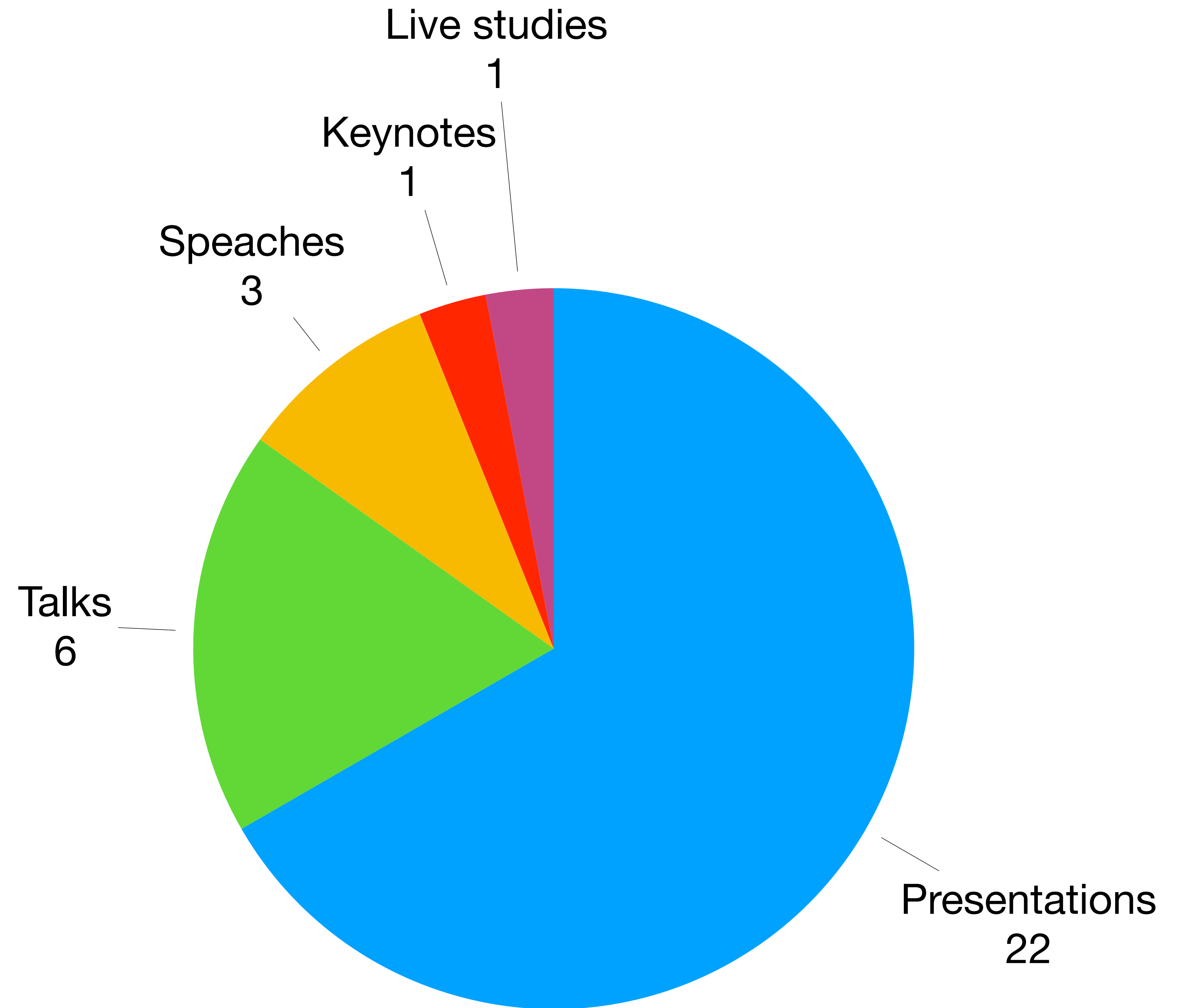# Towards a Catalogue of Mobile Requirements Elicitation
