

# **Exploring the Use of Al to Create Classroom Seating Charts**

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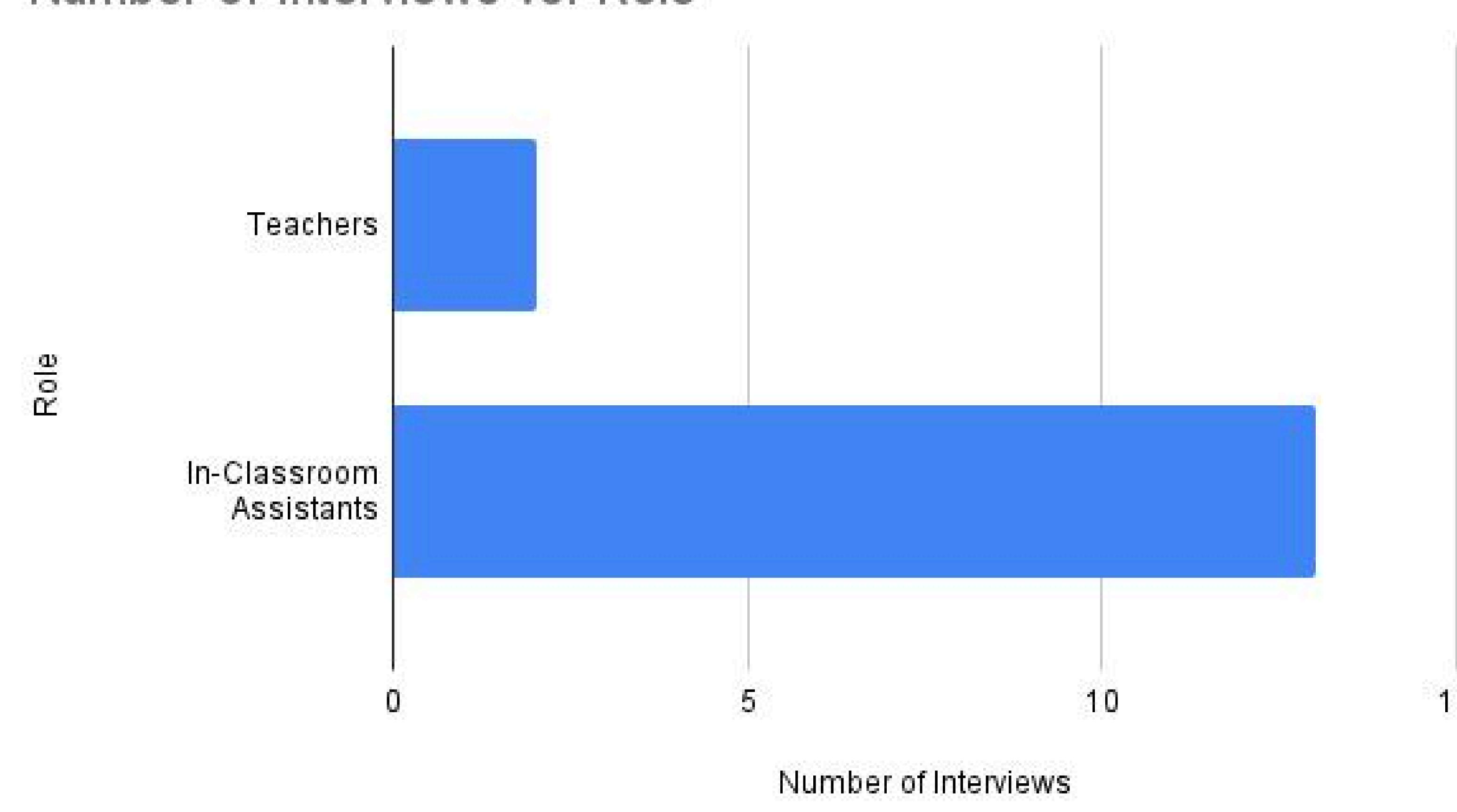
Invalid → error + retry

## User Research

### 15 Educator Semi-structured Interviews

- Classroom context
- Student engagement
- Group formation
- Seating chart creation process





### 32 Student Survey Responses

- In-classroom experience
- Frequency and nature of group work
- Frequency and nature of switching seats

Number of Students vs. Survey Question

# User Personas

Age: 28

Role: Full-time Elementary School Teacher (1st-3rd grade)

Work Setting: Public School Classroom Tech Comfort: Moderate to High

Student Ratio: ~20-30 students per class
Teaching Style: Hands-on, student-centered

