

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

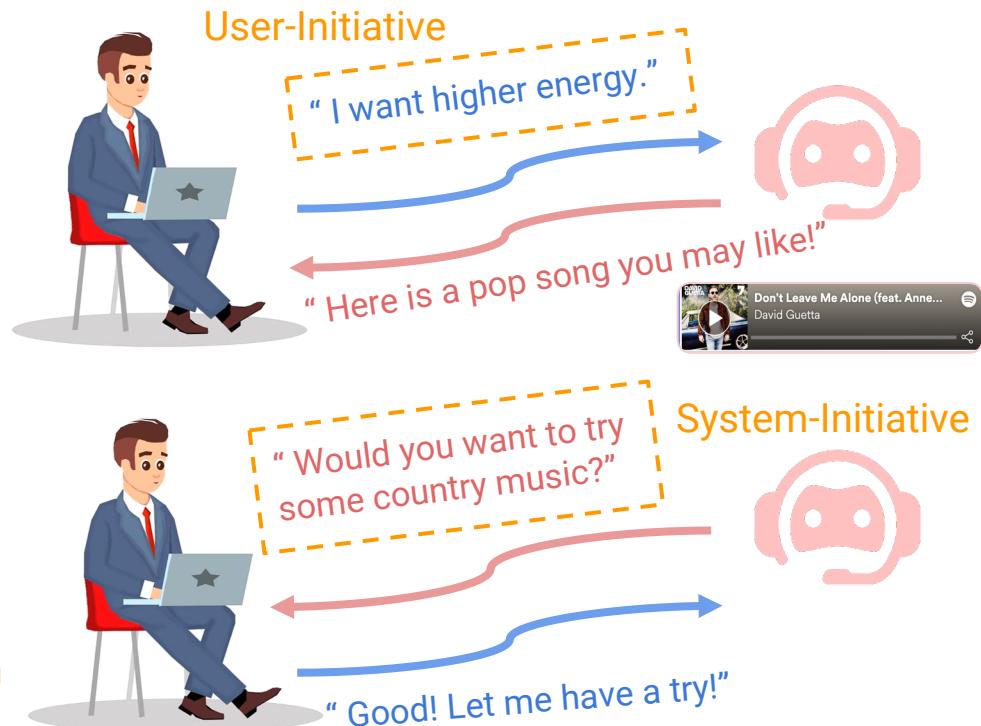
- Enhance **user exploration** by guiding them to explore something different (Cai et al., 2021)