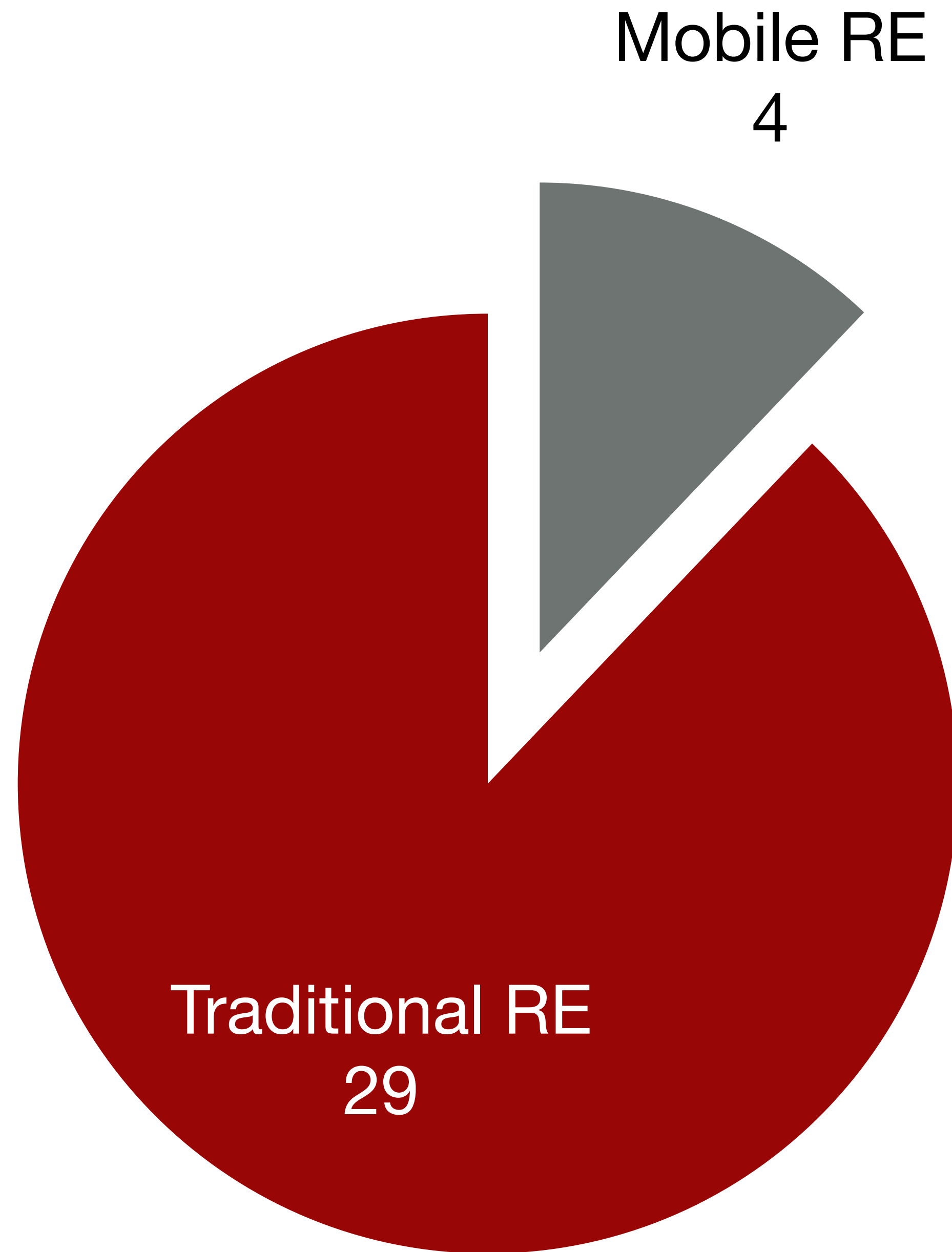
Nitish Patkar • Pascal Gadient • Mohammad Ghafari • Oscar Nierstrasz

