

## Distilling Interpersonal Competencies that Enhancing Learning Performance and Relational Satisfaction During Online Collaborations: A Sentiment Analysis Approach

In the evolving landscape of professional and educational settings, effective collaboration emerges as a cornerstone of success, particularly in hybrid environments that blend online and in-person interactions. However, the competencies that need to be developed to support effective collaboration remains elusive. Our research employs sentiment analysis to distil the interpersonal competencies crucial for fostering effective collaboration among undergraduate students in a hybrid workforce. Through sentiment analyses, this study assesses how sentiments during online social interaction influence group relational satisfaction and performance. Participants in the study are undergraduate students from local Singapore universities ( $N=60$ ) who are arranged into pairs (30-dyads) to partake in a structured 2-hour online seminar. The seminar includes a standardized lecture followed by a discussion activity, and a presentation activity that participants complete in pairs on Zoom. Recorded transcripts were analysed for positive, negative and neutral clusters of sentiments related to social interactions (i.e., social support, social greeting, collaborative planning) and task completion (i.e., task evaluation, task monitoring). Presentation slides were scored based on a standardized rubric. Findings showed that positive sentiments were found to significantly enhance group relational satisfaction ( $p = .046$ ) and presentation scores ( $p = .0148$ ), highlighting the relationship between positive emotional expressions and successful collaborative outcomes. From these findings, we have developed an intervention sheet that aims to equip students with key interpersonal competencies that support online collaboration, which is currently being validated in the second phase of the study. Our findings build a framework for integrating targeted interpersonal skill development into university programs, providing a foundation for students to excel in the 'hybrid' workforce. By integrating sentiment-focused strategies into university curricula, educators can better prepare students for effective collaboration in digital work environments.