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

Personal Characteristics

- Personality traits
- Trust propensity
- Domain knowledge

User-related

Initiative Strategy

- User-initiative
- Mixed-initiative

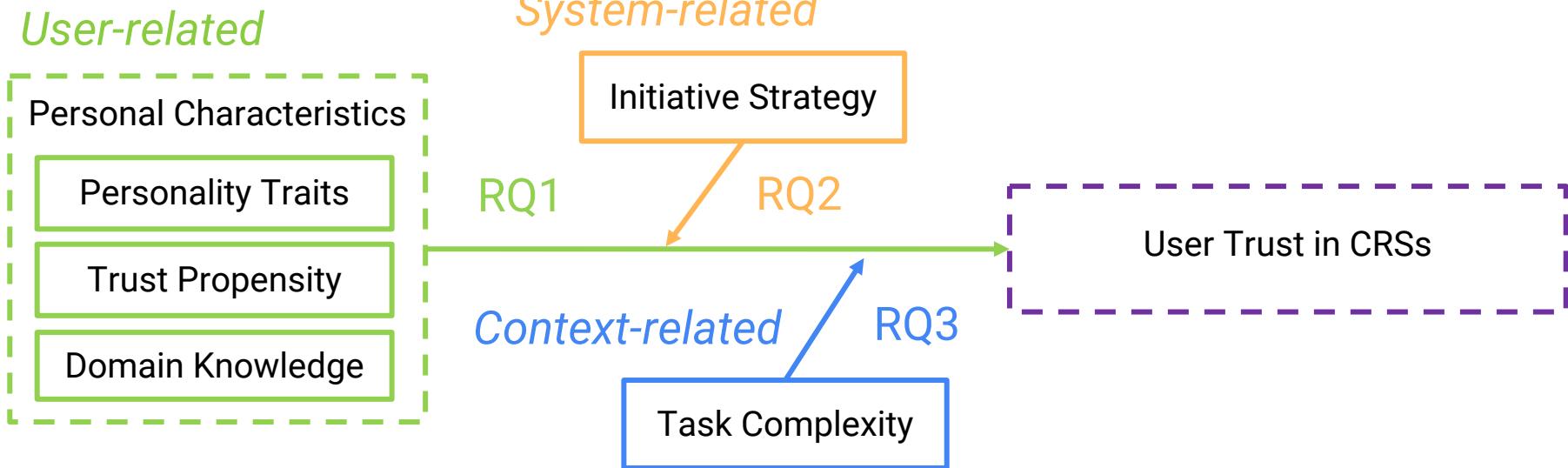
System-related

Task Complexity

- Simple task
- Complex task

Context-related

Research Questions



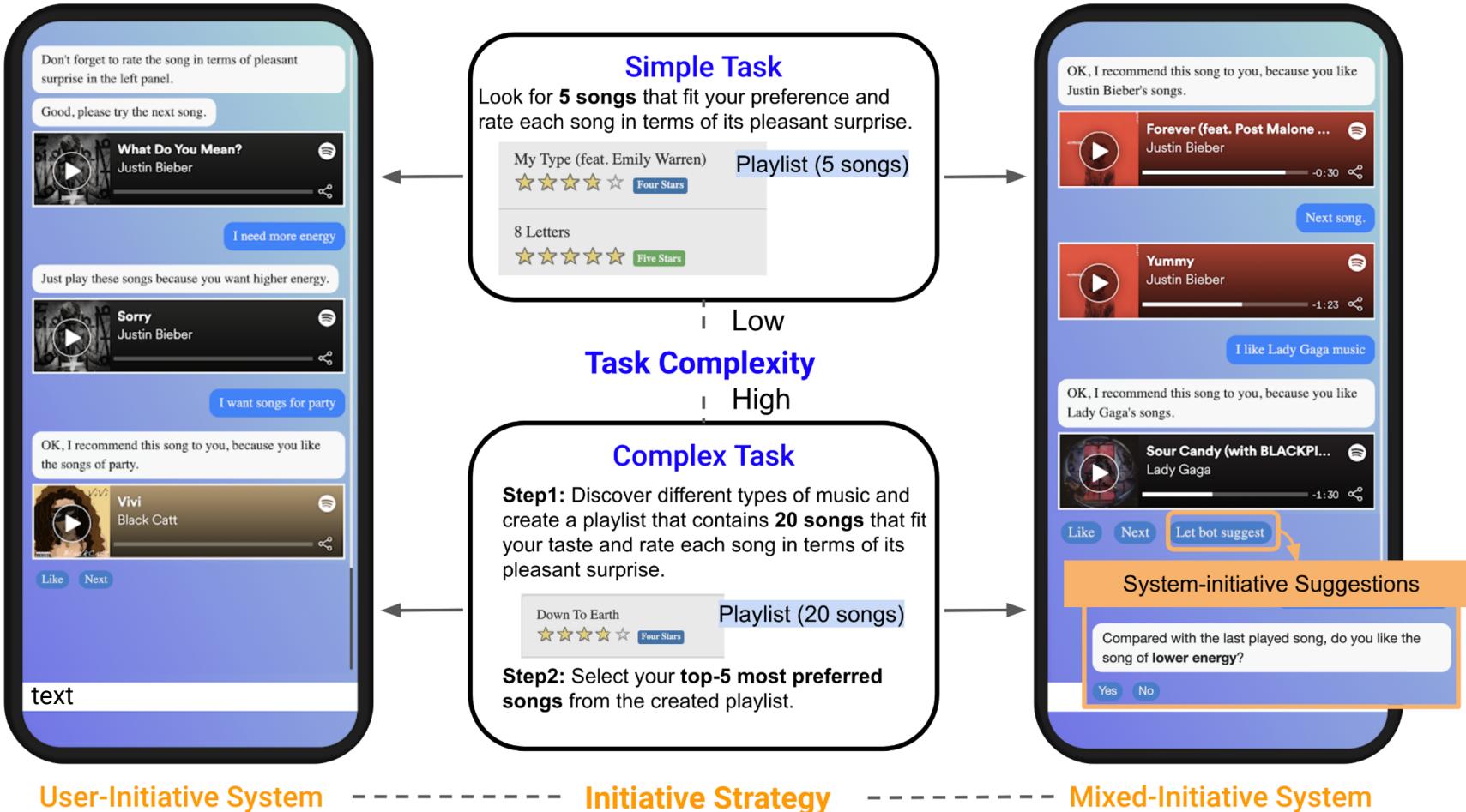
RQ1: How do personal characteristics (personality, trust propensity, domain knowledge) affect user trust in CRSs?

