Understanding Mobile Q&A Usage: An Exploratory Study

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May 10, 2012

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Mobile Social Q&A

- Social Q&A: YAHOO! ANSWERS, NAVER 지식iN, answerbag, stackoverflow
  - Facilitating "knowledge sharing" by leveraging the wisdom of crowds
  - Support flexible question formulation and customized answer delivery
- Mobile Social Q&A: ChaCha, NAVER 지식iN 모바일 Q&A, TEXT 63336, kgb answers, Jisik Log
  - Key difference: **mobile phone based interactions** (mainly via SMS)
  - Chacha (est. 2006) > 4bil; Naver Mobile Q&A (est. 2010): > 3.8 mil

Mobile Social Q&A

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Mobile Q&A's Key Distinctions:

✓ **Mobile phone:**
→ **Small screen & restricted keyboards**

✓ **Text messaging:**
→ **Q&A length typically limited to 150 letters**
→ **No Q&A editing, best answer selection**

SMS OR APP

ONLINE CROWDS

Motivation

- Existing research mainly focused on characterizing conventional social Q&A usage (Yahoo! Answer, Naver KiN)
  - Question types and topics [Kim 08, Harper 08, Rodrigues 09]
  - Response rate/time [Hsieh 09] Microsoft Live Q&A: 80%/2:53
  - Answerer's motivation (e.g., altruism, learning) [Raban 08, Nam 10]
  - Asker/answerer social network (power law) [Adamic 08]
- Mobile Q&A: **accessing wisdom of crowds via mobile phones**
- **Usage contexts and interaction patterns** would be very different from conventional social Q&A
- Yet, so far little is known about usage patterns of mobile social Q&A

Research Questions and Contributions

- Goal: characterizing mobile Q&A usage
  - What are **key drivers** of mobile Q&A usage?
  - What **types of questions** are asked over mobile Q&A?
  - How do users **interact with mobile Q&A** to meet their information needs?
- Our contributions:
  - Identified **unique usage patterns** of mobile Q&A
    - Usage contexts: deeply wired into everyday life activities
    - Key factors: accessibility, convenience, promptness, satisficing behavior
    - Unique coping strategies (e.g., repeating/refining)
  - Our findings offer **practical system design implications**

Research Methods

- Corroborative approach: real Q&A data + email survey
- Crawled dataset from Naver Mobile Q&A
  - Dataset period: June 1, 2010–July 31, 2011
  - # questions: ~2.4mil, # answers: ~3.1mil
- Email survey of Naver Mobile Q&A users
  - Survey questionnaire design:
    - Part 1: Asked overall usage patterns of mobile Q&A
    - Part 2: Asked detailed situations/reasons about the questions that participants asked in July 2011 (up to 5 questions)
  - # survey participants: 555
    - 73.9%: teenagers, 15%: 20s, 5.1%: >= 30s
    - 49.5%: male users, 70.5%: smartphone users

Research Questions

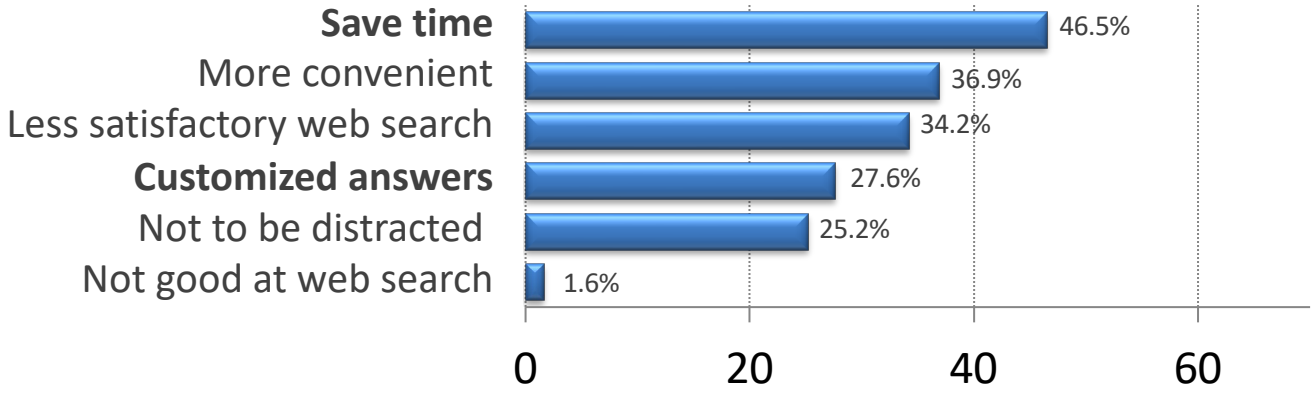
RQ #1: What are the key drivers of mobile Q&A usage?

