Esperanto Learning with ChatGPT: Summary Dashboard
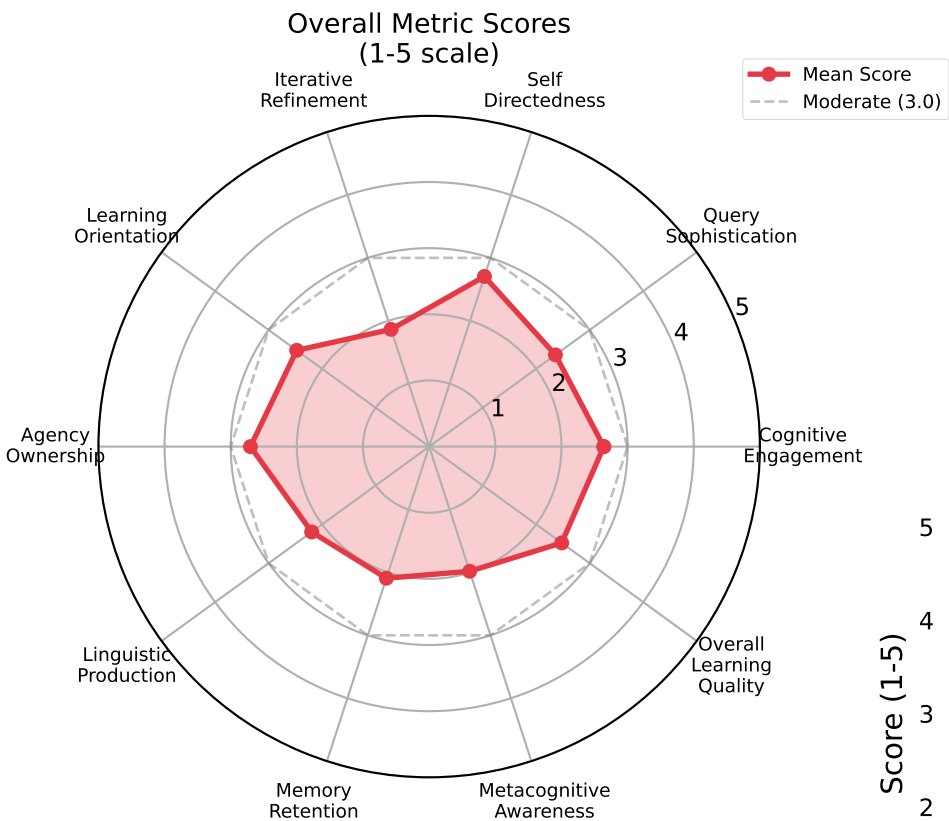## Behavioral Economics Analysis (N=397 conversations, 375 participants)

Overall Metric Scores (1-5 scale)

Radar chart with axes: Self Directedness, Query Sophistication, Cognitive Engagement, Overall Learning Quality, Metacognitive Awareness, Memory Retention, Linguistic Production, Agency Ownership, Learning Orientation, Iterative Refinement. Legend: Mean Score (red), Moderate (3.0) dashed.

KEY FINDINGS (Behavioral Economics Perspective):

🧠 COGNITIVE DEBT INDICATORS (MIT 2025):
- Iterative Refinement: 1.86/5 - LOW (learners accept first answers)
- Memory Retention: 2.09/5 - LOW (reduced cognitive encoding)
- Metacognitive Awareness: 1.98/5 - LOW (passive learning pattern)

📊 LEARNING PATTERNS:
- Learning Orientation: 2.48/5 (Declarative bias - facts over processes)
- Esperanto Usage: 38.1% average (reliance on English translation)
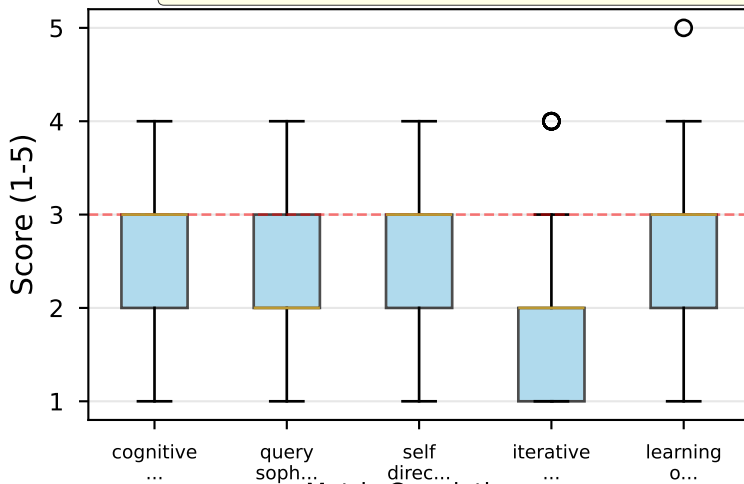- Query Length: 6.4 words (short, minimal context queries)

