

# Impacts of Personal Characteristics on User Trust in Conversational Recommender Systems

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# Conversational Recommender Systems (CRSs)

Task: to assist users in finding recommendations (e.g., music) through multi-turn conversations.

## User-initiative CRSs

- Give users **more control** to tune recommendations (Jin *et al.*, 2019)

## Mixed-initiative CRSs

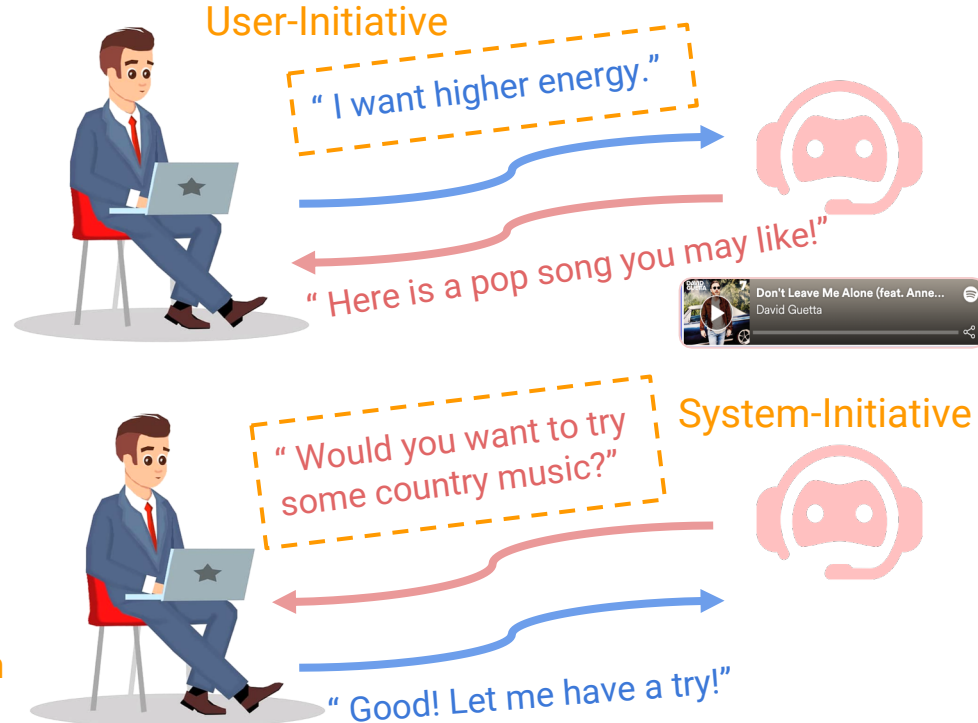
- Enhance **user exploration** by guiding them to explore something different (Cai *et al.*, 2021)



**Do users trust CRSs or not?**

- Intention to use the system
- Willingness to accept the recommendation

## Mixed-Initiative Interaction



# User Trust

## Three-layered trust model (Hoff and Bashir, 2015)

### Dispositional trust



individual characteristics

### Learned trust



interaction



user evaluation of a system

### Situational trust



context (e.g., user task)