RQ #2: What types of questions are asked over mobile Q&A?

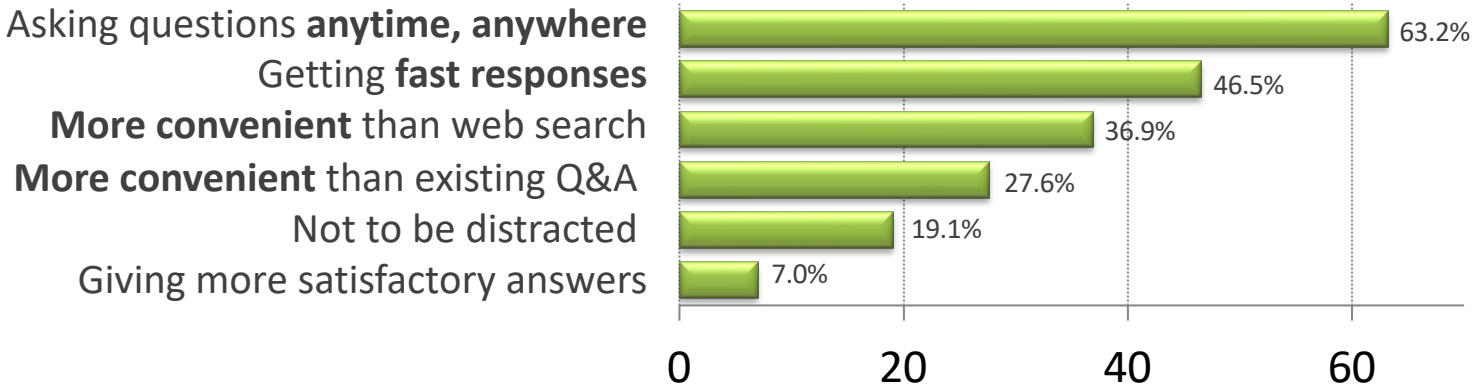
RQ #3: How do users interact with mobile Q&A to meet their information needs?

Key Drivers of Mobile Q&A Usage

(1) Why *Social Q&A* is preferred to *Web Search?*



(2) Why *Mobile Social Q&A* is preferred to *Social Q&A/Web Search?*



Key drivers : accessibility, convenience, promptness

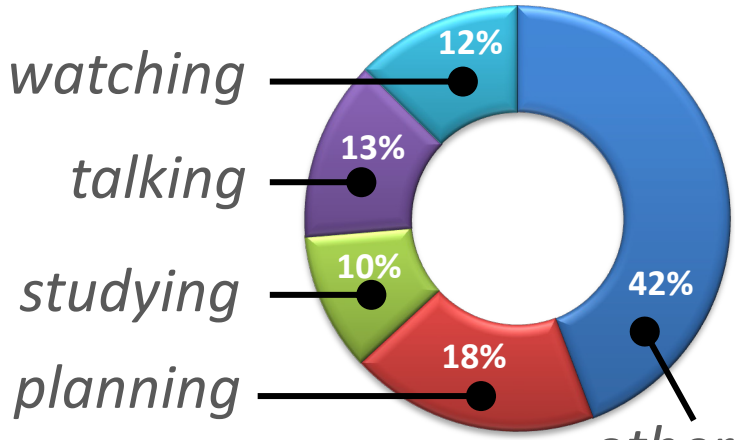
Contexts of Mobile Q&A Usage

- Everyday life information seeking [Savolainen 08]
  - Dealing with **everyday life projects**, ranging from generic and routine (e.g., household care) to specific activities (e.g., hobbies)

What's the name of an exercise device that looks like a jump rope, but you can hold your foot on it and pull it?