Software Composition Group
University of Bern, Switzerland

This year's REFSQ

Live studies
1

Keynotes
1

Speaches
3

Talks
6

Presentations
22

This year's REFSQ

Mobile RE
4

Traditional RE
29

Motivation

- More than 4 million apps available on major app stores

- High uninstall rate

- Mobile apps are fundamentally different than other software systems

How does the community treat
mobile requirements elicitation?

Research questions

1. Which are the existing elicitation techniques for mobile apps?

2. What are the characteristics of the current research?

3. How can we help practitioners with technique selection?

Which are the existing elicitation techniques for mobile apps?

We performed 3 iterations on 5 digital libraries

Search keywords:
"mobile requirements elicitation",
"mobile requirement elicitation",
"mobile requirements engineering"

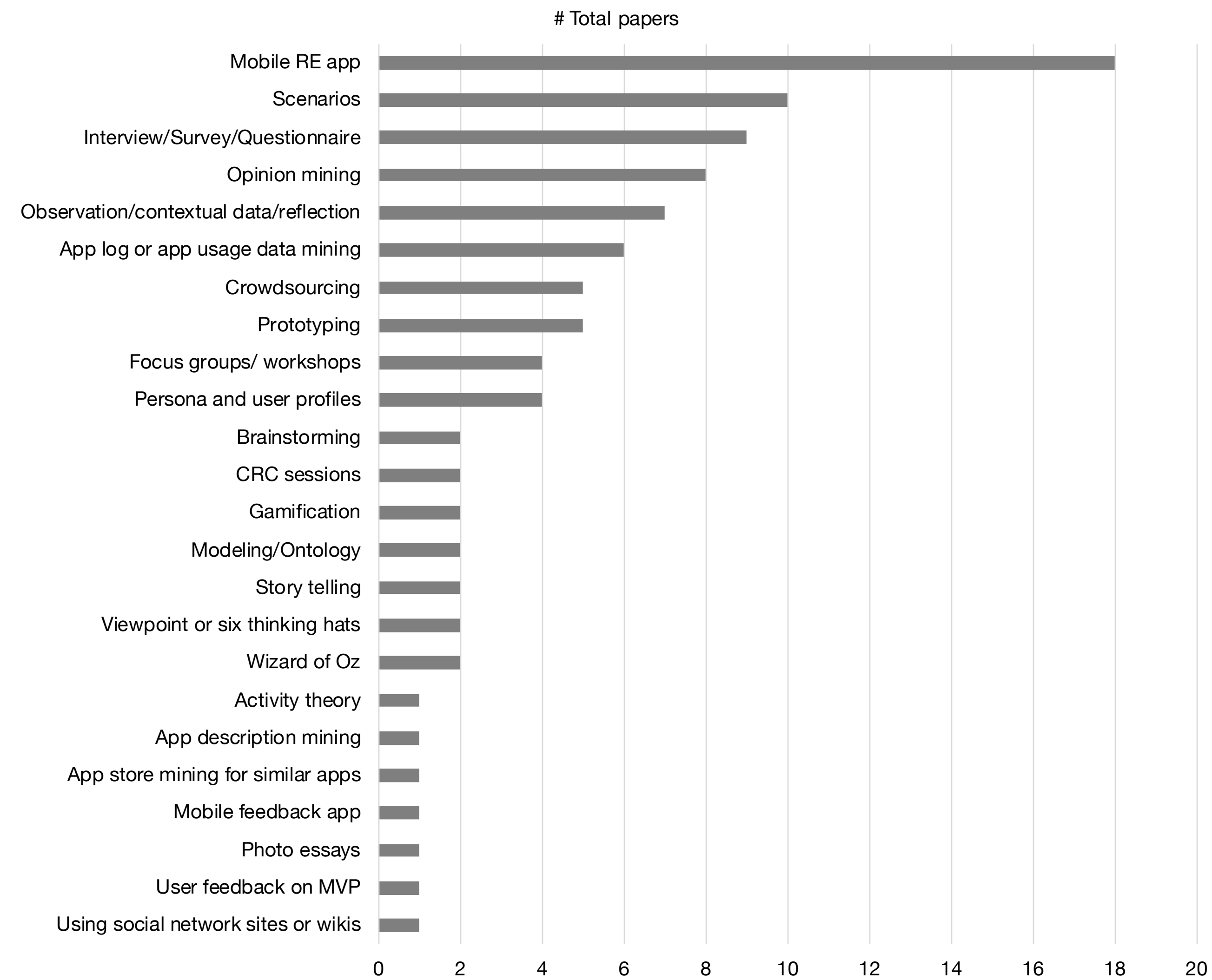*Out of 182 publications we finally selected 60 publications*

