Empathy in Crowdsourcing

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User System Interaction

TU/e Technische Universiteit Eindhoven University of Technology

Workers' Motivation

- Money, Enjoyment, Reputation, Socialization[1]

- Altruism[1]
  - Experiencing empathy is a source of altruism[2]

[1] Quinn, A. J., & Bederson, B. B., 2011 Human Computation: A Survey and Taxonomy of a Growing Field. In Proceedings of CHI 2011

[2] Huber, J.T. and MacDonald, D.A. An Investigation of the relations between Altrusim, Empathy, and Spirituality (2012).

Empathy[1]

- ## Affective Sharing
  - Subjective 'reflection' of another person's observable experience (e.g. feeling amused when someone else laughs or sad upon seeing another person cry)

- ## Self-awareness
  - The empathic person clearly differentiates between his/her experience and that of the person being observed

- ## Mental flexibility and perspective taking
  - Cognitive ability to learn about the situations affecting others, and to effectively imagine what it would be like to experience the world from the other's position

- ## Emotion regulation
  - The empathic person's ability to 'turn down the volume' of his/her own feelings as they arise from mirroring another's experience

- [1]Gerdes, K.E., Segal, E.A., Lietz, C.A. Conceptualising and Measuring Empathy (2011).

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RQs

- How can empathy be effectively conveyed through the UI?
- Does it have an effect on quality and quantity?

Method

- Survey (N=200) on Crowdflower and Google Consumer Surveys
  - To gauge the workers' self-perceived effect of empathy on work

- Experiment (N=134) on Crowdflower
  - Does conveying empathy affect the quality and quantity of work?

Survey

- Open-ended questions:
  - How would it affect your work if you knew more about the person who requested the work, the context of the work, and further information?
  - What sort of information would you like to know to help you empathize with the requester?
  - Oftentimes (but not always), requesters of work choose crowdsourcing because they cannot afford the time or money to hire a company or person full time to do the job. Would you be willing to do the work for less amount of money or perform the job faster if you could relate to the requester's context and situation?
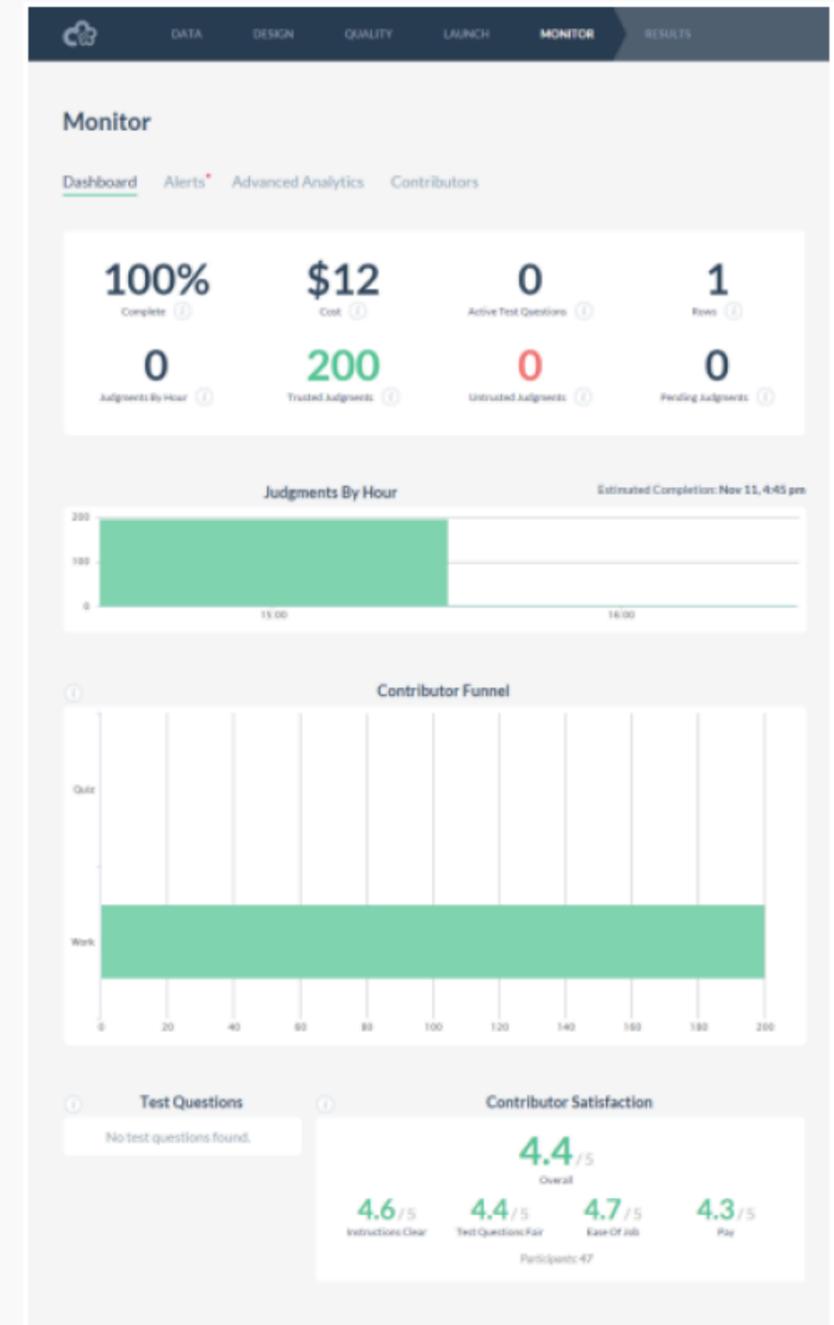
Survey Results