When I was watching a diet program on TV, I wanted to buy it but I had no idea about its name.

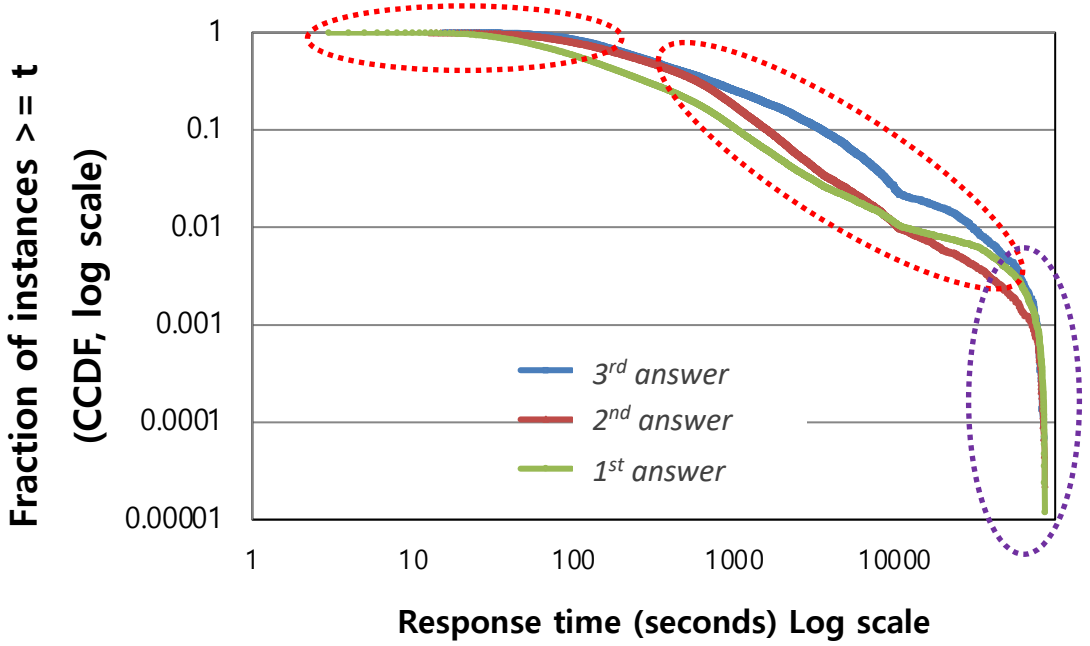
Activity Coding Results



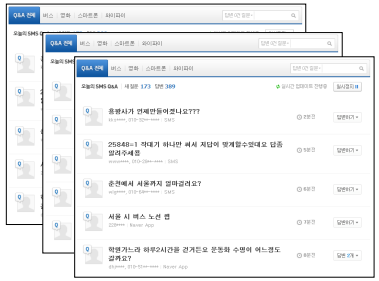
Coding results of context description of 206 questions participants asked

Promptness of Mobile Social Q&A

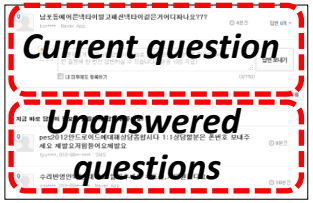
- Response distribution: roughly power-law with exp cut-off
- Avg: 15.5M & Median: 2.1M *vs. MS Live Q&A: Avg 2H53M*



Browsing first few pages



Answering page randomly shows other unanswered questions



Key drivers : accessibility, convenience, promptness

Mobile Q&A Users' Satisficing Behavior

- Satisficing behavior: good enough info satisfying the need although its quality is not the best (saving time and effort) [Prabha 07]
- Mobile Q&A users expect to trade quality for accessibility, convenience, promptness
  - They believe that mobile Q&A provides "good enough" info although its quality is inferior to other info sources
- Mobile Q&A users tend to minimize "coping efforts"
  - Simply repeating (32.3%), rephrasing (36.8%), waiting (27.8%), or even stop seeking (39.8%)