We found total 24 techniques

Analyst-centric	Collaboration-centric	Data-centric	Stakeholder-centric
Gamification	Activity theory	App description mining	Mobile feedback app
Interview/Survey/Questionnaire	Brainstorming	App log/ App usage data mining	Feedback on MVP
Modelling	CRC card sessions	Mining similar apps	
Persona/ User profile	Crowdsourcing	Observation/ Contextual data/ Reflection	
Wizard of Oz	Focus groups	Opinion mining	
	Mobile RE app		
	Photo essays		
	Prototyping		
	Scenarios		
	Story telling		
	Social networking/ Wiki		
	Viewpoints, Six thinking hats		

Mobile app specific techniques

Analyst-centric	Collaboration-centric	Data-centric	Stakeholder-centric
	Activity theory		
	Brainstorming		
	CRC card sessions		
	Crowdsourcing	**App description mining**	
Gamification	Focus groups	**App log/ App usage data mining**	
Interview/Survey/Questionnaire	**Mobile RE app**	**Mining similar apps**	**Mobile feedback app**
Modelling	**Photo essays**	Observation/ Contextual data/ Reflection	**Feedback on MVP**
Persona/ User profile	Prototyping		
Wizard of Oz	Scenarios	**Opinion mining**	
	Story telling		
	Social networking/ Wiki		
	Viewpoints, **Six thinking hats**		

Elicitation techniques in literature

Total papers

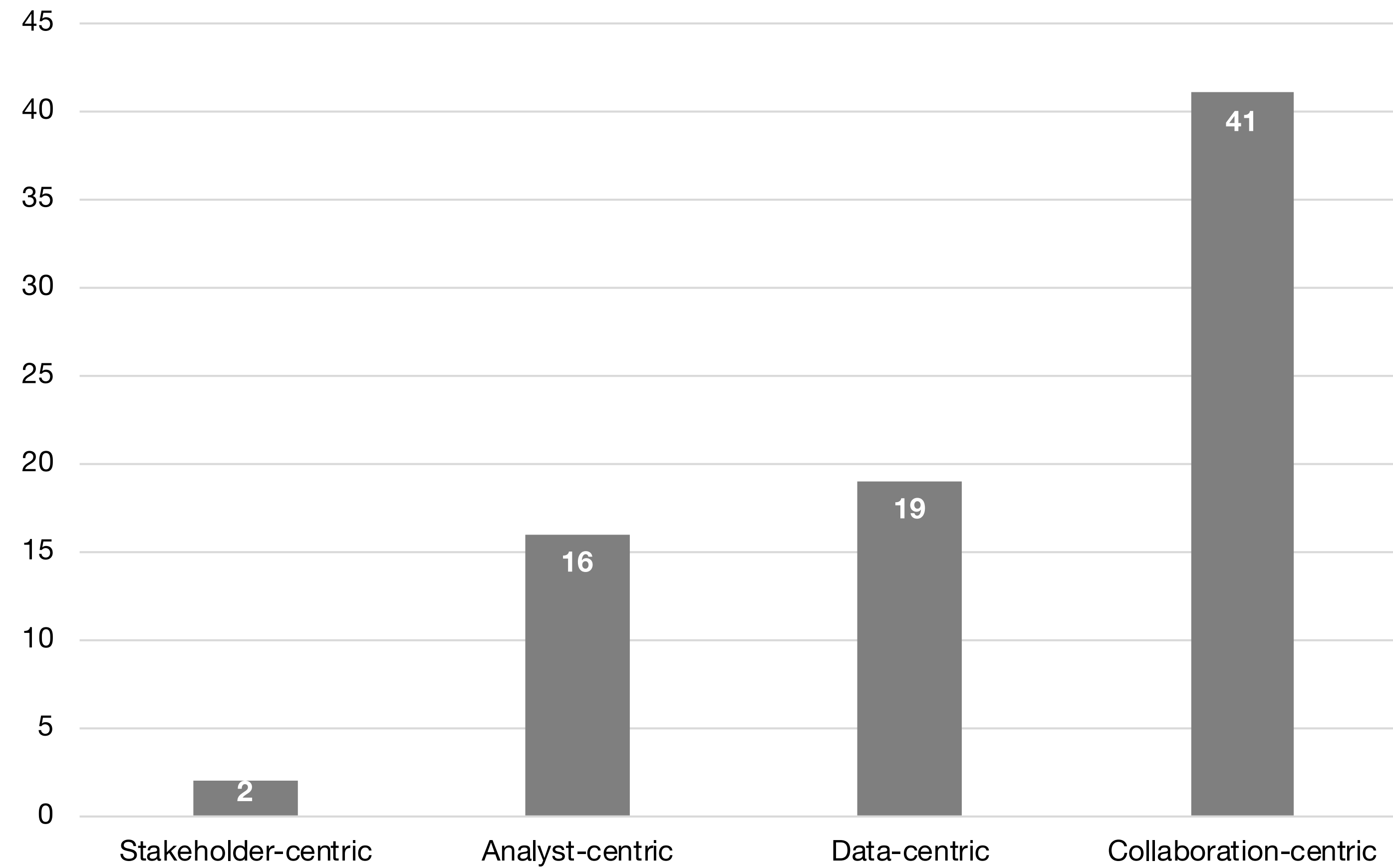| Technique	Count
Mobile RE app	18
Scenarios	10
Interview/Survey/Questionnaire	9
Opinion mining	8
Observation/contextual data/reflection	7
App log or app usage data mining	6
Crowdsourcing	5
Prototyping	5
Focus groups/ workshops	4
Persona and user profiles	4
Brainstorming	2
CRC sessions	2
Gamification	2
Modeling/Ontology	2
Story telling	2
Viewpoint or six thinking hats	2
Wizard of Oz	2
Activity theory	1
App description mining	1
App store mining for similar apps	1
Mobile feedback app	1
Photo essays	1
User feedback on MVP	1
Using social network sites or wikis	1

