

# Argumentation Training Boosts the Outcome of Negotiation in Collaborative Learning

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*“For good ideas and true innovation, you need human interaction, conflict, argument, debate.”*

*–Margaret Heffernan*

NEGOTIATION is an essential technique in collaborative learning. In the negotiation process, students learn to listen to others’ opinions, express their own ideas, discuss divisions, and reach agreement. It also plays an important role in the construction of knowledge on the part of students. According to the constructivist theory, learning is a process of active construction, in which learners construct their knowledge and understanding through interaction with the environment (Yu-Jun, 2013). Negotiation is a crucial component of the interaction, contributing to enhancing learning engagement and developing in-depth understanding of information. Moreover, it is particularly effective in fostering students’ critical thinking ability in that it concerns discrimination and judgement of differential information and perspectives (Olson, 1997).

To increase the outcome of negotiation in group work, it is necessary to help students master basic argumentation skills. Argumentation training focuses on developing argumentative powers of individuals or teams, aiming to improve their skills in negotiation, debate, persuasion, etc. Its components typically include critical analysis, logical structure, evidence use, counter argumentation, clear representation, and debate and analysis exercises (Wu, 2023). For students, the benefits of argumentation training are many. First off, it can significantly bolster students’ communication skills. In collaborative learning, it is of vital importance for the individual to deliver their opinions accurately and effectively to group members, focusing on the core questions and circumventing

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irrelevant discourse (Chen, 2018). Also, argumentation training helps foster students' logical thinking capacities. Negotiation in groupwork is not just a simple exchange of views between individuals, but more about debate based on logic and evidence. Students who have received argumentation training are better at spotting the flaws in teammates' representation and making forceful rebuttals. They also do better in structuring their own presentation and evidence, building defensible logical chains (Zhang, 2016). In addition, argumentation training helps enhance students' adaptability. In groupwork, it is important for the students to be able to adapt to emerging situations, adjusting their strategies in a timely manner and making effective reactions to changes (Li, 2019).

Administering argumentation training to students is a pervasive practice in many countries and territories. *Next Generation Science Standards*, released by the US National Research Council in 2013, lay down "evidence-based argumentation" as a basic practice across preschool and K-12 science education (National Research Council, 2013). Science education in the UK also places great emphasis on the cultivation of argumentation skills in students. Students are required to write detailed reports after completing scientific experiments to expound on their findings logically and support their conclusions with evidence. Activities like "debate clubs" are conducted on the campus to forge students' representation and argumentation abilities through debates (Song, 2023). Argumentation power development is equally important in Chinese science education. For example, in inquiry-based learning and project-based learning, students are encouraged to practice argumentation in groups by going through processes such as identifying issues, posing questions, proposing hypotheses, and critically analyzing information (Zeng, 2021).

*Grade-7 Students Negotiation during the Engineering Design Processes Regarding the Status of Their Argumentation Training* in this issue seeks to investigate the effect of argumentation training on students' argumentation-based negotiation in the engineering design process. Thirty-three participants were recruited from an urban public middle school in Turkey, who were divided into two groups with one being administered argumentation training in advance. The research corroborates the positive impact of argumentation training on students' negotiation outcomes by comparing the performance of the group with the argumentation training experience and that of the group without this experience in EDP negotiation (Tug & Namdar, 2024). The article provides valuable insights into the significance of argumentation training for science education.

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