Optimizing Collective Intelligence: The Impact of Cultural Orientations on Team Performance
MACS 30200 Final Proposal Presentation

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Research Question
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Literature Context
○○

Design & Method
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Proof of Concept
○○

Feasibility
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1 Research Question

2 Literature Context

3 Design & Method

4 Proof of Concept

5 Feasibility

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Research Question

- How does cultural orientation (individualism vs. collectivism) affect collective intelligence in team-based problem-solving tasks?

- Can mixed-cultural teams outperform culturally homogeneous ones?

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Key Literature Insights

- **Baldwin et al. (2023)**: Individualist cultures favor direct communication; collectivist cultures prefer implicit coordination.
- **Engel et al. (2015)**: Social sensitivity differs across cultures, impacting CI.
- **Basabe & Ros (2005), Khatri (2009)**: Leadership and hierarchy vary by culture.
- **Saad et al. (2015)**: Individualist teams generate more ideas; collectivist teams refine them better.

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Project Design Overview

- Participants: U.S. (individualist) vs. China (collectivist) student teams.
- Task: Solve the Traveling Salesman Problem (TSP) collaboratively.
- Group types: Individualist, Collectivist, Mixed.
- Screening via IndividualismCollectivism Scale (Triandis & Gelfand, 1998).

Methods and Metrics

- **Communication Analysis**: NLP for message clarity, quantity.
- **Collaboration Structure**: Social Network Analysis.
- **Performance Metrics**: CI score $=$ accuracy $+$ time $+$ coordination.
- **Statistical Tools**: ANOVA, regression.

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Mocked Expectations

- Collectivist teams: Stronger coordination, smoother decision-making.
- Individualist teams: Greater idea diversity, but slower convergence.
- Mixed teams: Possibly balanced strengths, but risk of conflict.
- Visual: Task performance simulation or hypothetical CI score plot.

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Timeline, Cost, and Support

- **Timeline**: 3 mo. recruitment, 2 mo. experiments, 2 mo. analysis, 2 mo. writing.
- **Funding Needed**: $1,000$2,000 for participant compensation + software.
- **Advising & Oversight**: Dr. Henry Dambanemuya (confirmed).

GitHub Repository

- Full proposal, LaTeX sources, and literature review available at:
- https://github.com/yifand1023/macs_30200

Thank You!

Questions? Feedback?
Lets build smarter teams together.