## User trust in CRSs

### User-related

#### Personal Characteristics

- Personality traits
- Trust propensity
- Domain knowledge

### System-related

#### Initiative Strategy

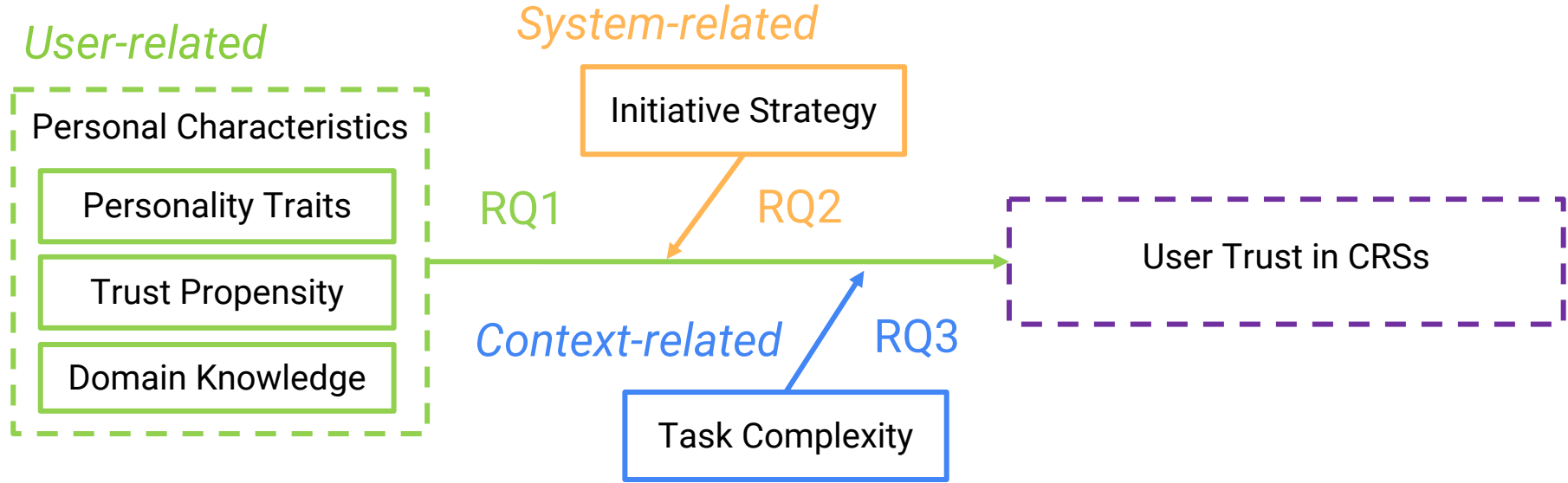
- User-initiative
- Mixed-initiative

### Context-related

#### Task Complexity

- Simple task
- Complex task

# Research Questions



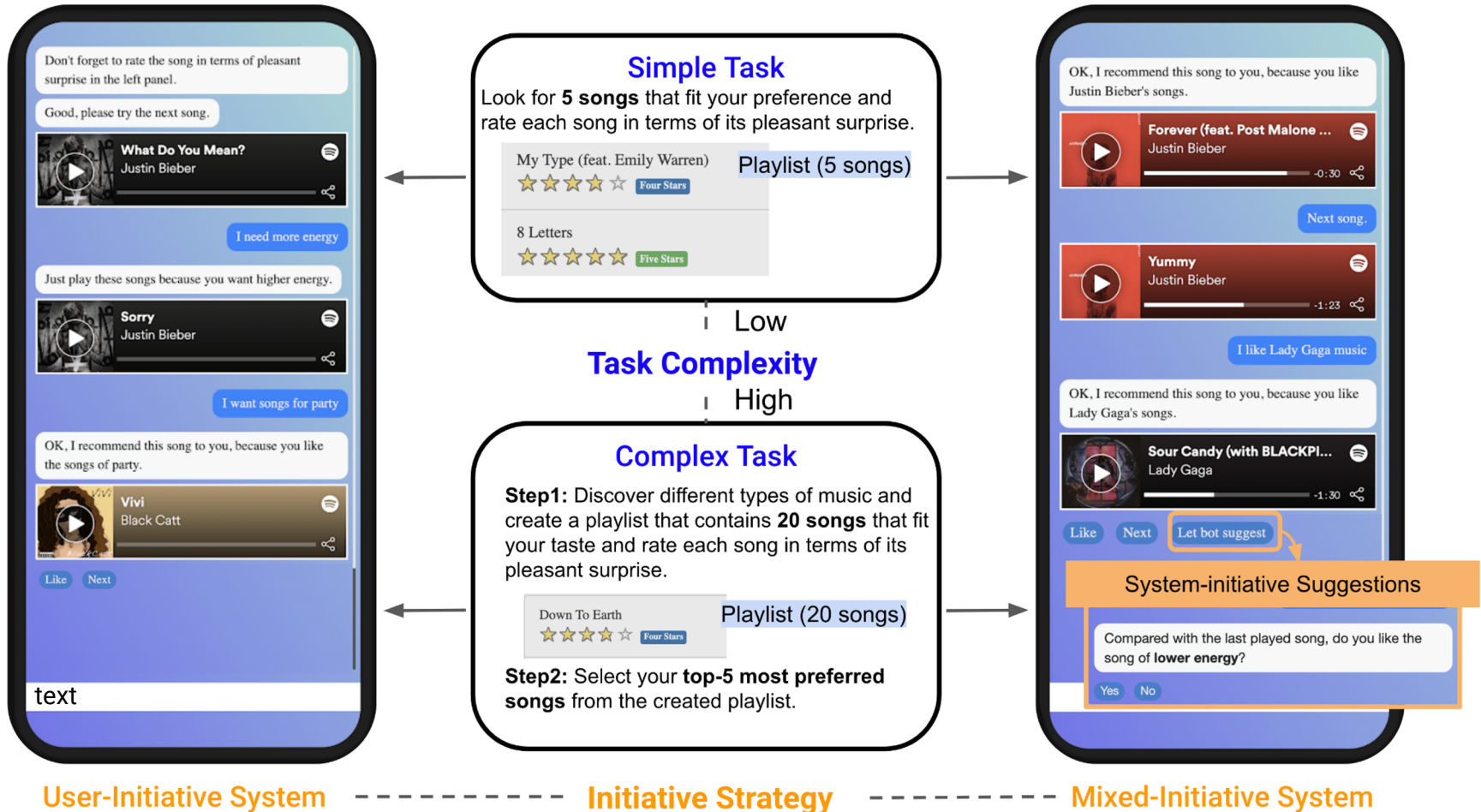
**RQ1:** How do personal characteristics (personality, trust propensity, domain knowledge) affect user trust in CRSs?

**RQ2:** How do personal characteristics and initiative strategy interact to affect user trust in CRSs?

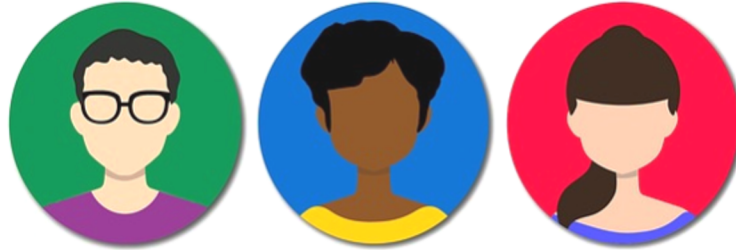
**RQ3:** How do personal characteristics and task complexity interact to affect user trust in CRSs?

# User Experiment

## 2 (User-Initiative vs. Mixed-Initiative) × 2 (Simple Task vs. Complex Task) Between-subjects Design



# Participants



Crowd-sourcing platform: Prolific

Participants: 194 (148 valid data)

Task duration: about 25 mins

Reward: £2.4 per participant

## Age

- 19-25 (69)
- 26-35 (52)
- 36-50 (21)
- > 50 (6)

## Gender

- Female = 70
- Male = 75
- Other = 3

# Measurement

## Personal Characteristics (pre-study)

- *Big-five personality traits* (Gosling et al., 2003)
  - *Openness to experience (Openness)*
  - *Conscientiousness*
  - *Extroversion*
  - *Agreeableness*
  - *Neuroticism*
- *Trust propensity* (Lee and Turban, 2001)
- *Domain knowledge*  
*Musical sophistication* (Müllensiefen et al., 2014)

## Trust-related Perception (post-study)

- *Competence perception*
  - *Perceived recommendation quality*
  - *Perceived conversational interaction*
  - *Perceived effort*
- *User trust*
  - *Perceived trust*
  - *Intention to use*

