Analyzing Crowd Workers in Mobile Pay-for-Answer Q&A

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Mobile Pay-for-Answer Q&A

What's the name of an exercise device that looks like a jump rope....
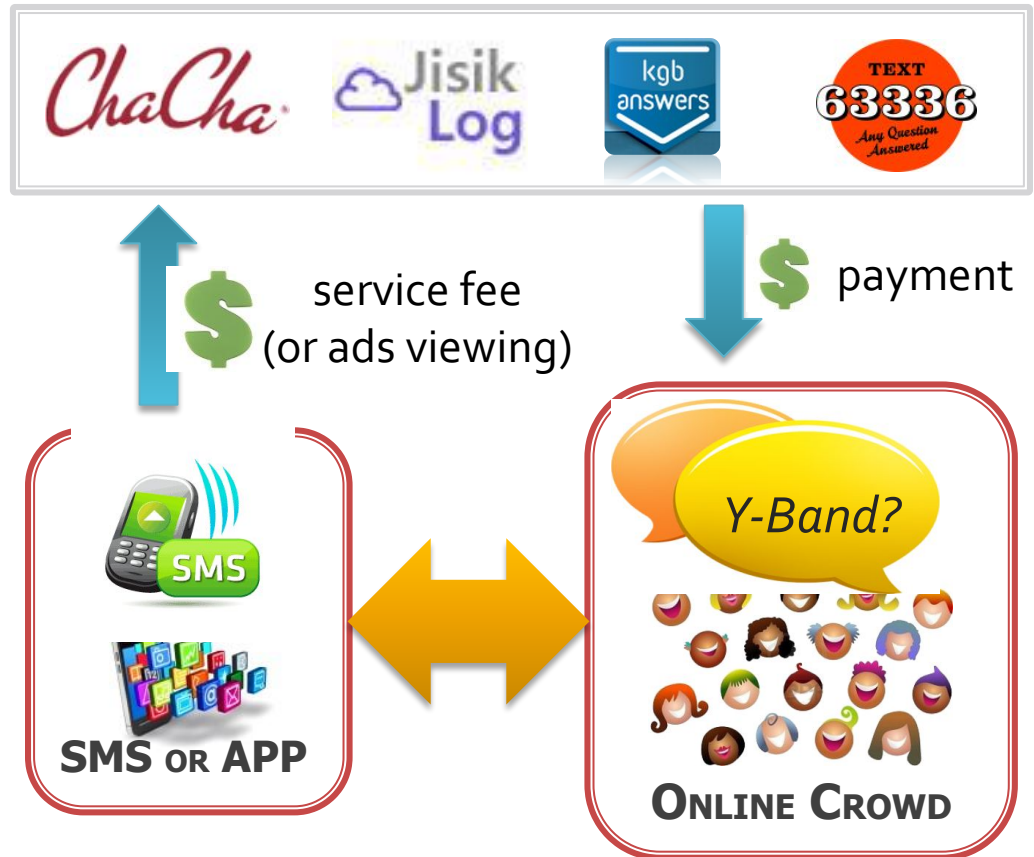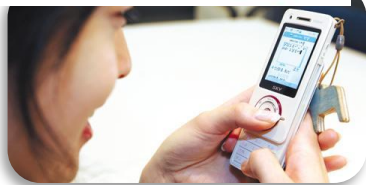
Y-Band?

SMS OR APP

ONLINE CROWD

Seeking the wisdom of crowd using mobile phones

Mobile Pay-for-Answer Q&A

What's the name of an exercise device that looks like a jump rope….

ChaCha **Jisik Log** **kgb answers** **TEXT 63336** *Any Question Answered*

service fee (or ads viewing)

payment

Y-Band?