- Workers have a preference for assignments that they know the context of
  - *"I will deliver a high quality content if I knew about the context of the work, because I would be more involved and would feel part of the project"* P9

- Workers report working better and harder when they know the value of their contribution to the project
  - *"Generally the kind of impact my work will have or just a description ofhow the data will be used... would be good to know"* P15

- Workers report delivering better quality of work and are willing to work more if they can relate to the requester and the project
  - *"I would do the work more efficiently... if I could tune into the same wavelength with the customer"* P13

- The reported motivation to work on an assignment increased when workers were presented with detailed background information on the requester and the project itself
  - *"I think more information about job requirements may... help us shape the work. Above all, detailed description and clarity of requirements will allow me to handle it best"* P21

Experiment

- Task: find & correct grammatical errors in 9 academic abstracts

- We introduced 3 (rather obvious) grammatical errors (syntactic and semantic) in each

- Abstracts were similar in length (120-150 words)

- Asked workers to identify and correct as many errors as they could find –if any

- We controlled for level of English

Mobile interaction can potentially be enhanced with well-designed haptic control and display. However, advances have been limited by a vicious cycle whereby **unadequate** haptic technology obstructs inception of vitalizing applications. We present the first stages of **a systematic design efforts** to break that cycle, beginning with specific usage scenarios and a new handheld display platform based on lateral skin stretch. Results of a perceptual device characterization inform mappings between device capabilities and specific roles in mobile interaction, and the next step of hardware re-engineering. **The work present represents** the first cycle of an iterative design process through which we seek to extend mobile user interfaces by sidestepping a vicious cycle typical to the introduction of novel interaction techniques and technology.

Experiment

- Two conditions:
  - Task instructions without empathy
  - Task instructions with empathy
- Two iterations ($N_1=71$, $N_2=63$)

Empathic instructions

Hello!
We are a team of multicultural researchers from the Eindhoven University of Technology (The Netherlands). We would like you to evaluate a few texts written by our colleagues who do not have English as their first language. By using crowdsourcing, we are hoping to help them improve their work and learn from the crowd. As a byproduct, you also contribute to current research papers.

This task consists of nine different paragraphs containing scientific and academic texts in English. We ask you to evaluate each of these paragraphs, and do the following:
• Point out any grammatical or syntactical errors, if any.
• Evaluate and comment on the general structure of the texts, including aspects like comprehensibility and consistency.
• Provide feedback on any other changes you think might make the text more understandable.
We also ask you to report your own perceived skill in doing this task.

On behalf of our colleagues, a sincere thank you for your participation and work!

Experiment

- Measure 1 (Quantity):
  - Out of the nine abstracts, how many did workers actually correct?
  - How many errors out of the three did they find?
  - What was the average task completion time?
- Measure 2 (Quality):
  - How detailed were the workers' responses for each of the abstracts? This was measured by the word count of their responses
- Coded every response

| Response	Classif-cation
Blank responses	NR
Copied and pasted text or part of text (despite instructions) and didn't fix anything	IR
Responded in a different language	IR
Responded with random characters and meaningless phrases	IR
Didn't provide any constructive feedback but just provided a general opinion about how the sentence "sounded" to them	IR
Didn't point out errors or suggest changes; instead talked about their opinion on the topic	IR
Responded with one word, e.g. "good", or "no errors"	PR
Responses that say that they have read the text and couldn't find errors (followed instructions, but clearly didn't do a detailed and quality job)	PR if under 10 minutes, DR if 10 minutes or over
Copied and pasted question or part of text (despite instructions) but corrected errors inline	DR
Just pointed out at least one error instead of structuring the incorrect and correct phrase as shown in example	DR
Responded in a structure as shown in example and instructions with at least one error	DR
Didn't find any of the errors, but provided other constructive feedback	DR

