Monetary Interventions in Crowdsourcing Task Switching

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Task Switches Initiated by Requesters

• Context Switch

Is the keyword correct for this image?
Task Switches Initiated by Requesters

- Workflow design

Zooniverse: Cyclone Center
Varying Quality in Task Sequences

Task A

Task B

Task C

Task A

Switch Task

Repetition Task

Work Quality

Task completed
Influencing Quality with Financial Incentives

Task A

Task B

Task C

Task A

Monetary Intervention

Work Quality

Task completed
Influencing Quality with Financial Incentives

Task A  Task B  Task C  Task A

1. How do monetary interventions affect work quality in intervened tasks?
Influencing Quality with Financial Incentives

2. How do monetary interventions affect work quality in non-intervened tasks?
Influencing Quality with Financial Incentives

3. Where to place monetary interventions: Switch tasks or repetition tasks?
Influencing Quality with Financial Incentives

4. When are monetary interventions more effective: Tasks switch more often or less often?
Experimental Design

2 types of tasks

Color naming

Word reading

Yellow

Green

Yellow

Commonly used by psychologists in studying task switching

96 tasks in a sequence
Experimental Design

5 task sequences

- 48 × 2
- 24 × 4
- 16 × 6
- 8 × 12
- 4 × 24

3 intervention treatments

- No Bonus
- Switch Bonus
- Repetition Bonus

15 experimental conditions

1268 unique MTurk workers
Experimental Design

• Two quality metrics:
  – Reaction time
  – Accuracy
  – Innately compete with each other

• Performance-contingent bonuses
  – Receive bonus in a task if the answer is correct and the reaction time is less than 1 second
Effects on Intervened Tasks: Switch Bonus

Performance is improved in both reaction time and accuracy in intervened tasks in Switch Bonus treatment!
Effects on Intervened Tasks: Repetition Bonus

Workers decrease reaction time and improves accuracy faster in intervened tasks in Repetition Bonus treatment!
Effects on Non-Intervened Tasks

- Reaction time in non-intervened tasks is also significantly shortened!
Effects on Non-Intervened Tasks

• Reaction time in non-intervened tasks is also significantly shortened!

• However, accuracy in non-intervened tasks is significantly decreased
  - Decreased by 0.74% (Switch Bonus) and 2.03% (Repetition Bonus)

The competing nature of reaction time and accuracy dominates in non-intervened tasks!
Implicit Goals and Extrinsic Incentives

• Workers implicitly set performance goals for themselves with the presence of (performance-contingent) monetary interventions

• In non-intervened tasks, the competing nature between reaction time and accuracy dominates

• In intervened tasks, workers are further motivated by the monetary incentives to even overcome the RT-accuracy tradeoff
More Effective Interventions

Placing monetary interventions at switch tasks is more effective!
More Effective Interventions

Placing monetary interventions in sequences where tasks switch less often is more effective!
Summary

• Monetary interventions can be used to influence work quality in a task switching setting

• Yet...they are most effective when being placed at switch tasks of sequences with low task switching frequencies
Thank you!