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



User-Initiative System

Initiative Strategy

Mixed-Initiative System

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)

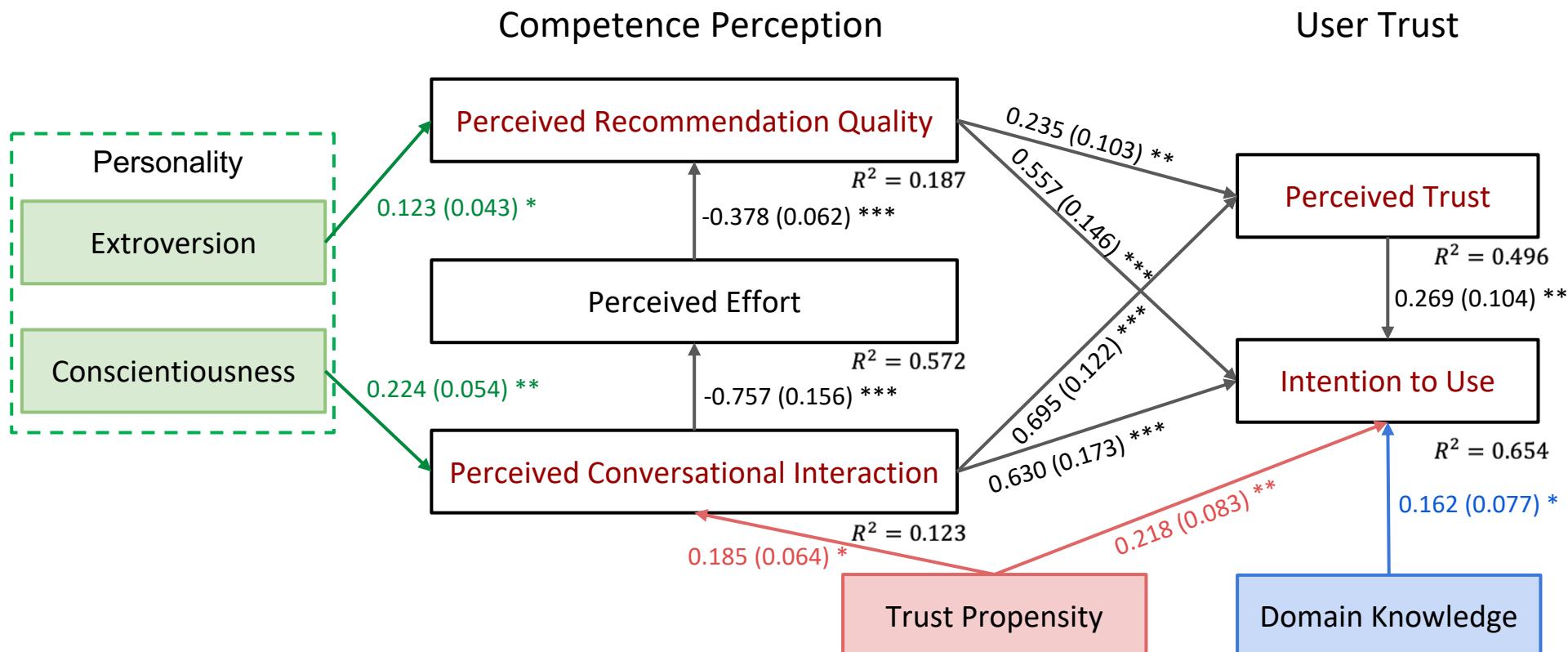
- Competence perception
 - Perceived recommendation quality
 - Perceived conversational interaction
 - Perceived effort
- User trust
 - Perceived trust
 - Intention to use

From two evaluation frameworks:
ResQue (Pu et al., 2011) and PARADISE (Walker et al., 1997)

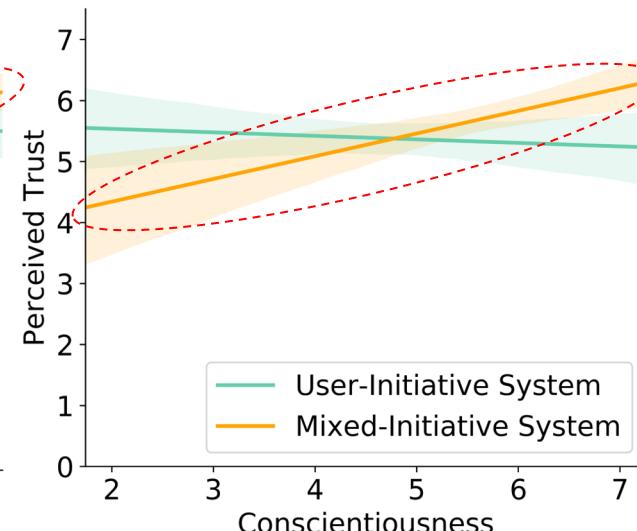
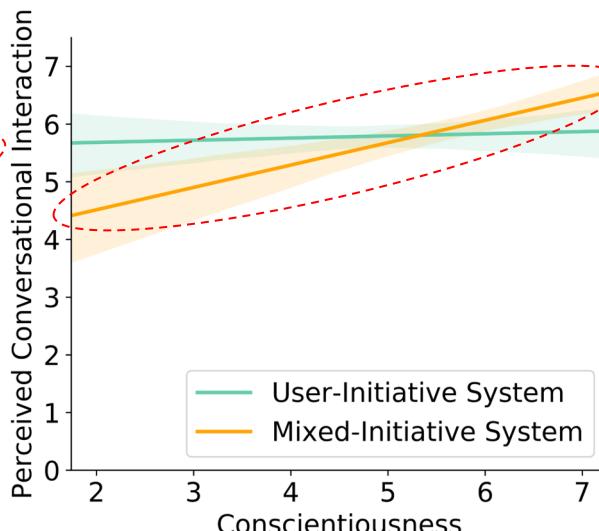
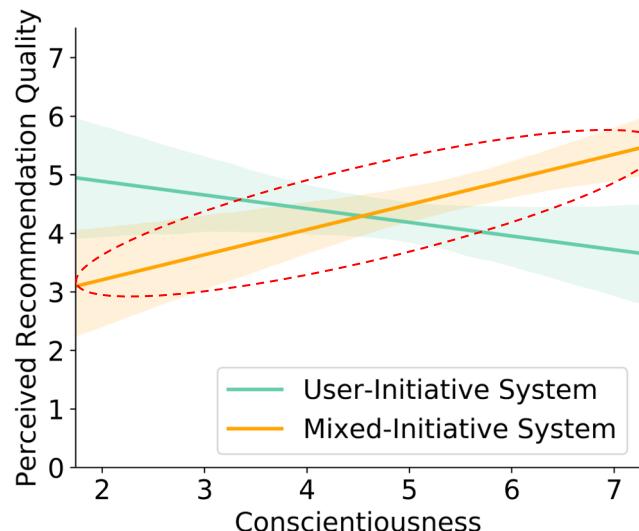
All questions items were rated on a 7-point Likert scale.