Common Tasks: Lesson planning, grading, prepping materials,

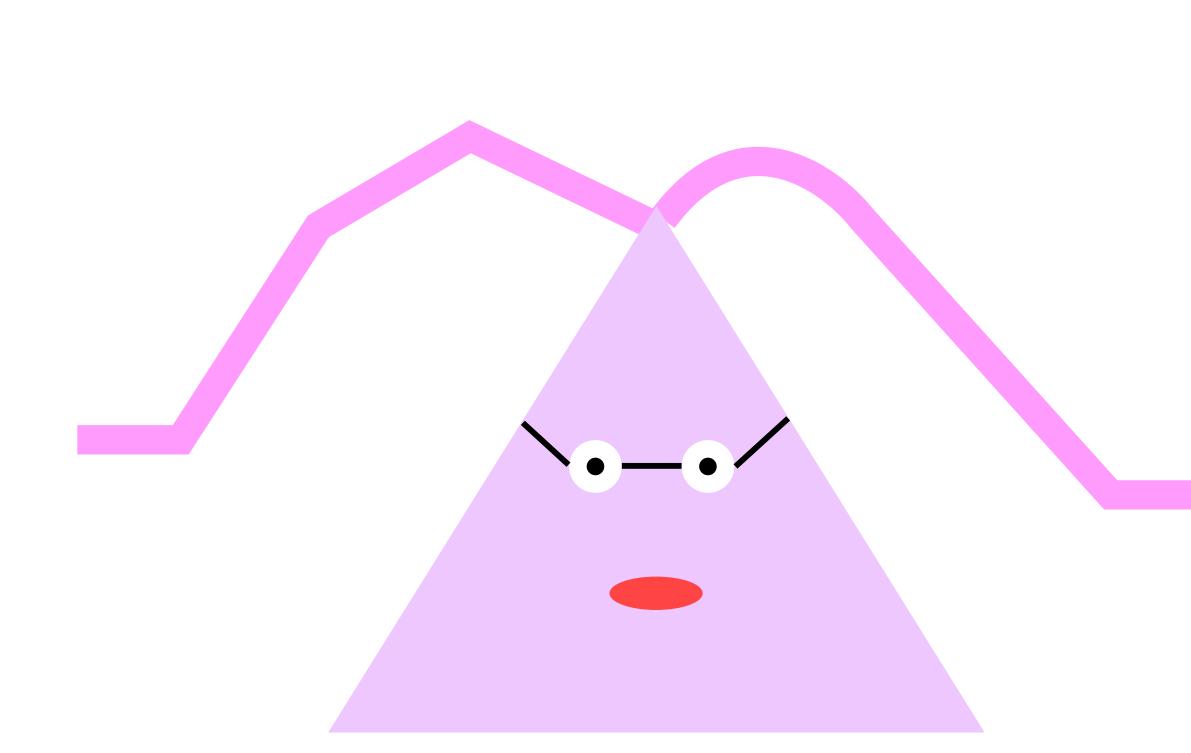
managing group dynamics

Motivators: Fostering independent learning, meaningful student