SMS OR APP

ONLINE CROWD

Real-time knowledge marketplace for mobile users

Mobile Pay-for-Answer Q&A

Chacha: > 4.5 billion questions (2012)

Jisiklog: > 19 million questions (2012)

Jisiklog: Mobile Pay-for-Answer Q&A
Real-time Knowledge Marketplace

Peer Review

Answer Delivery

SMS

Question Posting

Answer Question

Expert?

yes

no

Evaluate Answer

2¢ Reward

20¢ Fee

8¢ Reward

Leaderboards

Structured workflow for quality control
Piece-rate pay on various micro-tasks

Analyzing Crowd Worker Behaviors & Strategies

1. Key motivators of participation
2. Working strategies of experienced users
3. Longitudinal interaction dynamics

Methodology

- 18.8 million Q&As from Jisiklog (~ 60 months)

- Survey study of 245 crowd workers in Jisiklog
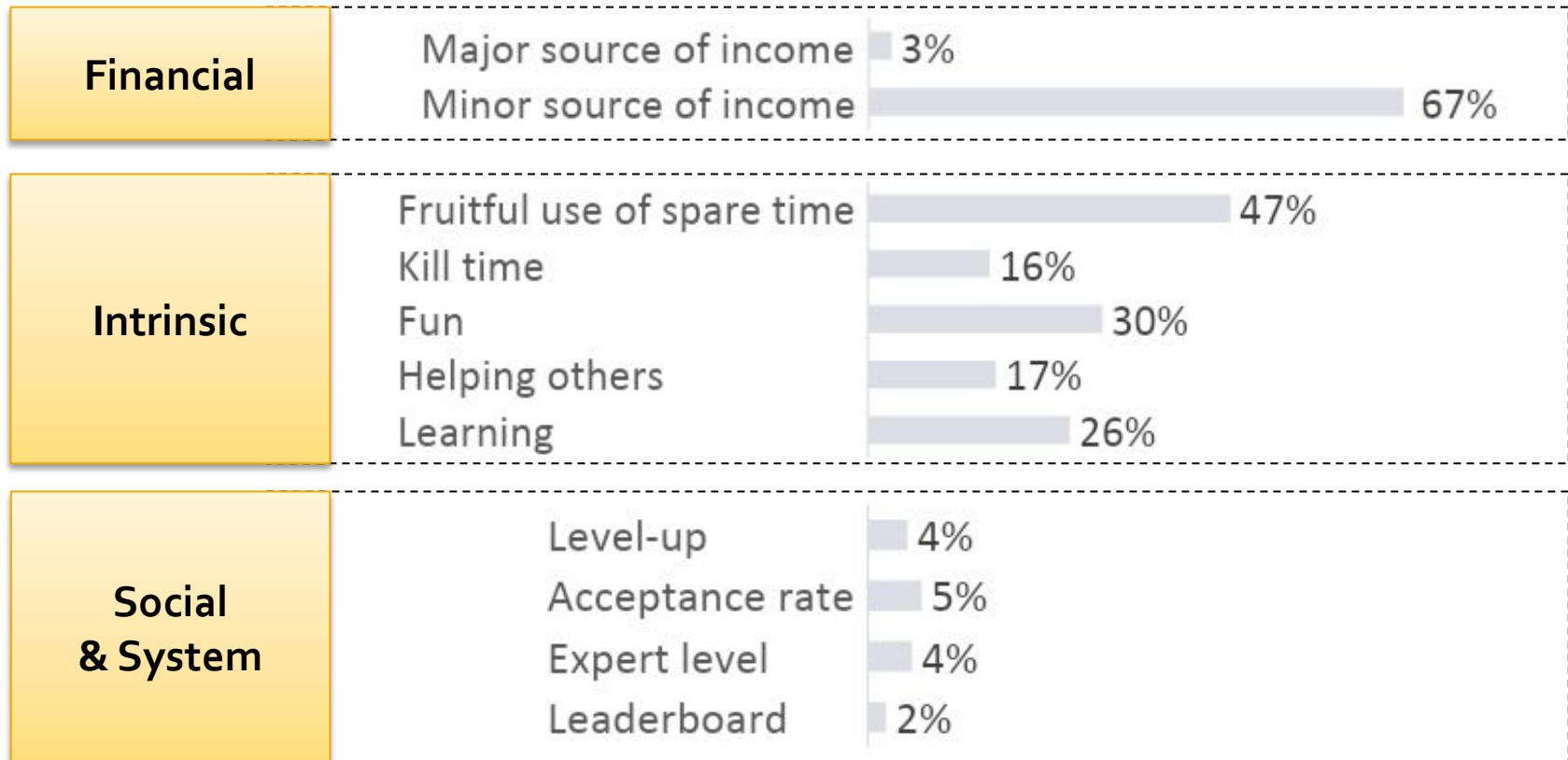