From two evaluation frameworks:

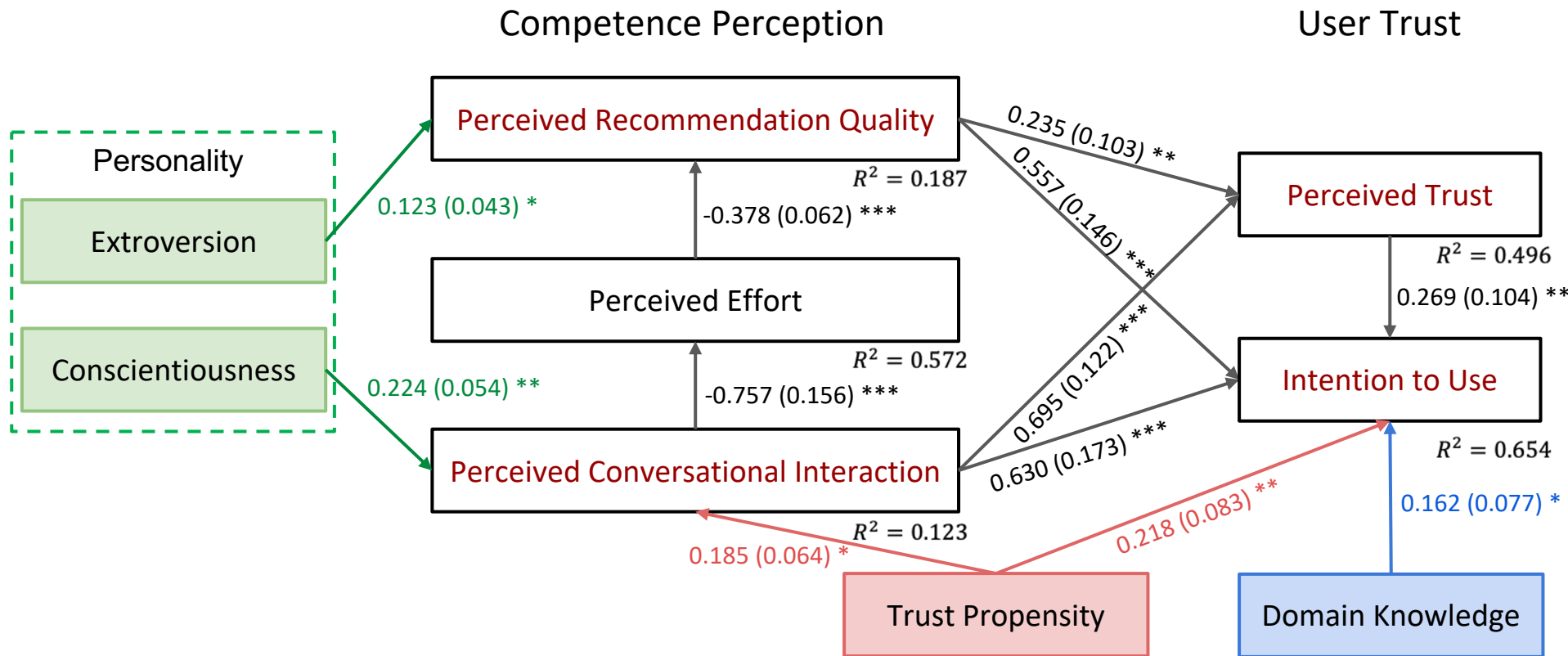
ResQue (Pu et al., 2011) and PARADISE (Walker et al., 1997)

All questions items were rated on a 7-point Likert scale.