Elicitation techniques in literature

Total papers

30% of the publications suggest using mobile devices or mobile apps for elicitation

What are the characteristics of the current research?
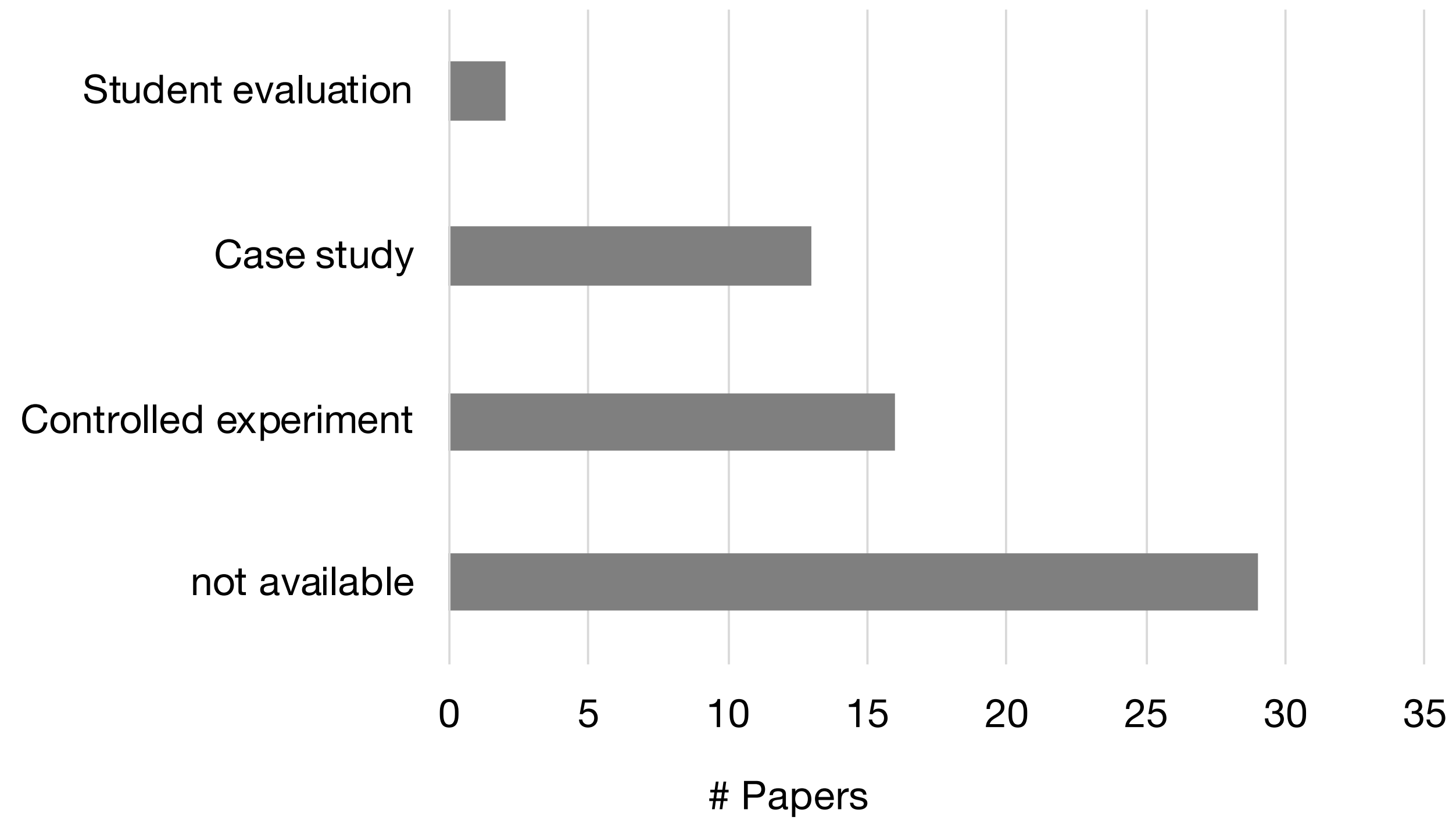
Categories of elicitation techniques

