



EdLight

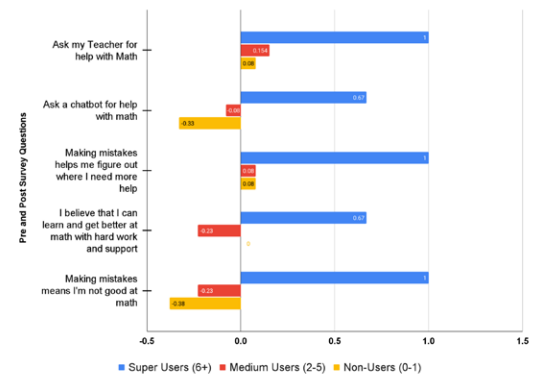
Top learnings about impact

- When positive math narratives were enacted through AI feedback immediately after students submitted their daily handwritten work, students' beliefs about the value of mistakes and help-seeking shifted in measurable ways.
- The strongest changes occurred among super users (6+ interactions with Ember) who experienced these narratives repeatedly in moments of real struggle.
- Among super users, we observed (on a 7-point likert scale):
 - » +1.00 increase in seeing mistakes as helpful for learning
 - » +1.00 increase in rejecting the belief that mistakes signal low ability
 - » +1.00 increase in willingness to ask teachers for help
- Individual student journeys reinforced these patterns:
 - » Student C no longer described feeling frustrated and instead described math as "challenging in a good way"
 - » Student D reported excitement about math for the first time post-intervention
 - » Students with limited or no exposure to Ember showed flat or negative movement on the same measures.
- Together, these findings suggest that narrative recommendations delivered by our AI chatbot are most impactful when students repeatedly experience them enacted in response to their own work, reshaping how struggle is interpreted in real time.

About our project

To rekindle math confidence, we embedded messages about reframing struggle, normalizing mistakes, and encouraging help-seeking into Ember, an AI chatbot responding to students' handwritten math work. We reached 114 students at KIPP SoCal and measured impact with pre/post surveys and transcript analysis.

Students by Usage Tiers based on # of chatbot responses and Average change in Belief/Perspective on a 7-Point Likert Scale



Students trying Ember

Top learnings about process

Translating research into student-facing AI demanded exceptional care. We began with non-interactive nudges, progressed to closed-response conversations, and conducted regular transcript reviews. This human-in-the-loop approach kept Ember's responses emotionally in tune, contextually grounded, and worthy of student trust, establishing a best practice for responsible narrative delivery at scale.

Experience Ember Live:



Super User Case Studies:

