

TALK

EXPLORING RESOURCE ALLOCATION DYNAMICS IN COLLABORATIVE TASKS: INSIGHTS FROM TWIN CHILDREN

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ABSTRACT

Cooperative behaviors in collaborative tasks remain under-researched, particularly regarding resource allocation. We conducted a microanalysis of 31 videos featuring Brazilian twin siblings ($n=62$, 61% females, 55% dizygotic, mean age=10 years) engaged in a 5-minute collaborative drawing task at the laboratory. Twin pairs collaboratively draw their house on a single sheet of paper using five markers. Our previous analyses highlighted the impact of both biological (sex, age, zygosity) and psychological factors (conflict, dominance, collaborative habit, assessed by the Twin relationship Questionnaire) on drawing behaviors. Here, we specifically examined paper sheet monopolization as a measure of resource allocation. Results indicate that twins with higher rivalry or dominance scores in relation to their cotwin monopolized the sheet more time than ones with lower scores ($p < 0.02$, Cohen's $d = 0.64$; $p < 0.03$, Cohen's $d = 0.71$, respectively). Moreover, an intriguing sex dynamic emerged: female-male twin pairs exhibited higher frequencies of sheet monopolization compared to male-male pairs ($p < 0.01$, Cohen's $d = 0.91$), suggesting differential patterns of leadership or dominance within the collaborative context. However, we found no significant effect for female-female pairs in comparison to other sex groups, indicating a need for further exploration into sex-specific cooperative dynamics. Overall our results highlight the interplay between biological and psychological factors in resource allocation during cooperative tasks, offering insights into human group dynamics and enriching our understanding of twin relationships. Further research in this area promises to illuminate the nuanced mechanisms underlying cooperative behaviors and their broader implications for social interactions.