Experiment Results

- Average task completion time
  - 1st iteration
    - 657.83 sec (SD=588.97) in the non-empathic condition
    - 670.97 sec (SD=592.17) in the empathic
    - Although in the hypothesized direction, not significant (t(69)=-.093, p=.92)
  - 2nd iteration
    - 776.25 sec (SD=559.88) in the non-empathic condition
    - 936.7 sec (SD=128.39) in the empathic
    - Although in the hypothesized direction, not significant (t(61)=-1.056, p=.29)
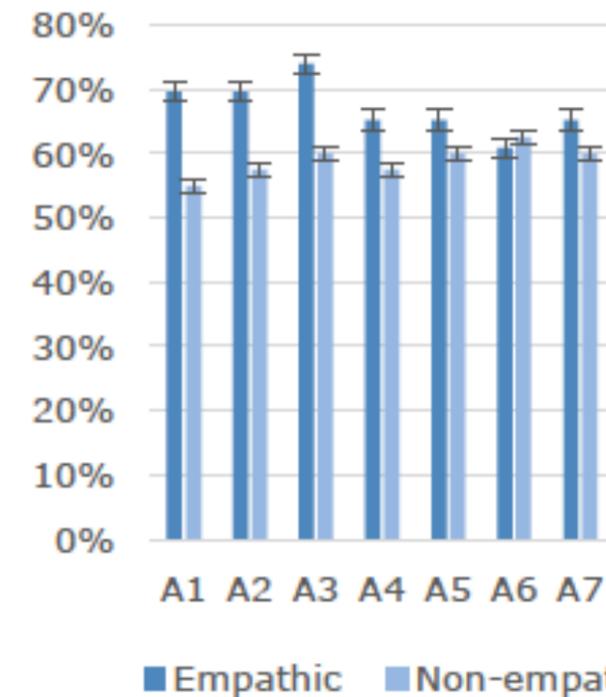
Experiment Results

- Average number of words
  - 1st iteration
    - 9.95 (SD=12.37) in the non-empathic condition
    - 13.82 (SD=18.9) in the empathic
    - Although in the hypothesized direction, not significant (t(69)=-1.04, p=.30)
  - 2nd iteration
    - 15.39 (SD=26.13) in the non-empathic condition
    - 13.21 (SD=12.44) in the empathic
    - Not in the hypothesized direction and not significant ((t(61)=.376, p=.70)

Detailed response comparison
Iteration 1
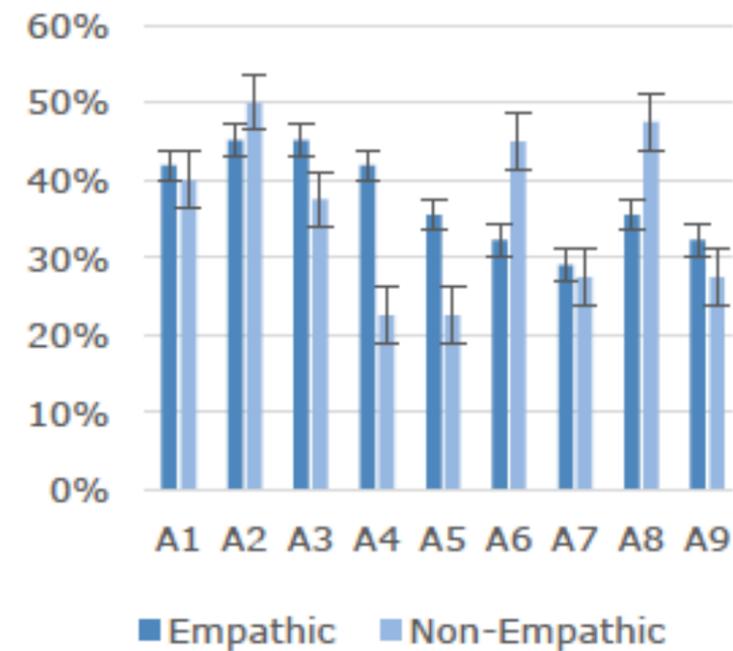
Percentage of detailed resp...
Iteration 2

Summary

- Survey: Workers find empathy important
- Experiment: cannot support the survey results

- Merely describing the task in details is not enough to invoke empathy
- Textual description might not be effective in conveying empathy
- Our results does not replicate prior research[1]

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[1] Marlow & Dabbish et al., Who's the Boss - Requester Transparency and Motivation in a Microtask Marketplace, CHI2014 WIP