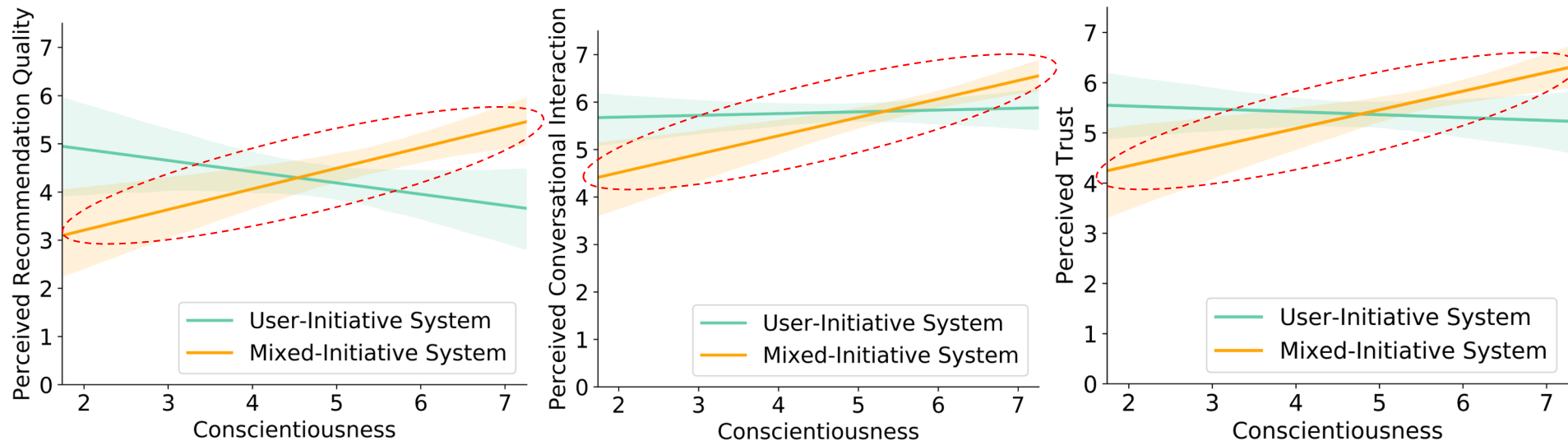


# Results & Discussion

# RQ1: Impact of personal characteristics on user trust in CRSs

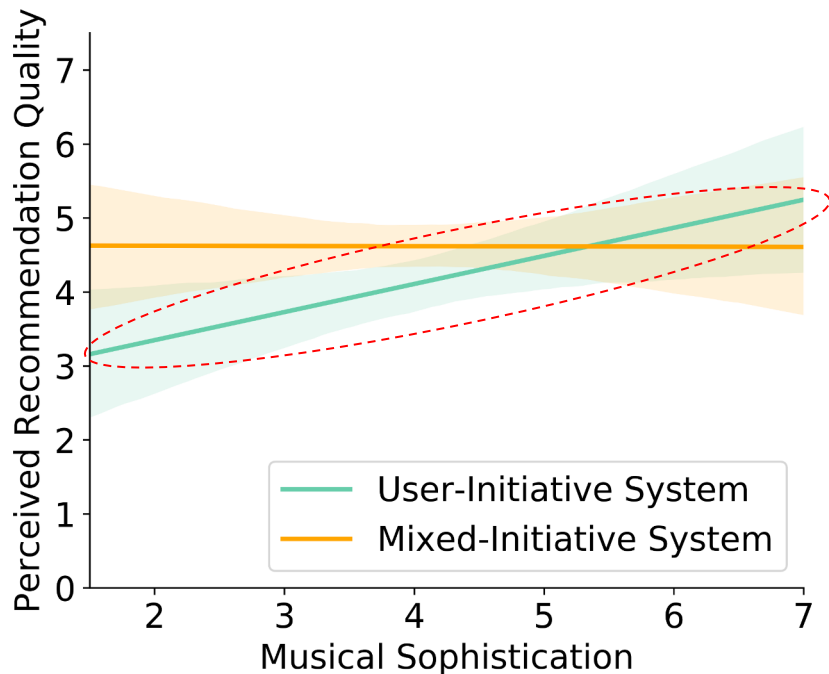


## RQ2: Interaction effects between personal characteristics and initiative strategy



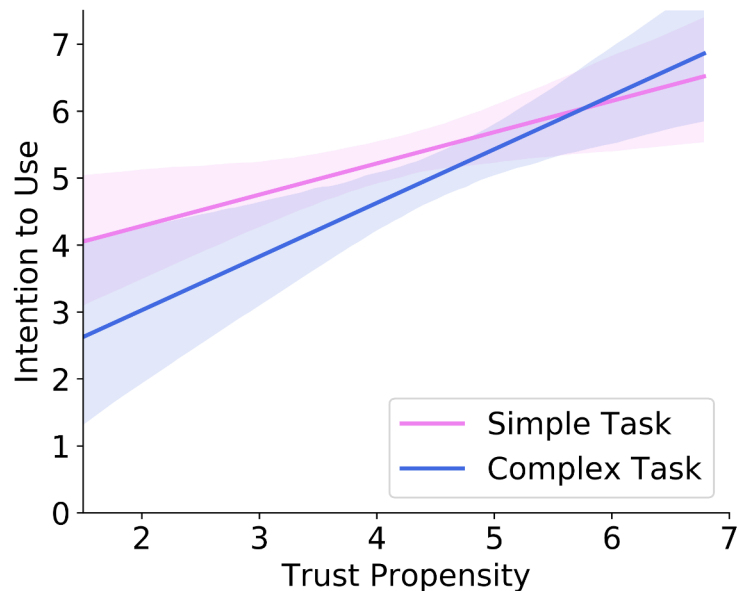
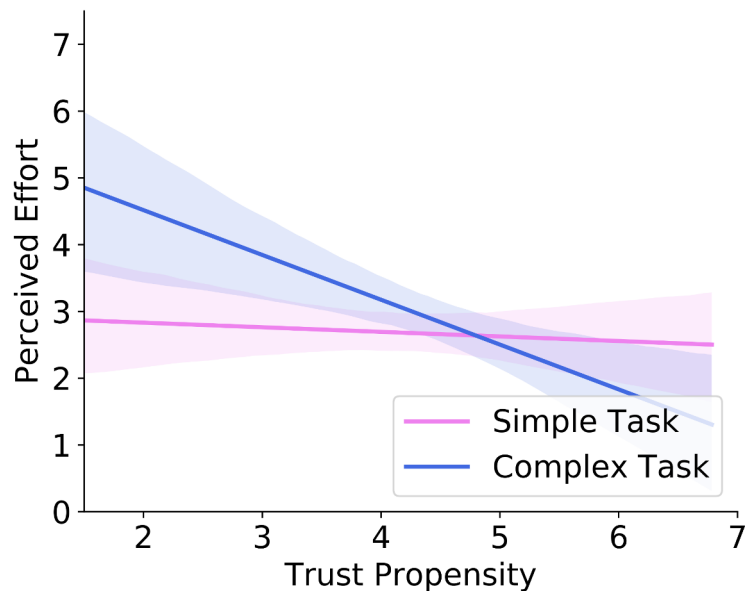
Users with higher *Conscientiousness* have a better perception of system competence and show more trust toward the *Mixed-Initiative* system.

## RQ2: Interaction effects between personal characteristics and initiative strategy (Cont.)



Users with higher *Musical Sophistication* tend to perceive higher recommendation quality from the *User-Initiative* system.

## RQ3: Interaction effects between personal characteristics and task complexity



*Trust Propensity*: (-) Perceived Effort; (+) Intention to Use

The effects of *Trust Propensity* on users' trust-related perception are stronger for the **Complex Task**.

# Takeaways: Implications for designing trustworthy CRSs

## Initiative Strategy

- User-Initiative
- Mixed-Initiative

*Personality Trait  
(Conscientiousness)*

*Trust Propensity*

*Domain Knowledge*

Task Complexity

direct influence on user trust

# Thanks! Q&A

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