Results & Discussion

RQ1: Impact of personal characteristics on user trust in CRSSs

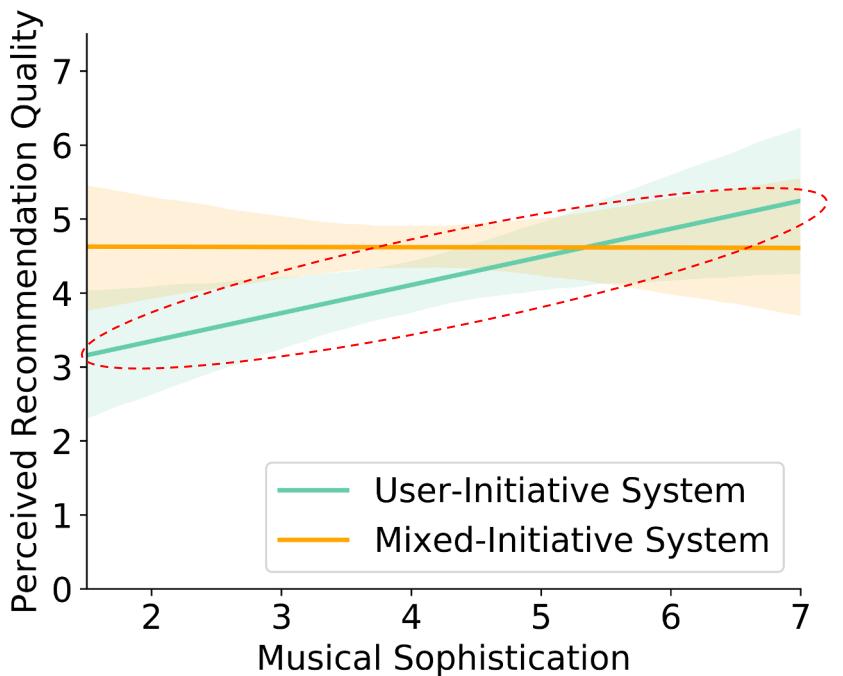


RQ2: Interaction effects between personal characteristics and initiative strategy



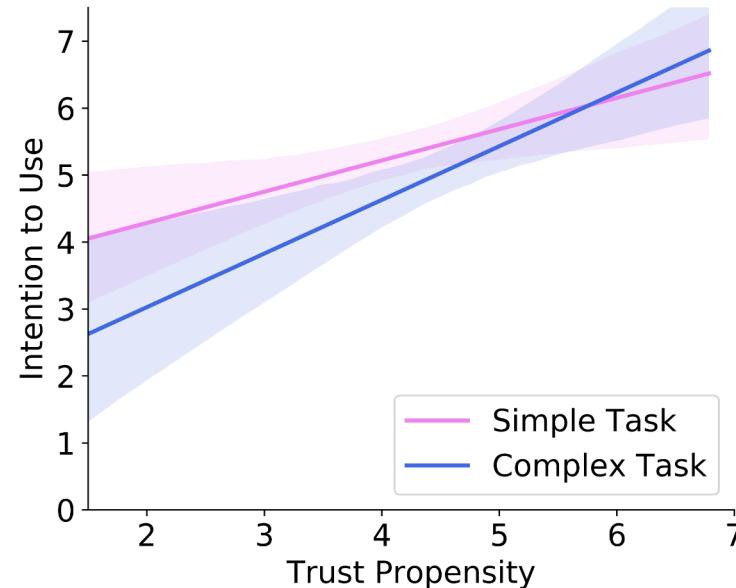
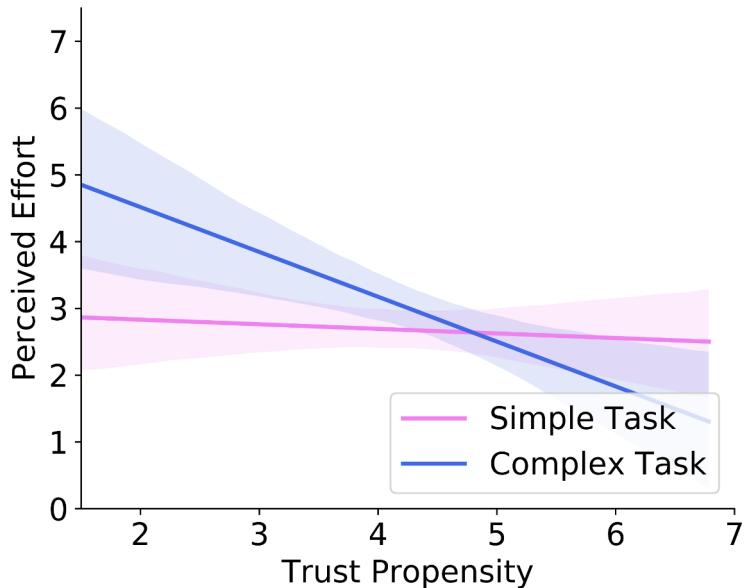
Users with higher *Conscientiousness* have a better perception of system competence and show more trust toward the *Mixed-Initiative* system.