✅ POSITIVE INDICATORS:
- Self-Directedness: 2.70/5 (Balanced - not over-dependent on AI)
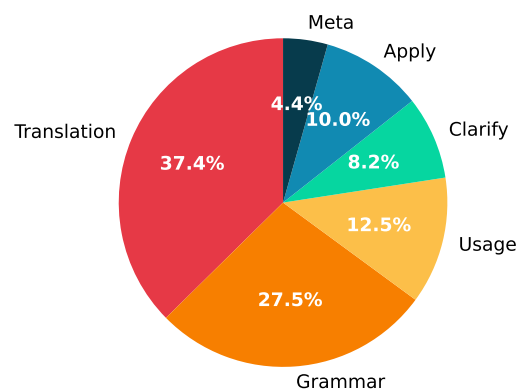- Cognitive Engagement: 2.64/5 (Moderate surface-level engagement)

⚠️ IMPLICATIONS:
Evidence of cognitive offloading patterns consistent with MIT research.
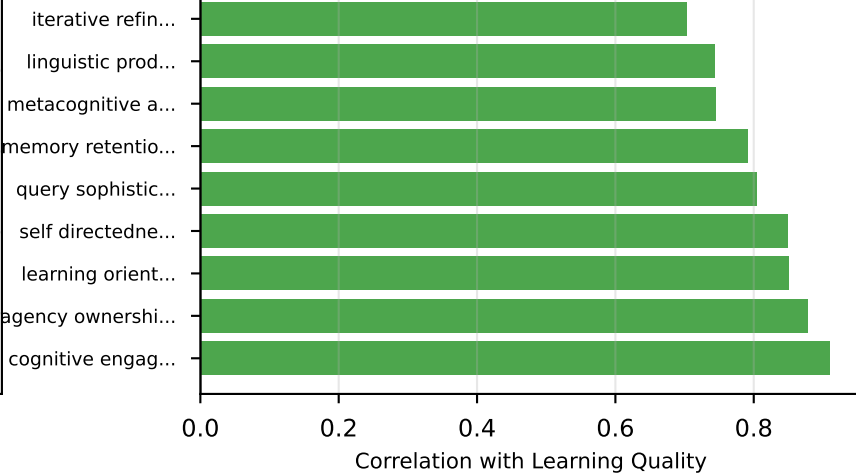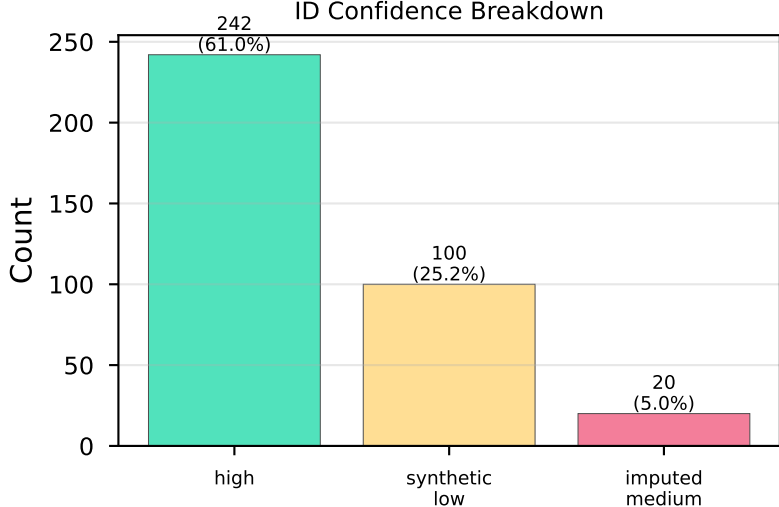Suggests need for intervention to promote deeper, more active learning.

Top 5 Metrics Distribution

Box plot with Score (1-5) axis, categories: cognitive..., query soph..., self direc..., iterative..., learning o...

Question Type Distribution

Pie chart: Translation 37.4%, Grammar 27.5%, Usage 12.5%, Clarify 8.2%, Apply 10.0%, Meta 4.4%

ID Confidence Breakdown

Bar chart: high 242 (61.0%), synthetic low 100 (25.2%), imputed medium 20 (5.0%)

Metric Correlations with Overall Quality

Horizontal bar chart (Correlation with Learning Quality): iterative refin..., linguistic prod..., metacognitive a..., memory retentio..., query sophistic..., self directedne..., learning orient..., agency ownershi..., cognitive engag...

DATASET STATISTICS:

Total Conversations: 397
Unique Participants: 375
Evaluation Completeness: 98%

Session Duration:
  Mean: 35.3 min
  Median: 12.3 min

Messages per Conversation:
  Mean: 11.4
  Median: 10

Multiple Conversations: 15 participants

Main Sessions: 369
Non-Main: 28