Jisiklog's Forum

Analyzing Crowd Worker Behaviors & Strategies

1. **Key motivators of participation**
2. Working strategies of experienced users
3. Longitudinal interaction dynamics

Key Motivators of Answerers

Financial
- Major source of income — 3%
- Minor source of income — 67%

Intrinsic
- Fruitful use of spare time — 47%
- Kill time — 16%
- Fun — 30%
- Helping others — 17%
- Learning — 26%

Social & System
- Level-up — 4%
- Acceptance rate — 5%
- Expert level — 4%
- Leaderboard — 2%

Financial > Intrinsic >> Social (& system) factors
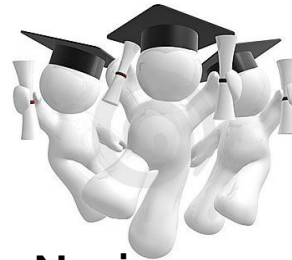
Key Motivators of Answerers

Any motivation differences?

Experienced users
(# answers >= 200)

VS.

Novice users
(# answers < 200)

Results: significant difference on minor income source, and fruitful use of spare time, but no significant difference on other major intrinsic factors, and social factors

Monetary incentive does not crowd-out intrinsic and social motivators in mobile pay-for-answer Q&A

Analyzing Crowd Worker Behaviors & Strategies

1. Key motivators of participation
2. **Working strategies of experienced users**
   - **Topic selection**
   - **Answering strategies**
   - (Quality assessment)
3. Longitudinal interaction dynamics

Working Strategies: Topic Selection

- Literature shows that in most Q&A services, answerers tend to focus on a few topics (say, computers, games)

- Will Jisiklog workers also focus on a few topics?

Working Strategies: Topic Selection

- Measured a user's topical focus using entropy
  - User's avg entropy: 3.14 vs. entropy with random choice: 3.32
    - e.g., high entropy value = low topical focus
  - Entropy variation over time is within 0.05

Crowd workers tend to respond to a broad range of topics, and this tendency is consistent over time

Working Strategies: Answering
Common themes of answering strategies

1. Selectively choosing the type of questions to answer (e.g., based on expertise or difficulty)
2. Effectively using various information resources (e.g., web search, Jisiklog, dedicated web services)
3. Actively maintaining QA resources (e.g., bookmarks, summaries)
4. Developing thoughtful and sincere answers

Working Strategies: Answering
Common themes of answering strategies

1. Choosing the type of questions to answers (e.g., based on expertise or difficulty)

> (Topical interest) *Since I'm majoring in chemistry in college, I prefer answering science questions. I usually refer to my textbook and several online forums to answer questions.*

> (Easy questions) *I prefer answering easy questions like TV schedules, restaurant recommendation, SAT answers, etc.*

2. Effectively using various info resources

"

*For study and college entrance related questions, I use search results from **Naver KiN** and add some personal comments.*

*For direction and health questions, I use **Naver Map and Encyclopedia**.*

*For computer related questions, I use **Naver KiN and Jisiklog**.*

*I have **a list of dedicated web sites** for various kinds of questions.*

"

Working Strategies: Answering
Common themes of answering strategies

3. Actively maintaining QA resources, e.g., bookmarks

> *I came up with question categories and arranged the bookmarks of frequently visited web sites based on those categories.*

4. Developing thoughtful and sincere answers

> *Instead of simply copying and pasting the answers from a web search, I try my best to explain the answer in detail such that if I were the askers, I could also easily understand the answer.*