66% of the publications suggest using collaborative techniques

Effectiveness of the techniques is questionable

1. Does it reduce the cost of elicitation?

2. Does it increase the quality of the requirements?

3. Does it generate new requirements?

4. Is the technique scalable?

5. How usable is the technique?

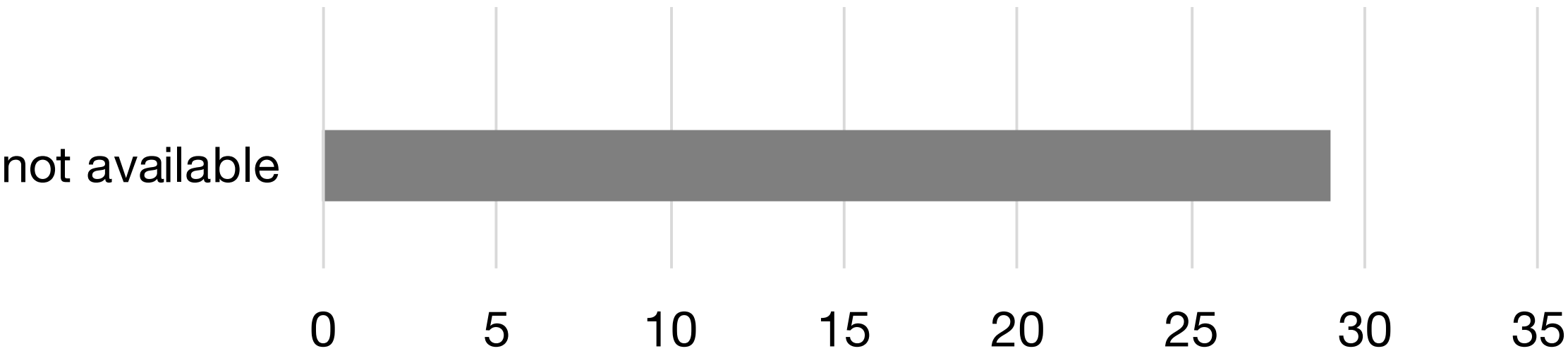# Evaluation of proposed techniques is questionable

Evaluation of proposed techniques is questionable

Persona, Focus groups, workshops,
Interviews, Questionnaires

Observation or Contextual data

Crowdsourcing

not available	████████████████████████████

0   5   10   15   20   25   30   35

48% of the publications did not perform any evaluation

Non-functional requirements…

… are vastly ignored:

Missing guidelines for developers about
security, data privacy, performance, usability

Special users' needs …

… are vastly ignored:

~10% of the US population between the age group 24-64
suffers from one of many disabilities

How can we help practitioners with technique selection?