Key drivers: accessibility, convenience, promptness, satisficing behavior

Research Questions

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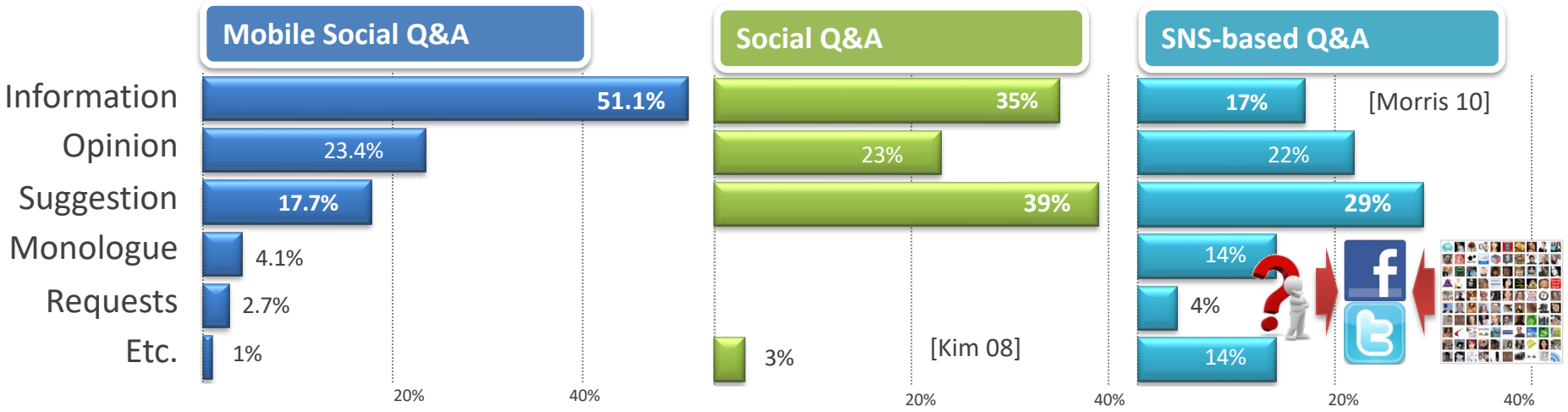
Questions in Mobile Q&A

Question Type	Examples	
Information	*"I'm at the Seoul station. Which bus goes to Sadang?"*	[Kim 08]
Opinion	*"Who do you like most in Girl's Generation?"*	
Suggestion	*"Please recommend a good restaurant in Seoul"*	
Expressive Monologue	*"Too bad, Lee just missed a goal!!"*	[Ervin-Tripp 64]
Requests	*"Please send me some interesting e-books!"*	