Working Strategies: Answering
Answer delay by crowd workers

- Answer delay = time difference between question pickup and answer posting

- Answer should be made within 3+1 minutes in Jisiklog

Avg. answer delay: 88.6s (SD: 54.5)
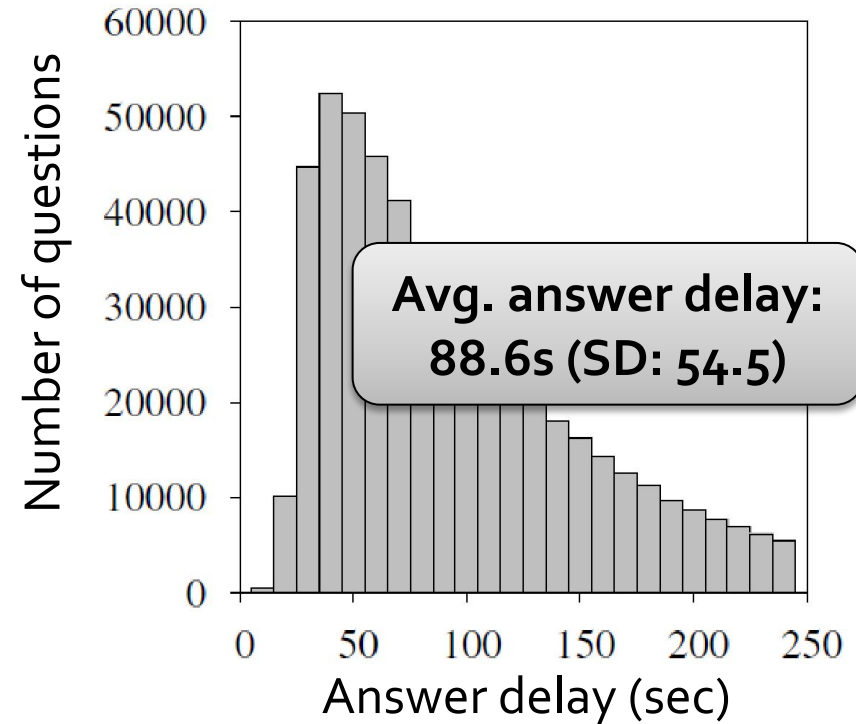
Much faster than conventional social Q&A (including mobile social Q&A)

- Experienced users tend to have smaller delay dispersion
- Yet, individual differences are huge even among experienced users (due to <u>attitude differences on knowledge sharing</u>)

Avg. answer delay (s) vs. # of answers per user
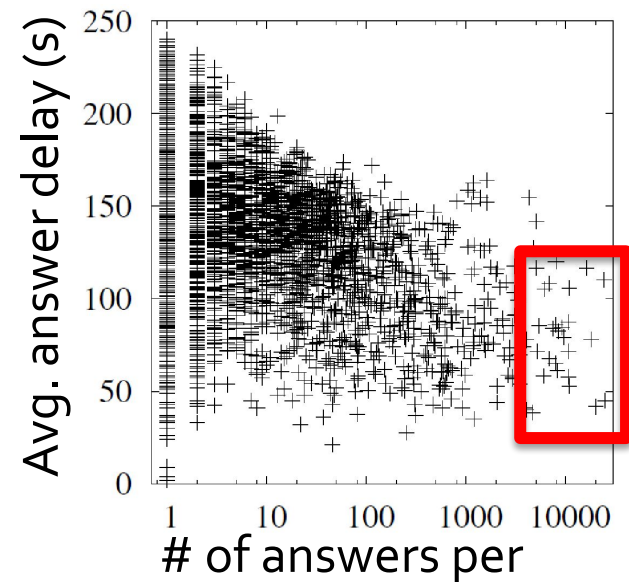
" *Speed is the most important thing; first pickup a question and answer as soon as possible* "