How can we select techniques
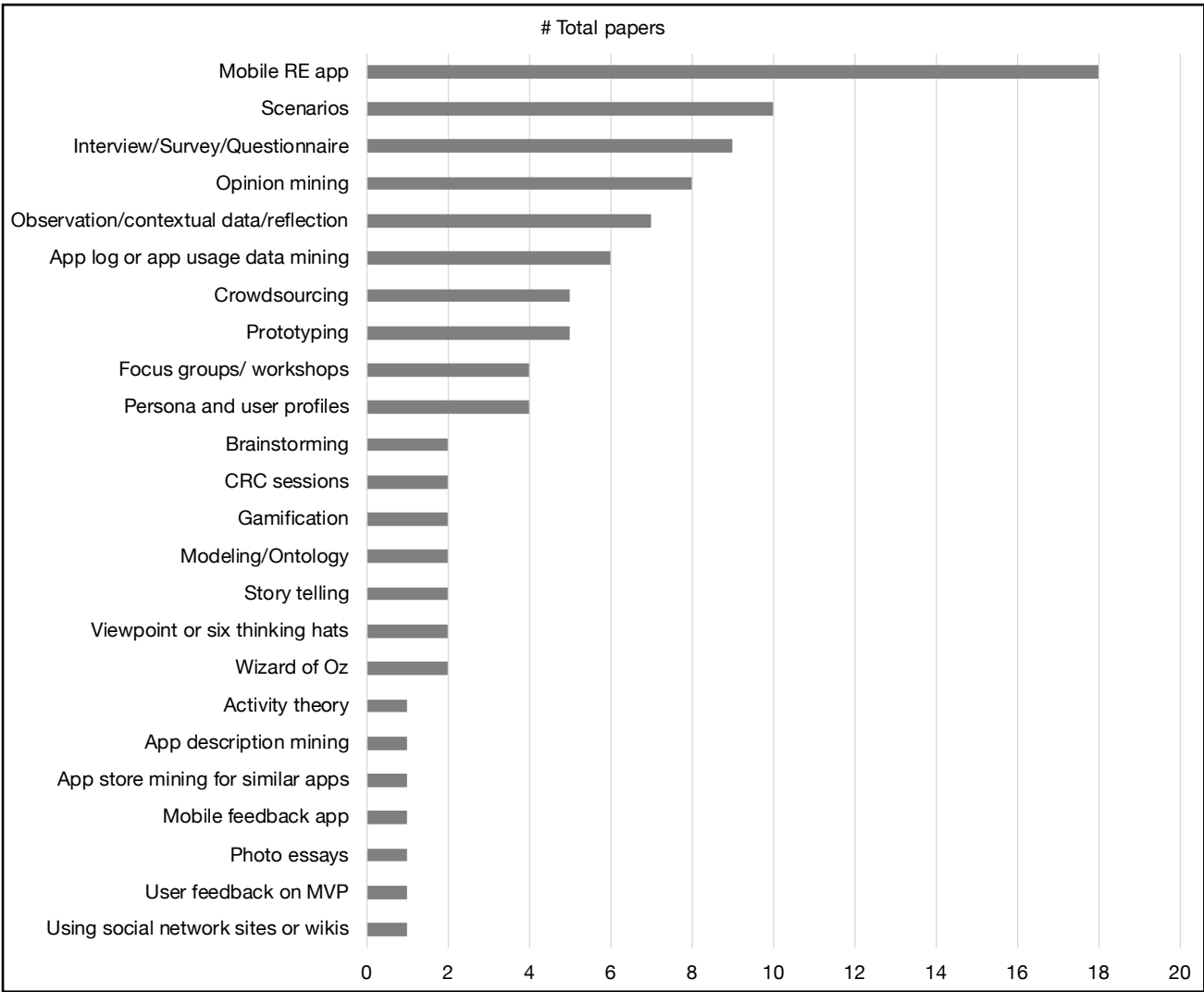
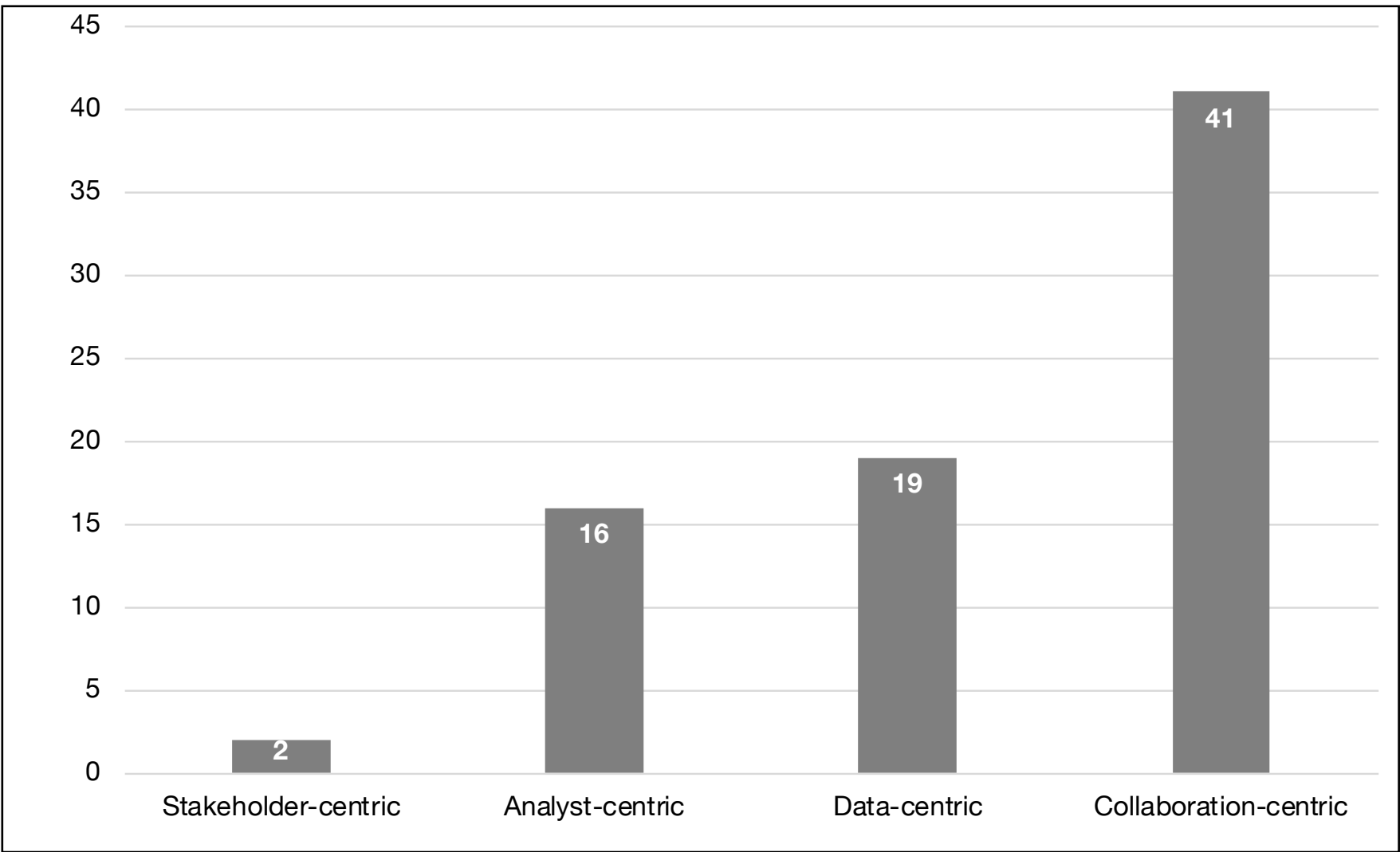|	Data		Stakeholders and users		
	Similar apps	Complex app analysis	Known users?	Geographically distributed users	Users with special needs
Gamification			●	●	●
App description mining	●	●			

Future work

1. Extension of this study
2. Industrial exploratory study

Which are the existing elicitation techniques for mobile apps?

What are the characteristics of the current research?

Total papers

Technique	
Mobile RE app	18
Scenarios	10
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Activity theory	1
App description mining	1
App store mining for similar apps	1
Mobile feedback app	1
Photo essays	1
User feedback on MVP	1
Using social network sites or wikis	1

Bar chart characteristics:

Category	Value
Stakeholder-centric	2
Analyst-centric	16
Data-centric	19
Collaboration-centric	41

How can we help practitioners with technique selection?

	Data		Stakeholders and users		
	Similar apps	Complex app analysis	Known users?	Geographically distributed users	Users with special needs
Gamification			●	●	●
App description mining	●	●			