Process |
| | 3 | | |

Requête avec filtres

Requête :

TITLE-ABS-KEY*((((''API'')*

    OR *(''Software library'')*

    OR *(''Application Programming Interface''))*

AND *((''usability'')*

    OR *(''ISO 9241'')*

    OR *(''ease ?of ?use''))*

OR *(''API us*'')*

AND *(****LIMIT-TO****(SUBJAREA, ''COMP''))*

AND *(****LIMIT-TO****(LANGUAGE, ''English'')*

OR LIMIT-TO *(LANGUAGE, ''French'')*

➡ **516** documents obtenus

Screening

Papiers validés	Papiers rejetés	Papiers ambigus	Papiers gardés
56	196	253	73

Plan de classification

Pour chacun des **73 articles** des tags ont été mis

30 tags différents dans différentes catégories

- **Type d'étude** (étude de cas, comparative, empirique, théorique…)

- **Aspect étudié** (documentation, évaluation, mesure…)

- **Outil utilisé** (framework, test unitaire…)

- **Technique utilisée** (dscussion, enquête, entrevue, rencontre…)

Conclusion

A suivre...

- A Case Study of Web API Evolution

- A case study of API redesign for improved usability

- A cooperative approach for combining client-based and library-based API usage pattern mining

- A dataset for API usage

- A framework for extending usability engineering: API usability essentials: Extending usability via component-based platform

- A study of modern Linux API usage and compatibility: What to support when you're supporting

- ACUA: API change and usage auditor

- An API design process in terms of usability: A case study on building more usable apis for smart TV platform

- An exploratory study of API usage examples on the web

- An observational study on API usage constraints and their documentation

- API peer reviews: A method for evaluating usability of application programming interfaces

- API usability peer reviews: A method for evaluating the usability of application programming interfaces

- API usability: CHI'2009 special interest group meeting

- Applying the cognitive dimensions of API usability to improve API documentation planning

- Approximate structural context matching: An approach to recommend relevant examples

- An empirical comparison of static and dynamic type systems on API usage in the presence of an IDE: Java vs. Groovy with eclipse

- An empirical study of API usability

- An exploratory study of api changes and usages based on apache and eclipse ecosystems

- Automated measurement of API usability: The API Concepts Framework

- Automatic evaluation of API usability using complexity metrics and visualizations

- Automatic parameter recommendation for practical API usage

- Approximate structural context matching: An approach to recommend relevant examples

- Building more usable APIs

- Constructing usage scenarios for API redocumentation
- Context-sensitive code completion tool for better API usability
- CriticAL: A critic for APIs and libraries
- Designing and evaluating the usability of an API for real-time multimedia services in the Internet
- Detecting inefficient API usage
- Evaluating the reference and representation of domain concepts in APIs
- Generating API-usage example for project developers
- Improving API documentation usability with knowledge pushing
- Improving API documentation using API usage information
- Improving API usability
- Influence of code completion methods on the usability of APIs
- Influencing factors on the usability of API classes and methods
- Informing API design through usability studies of API design choices: A research abstract
- Linking usage tutorials into API client code

- MAPO: Mining API usages from open source repositories
- Mapping the space of API design decisions
- Measurable concepts for the usability of software components
- Measuring API Usability
- Methods towards API usability: A structural analysis of usability problem categories
- Mining API patterns as partial orders from source code: From usage scenarios to specifications
- Mining API usage examples from test code
- Mining API usage patterns by applying method categorization to improve code completion
- Mining multi-level API usage patterns
- Neural networks for sentiment analysis on Twitter
- Obstacles in using frameworks and APIs: An exploratory study of programmers' newsgroup discussions
- Prose + test cases = specifications

- Recommending API usages for mobile apps with hidden Markov model
- Recommending posts concerning API issues in developer Q&A sites
- Recommending proper API code examples for documentation purpose
- Recommending reference API documentation
- Searching the State Space: A Qualitative Study of API Protocol Usability
- Some structural measures of API usability
- Statistical learning approach for mining API usage mappings for code migration
- Synthesizing API usage examples
- Temporal analysis of API usage concepts
- The API walkthrough method: A lightweight method for getting early feedback about an API
- The concept maps method as a tool to evaluate the usability of APIs
- The factory pattern in API design: A usability evaluation

- The implications of method placement on API learnability
- The role of conceptual knowledge in API usability
- Type names without static type checking already improve the usability of APIs (As Long as the Type Names are Correct): An Empirical Study
- Unit tests as API usage examples
- Usability evaluation of configuration-based API design concepts
- Usability implications of requiring parameters in objects' constructors
- Usability of educational technology APIs: Findings and guidelines
- Usable results from the field of API usability: A systematic mapping and further analysis
- Useful, but usable? Factors affecting the usability of APIs
- Using concept maps to evaluate the usability of APIs
- Visualization based API usage patterns refining
- What makes APIs hard to learn? answers from developers