discussions, creative activities

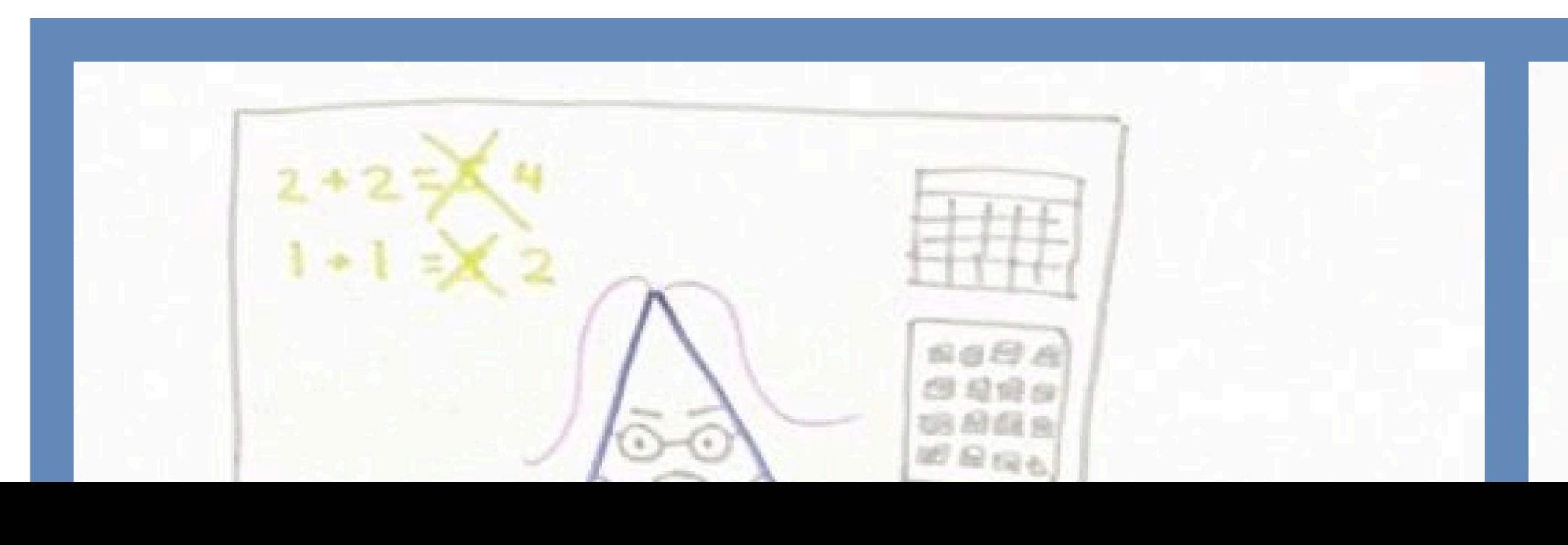
### Pain Points

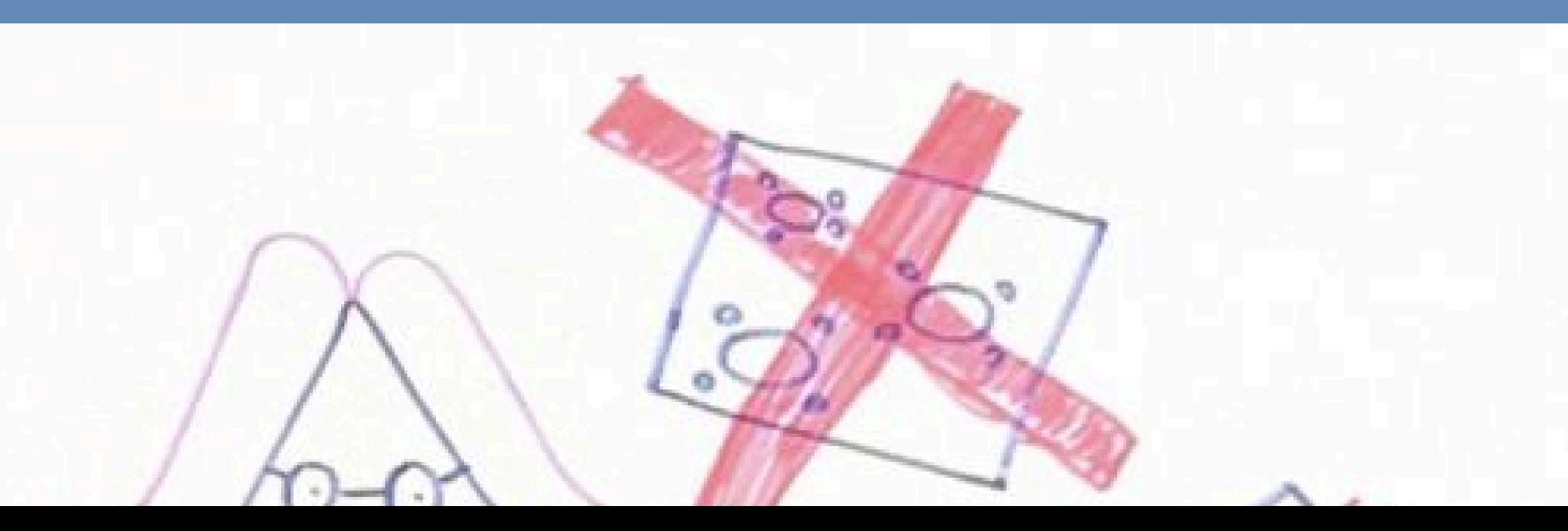
- Managing chatty or disengaged students
- Balancing diverse skill levels in groups