" *For direction questions I usually get directions from maps, but I would prefer giving more detailed answers based on my experience.* "
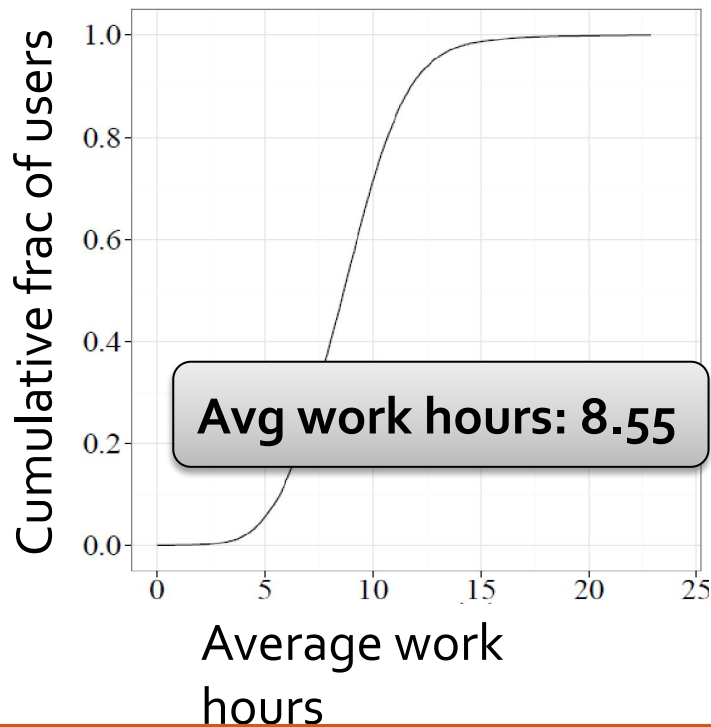
Analyzing Crowd Worker Behaviors & Strategies

1. Key motivators of participation
2. Working strategies of experienced users
3. **Longitudinal interaction dynamics**
   - Working Patterns
   - Community Dynamics

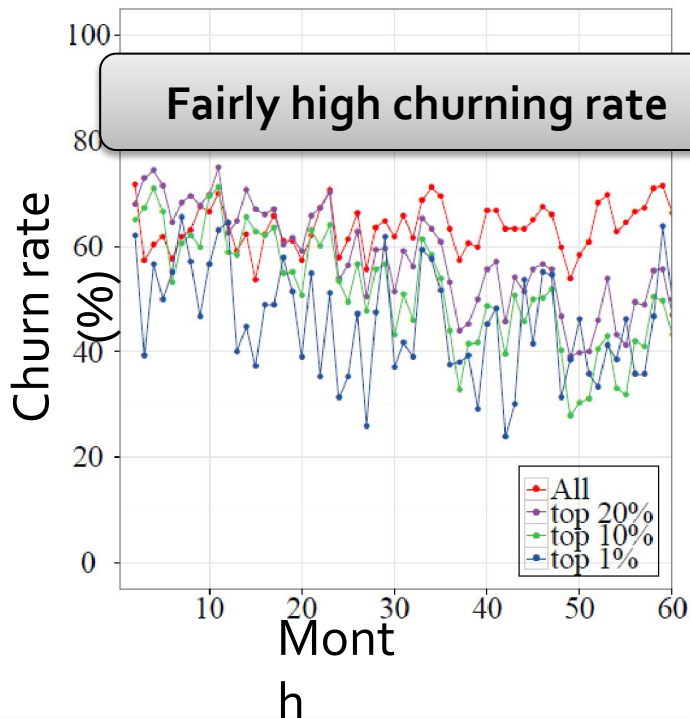# Longitudinal Interaction Dynamics: Working Patterns