Prevalently used to meet "quick info needs" arising from daily activities

Research Questions

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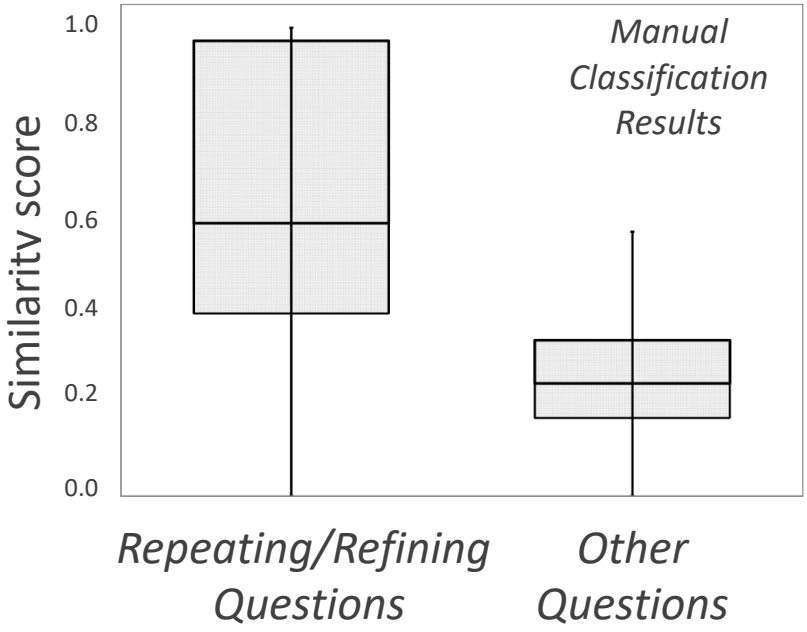
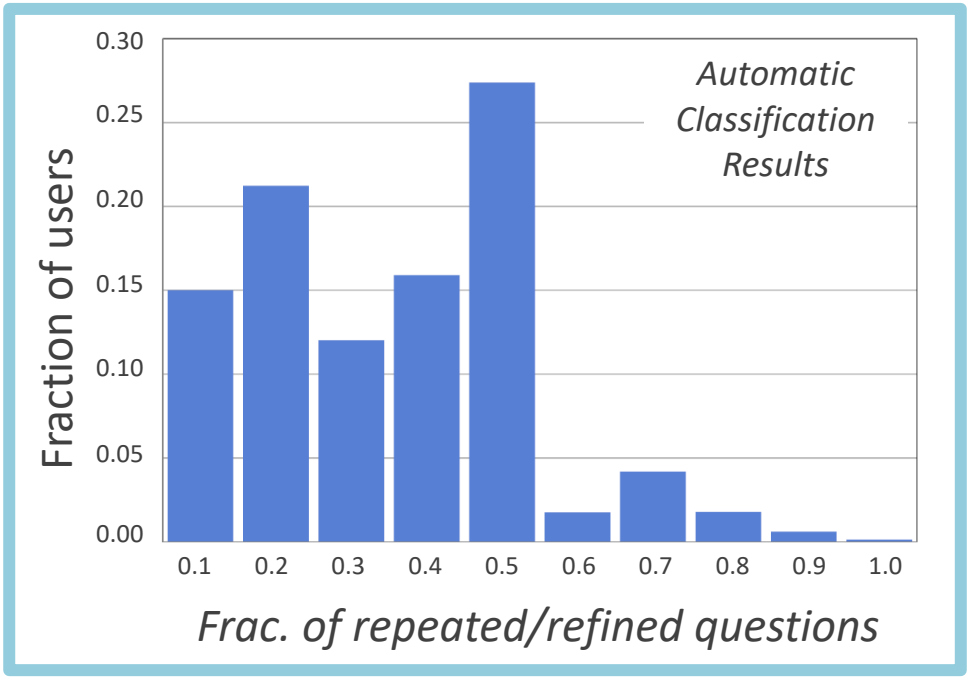
Interaction Behavior: Repeating/Refining

- Repeating/refining as coping strategies of satisfying information needs
- Differences from "Query Refinement in web search"
  - # answers, predictability, delay scale
- Refining behavior example:
  - *Question 1 (10:23AM): "How do I get to Sadang Station from Seoul Station?"*
    - *Answer 1 (10:25AM): "Take a subway line number 4"*
    - *Answer 2 (10:27AM): "Just take a taxi"*
  - *Question 2 (10:28AM) : "How long does it take and how much does it cost to go to Sadang Station from Seoul Station by taxi?*
    - *Answer 1 (10:30AM): "About 31 minutes, and 9,400 Won"*

Interaction Behavior: Repeating/Refining

- How often repeating/refining behavior occurs?
  - Automatic classification: measuring cosine similarity of questions
  - Threshold value = 0.6 (set based on manual classification)
    - Refining: similarity score = [0.6, 1), Repeating: similarity score = 1





Large fraction of users repeat/refine questions

Design Implications

- *User interface design for askers* to lower cognitive burden of askers
  - Supporting popular coping strategies such as repeating, refining
- *User interface design for answerers* to improve answer speed and quality
  - Context sharing mechanism allowing answerers to know asker's interaction history
  - Automatic topic classification (focusing on specific topics)
  - Automatic suggestion of answers (if repeated questions are posted, e.g., asking sports score)
  - Improving browsing capability of unanswered questions (delay reduction)

Conclusion

- Mobile Q&A usage: deeply wired into daily life activities
- Prevalently used to meet “quick info needs” arising from daily activities (very different from conventional Q&A)
- Key factors of mobile Q&A usage: accessibility, convenience, promptness, satisficing behavior
- Coping strategies: repeating and refining questions
- System design implications (e.g., asker/answerer UI design, etc.)