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.

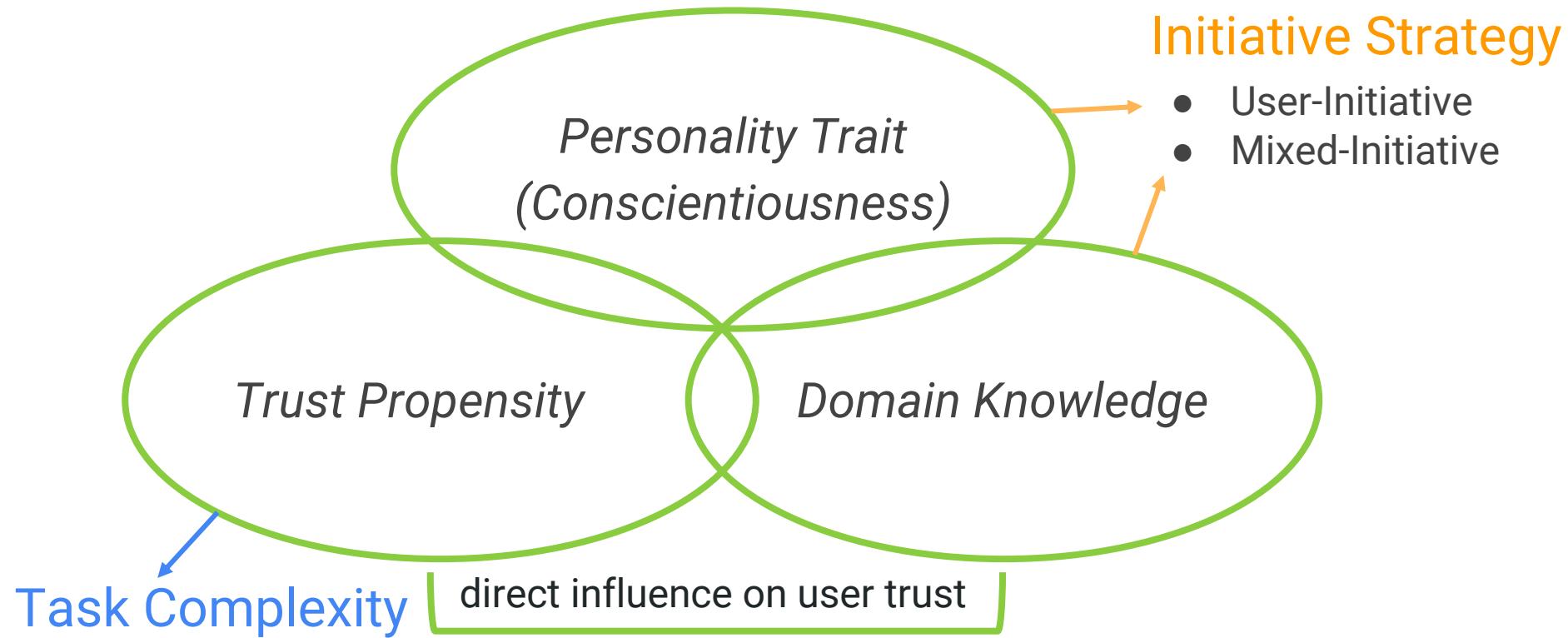
RQ3: Interaction effects between personal characteristics and task complexity



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 CRSSs



Thanks! Q&A

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