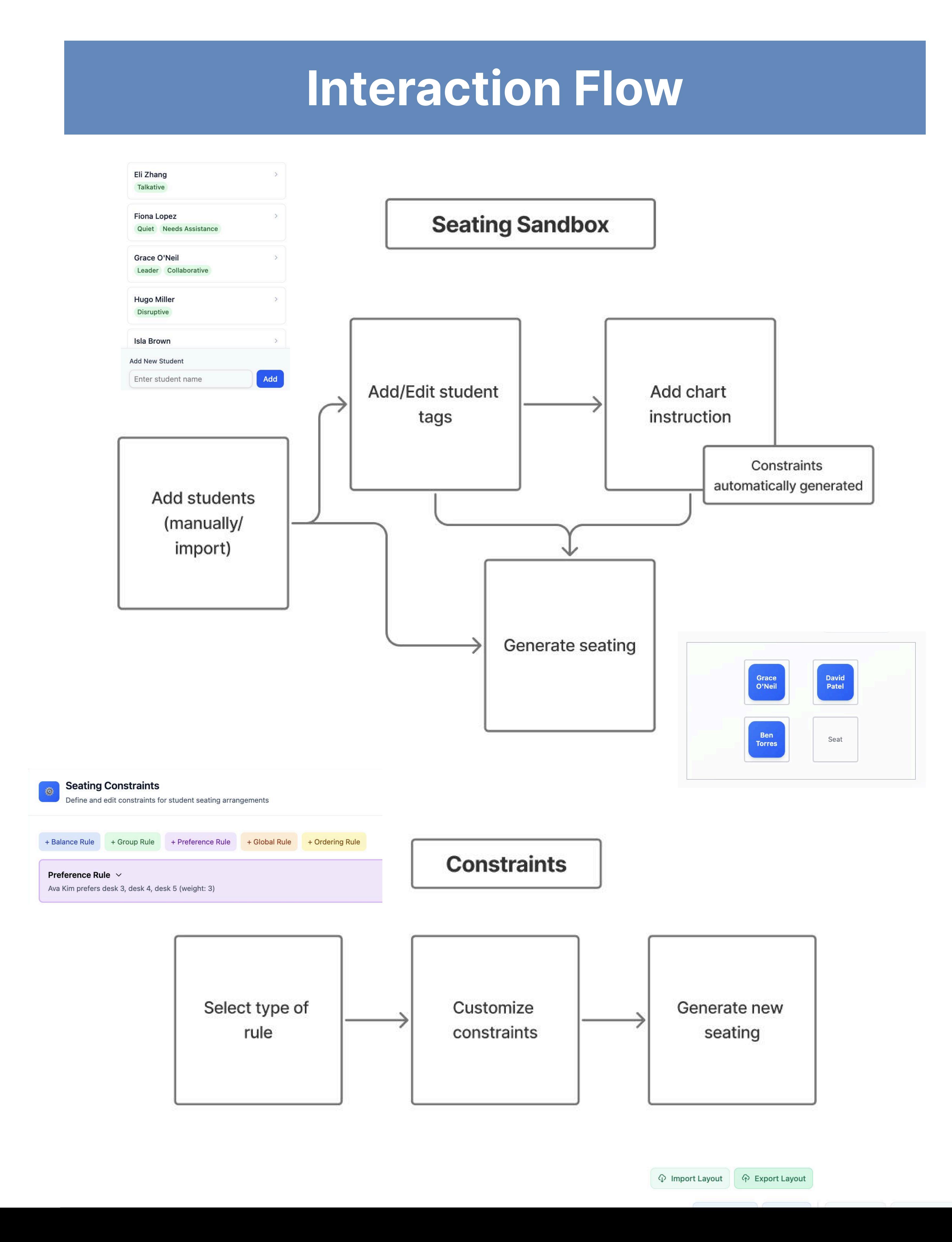


# Research Question

Teachers struggle to manage talkative or disengaged students while balancing skill levels, and often lack simple, data-informed tools to quickly create effective seating charts and groups.





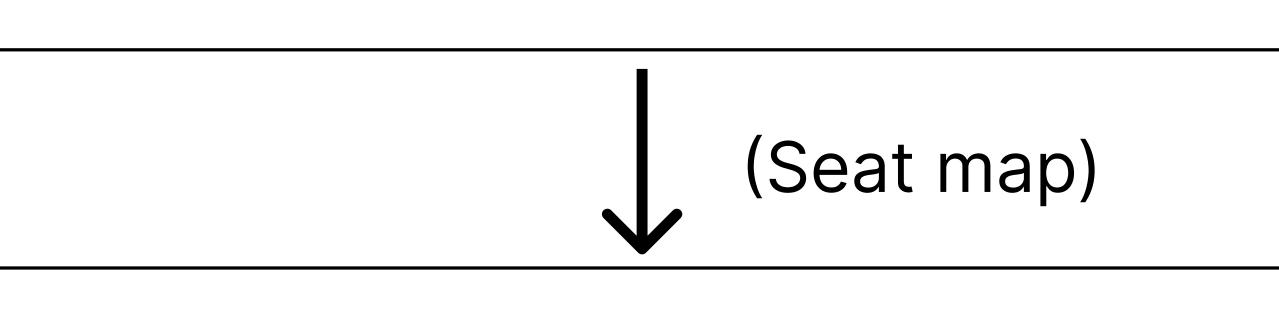


# React App • Tailwind + shaden/ui components • dnd-kit for drag and drop • React hooks for state Student notes, layout JSON Client-side CDL Logic • CDL editor (blocks + raw Json) • File import + download • AJV JSON - schema validator

### Seat Optimizer (Type Script)

AJV - CDL schema validation

- Hill-climb swap search
- seedrandom for reproducibility



React UI updates layout/tooltips