

# Simulating Stakeholders: Generative AI Chatbots in Architecture Education

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## Perceived Usefulness and Diversity Awareness in a Simulated Interview Study

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### 1. Background

- **AI chatbots** are increasingly used in engineering education to simulate human stakeholder interactions
- Architects must design for **diverse** users, but real user engagement is rarely taught
- General-purpose models like ChatGPT offer a **low-cost** alternative, but risk **oversimplifying human diversity**
- **Gap:** What is the **impact** of training with a chatbot — **rather than a real person** — on professional practice skills?

### 2. Research Question

What are the implications of using generative AI chatbots for simulated human interaction on architecture students' awareness of human diversity?

- **SQ1:** To what extent do architecture students **perceive** generative AI chatbots as a **useful** pedagogical tool?
- **SQ2:** In what ways does interacting with a generative AI chatbot **shape or constrain** architecture students' **awareness of human diversity** in their design process?
- **SQ3:** To what extent do architecture students perceive generative AI chatbots as a **useful** tool for **developing awareness** of human diversity?

### 3. Study Design

- I Develop a ChatGPT-based chatbot configured to simulate a community stakeholder in a user interview scenario
- II Conduct simulated interaction sessions with 14 architecture students at TU Delft
- III Ask participants to complete an evaluation combining quantitative rating scales and open-ended questions

- **Perceived Usefulness:** UTAUT2 + COLLES, 4 constructs, 7-point Likert scale
- **Diversity Awareness:** IDEA audit framework, 6 dimensions

- physical mobility, vision, hearing, neurodiversity, age, cultural background

### 4. Results

**Effort Expectancy: 2.30** — Easy to use  
**Performance Expectancy: 1.51** — Useful for tasks  
**Behavioural Intention: 1.29** — Would use again  
**Relevance: 0.93** — Professional practice

#### • SQ1: Perceived Usefulness

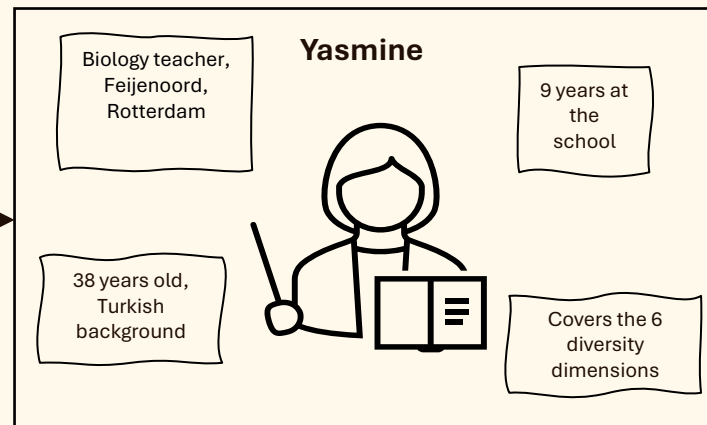
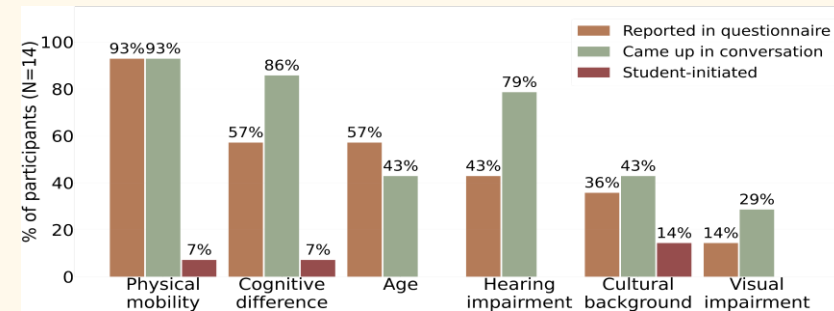
*“talking to users or clients is not really taught or emphasised in our study”*

- Easy to use but limited professional relevance
- Effort Expectancy vs Relevance
- Valued as a **study tool**, not professional practice
- Students see potential as a supplement, not a substitution

#### • SQ2: Diversity Awareness

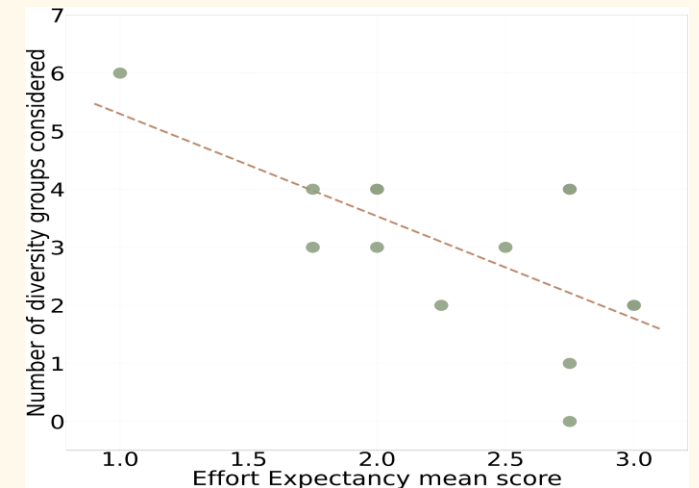
*“the way the chatbot answered my questions made me focus on these specific groups”*

- Physical mobility dominated: **93%**
- Cultural background: **36%** — Visual impairment: **14%**
- Awareness was **chatbot-driven**, not student-initiated
- Students severely under-reported, hearing impairment came up in **11/14** conversations but only reported by 6 participants



#### • SQ3: Usefulness for Diversity

*“would reduce ones own critical thinking skills”*



- The easier students found the chatbot to use, the less they thought about diverse users
  - Higher ease of use → fewer diversity groups considered
- Passive use limits learning → **active engagement** is key
- Useful **scaffold**, but awareness may not transfer

### 5. Conclusion & Future Work

- ChatGPT-based chatbots can fill a gap in architecture education
- Chatbot is used best as a support tool, not replacement for human interaction
- Easy to use, but limited professional relevance
- Diversity awareness was **surface-level** and **chatbot-driven**, not self-initiated
- A single session is not enough → integration into curriculum is key

#### Future work

- **Multiple personas** representing different stakeholders
- **Pre-measurement** of diversity awareness
- Integrate as **recurring** curriculum activity, not one-off session