Daily work hours per user

 # work blocks vs. block duration

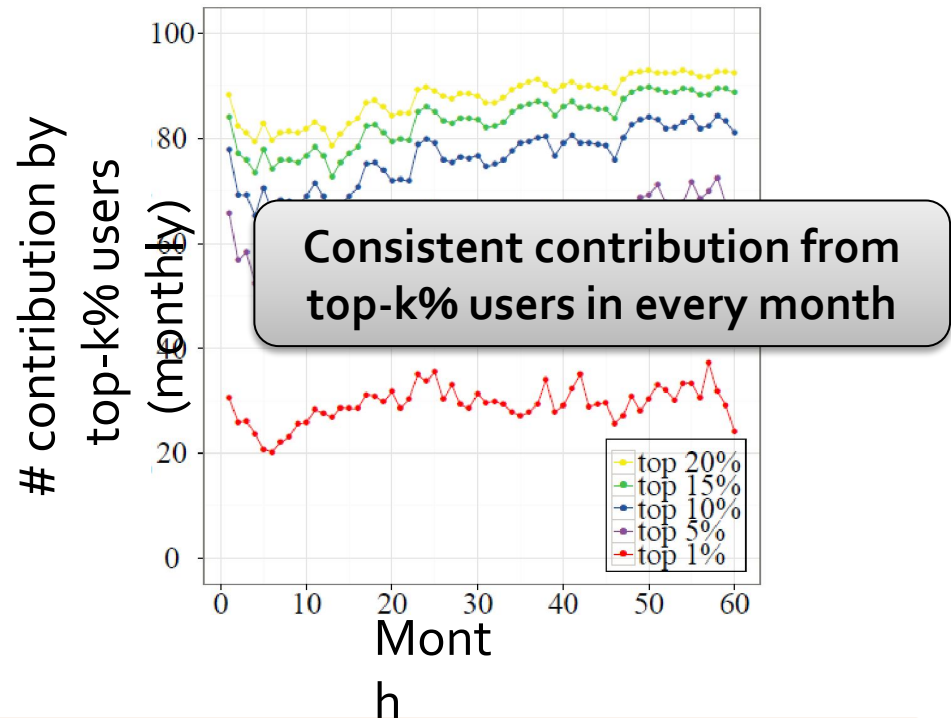Avg work hours: 8.55

Heavy users working more hours more frequently
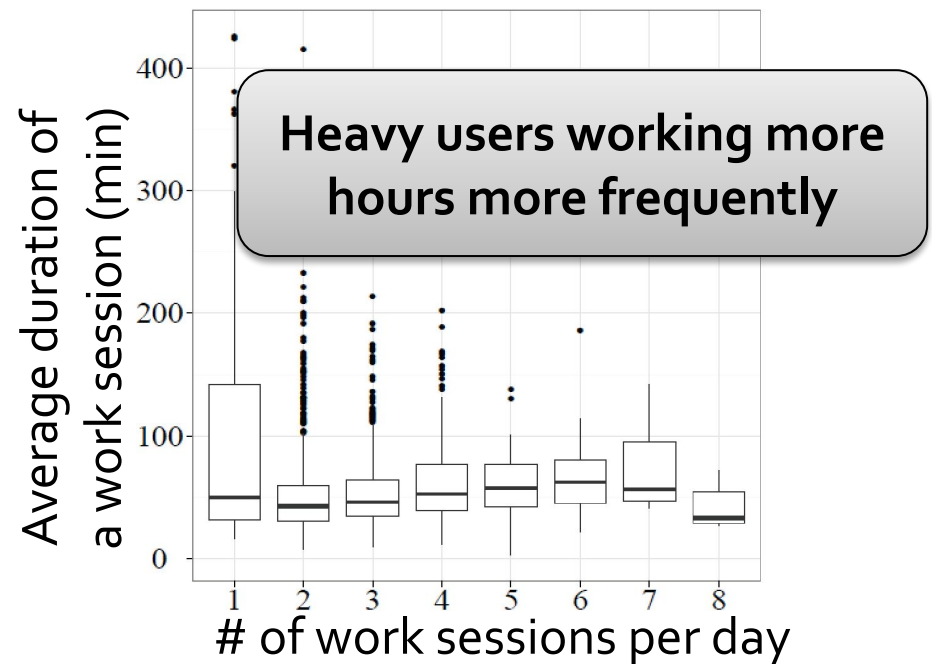
Experienced workers invest lots of time
Their working hours are dispersed over a day

Longitudinal Interaction Dynamics: Community Dynamics

Top-k% churning

Top-k% contribution

Fairly high churning rate

Consistent contribution from top-k% users in every month

Stability of mobile pay-for-answer Q&A: high churning, but consistent contribution of top k% users

Discussion

- Design implications:
  - Sharing answering resources (e.g., bookmarks)
  - Considering intrinsic/social motivations

- Research directions:
  - Analyzing labor supply-demand dynamics
  - Studying similar mobile pay-for-answer Q&A (e.g., ChaCha)
  - Examining cultural differences

Summary

- Users are rarely motivated by social factors, but are more motivated by financial incentives and intrinsic factors

- Experienced users have fairly unique working strategies on topic selection, answer search, and answer quality assessment

- Even with high churning, the contribution of top-k% answerers is quite consistent over time