PEER TUTORING IN PRIMARY SCHOOL SCIENCE EDUCATION: EXAMINING THE IMPACT OF AN INTERVENTION PROGRAM AMONG STUDENTS AND TEACHERS

Summary

Keywords: *peer tutoring*, *developmental intervention*, *motivation to learn science*, *self-concept*

The research explores cross-age peer tutoring in the early stages of science education, through sessions centred on student-led experiments.

In the first phase of the research series, we used a program evaluation questionnaire to gather the opinions of teachers (n = 22) who participated in the implementation of a school-wide extracurricular science program called *Twin Class Experiment Afternoons*. During the program, upper-grade students presented experiments to lower-grade students over the course of one school year — one session per class, totalling 12 sessions. Teachers evaluated the program positively, primarily noting its role in developing students' social skills and increasing their interest and motivation. However, they also reported challenges related to scheduling, time constraints, and selecting age-appropriate, easy-to-implement experiments.

Building on this successful practice, we conducted a second study to examine the experiences of a semester-long classroom program involving monthly sessions. This study included fourth-grade students (n = 31) and sixth-grade tutors (n = 12). The tutored students rated the program significantly more favourably than the tutors, highlighting the impressive experiments and the enjoyable atmosphere. The tutors found the program beneficial for trying out the role of a teacher and for deepening their understanding of the curriculum. Both groups identified noise as a challenge, and the tutors also struggled with maintaining discipline.

In the third, quasi-experimental study, we investigated the impact of the extracurricular version of the program developed in the second study on students' motivation toward science learning and self-concept using a pre- and post-assessment design with experimental and control groups. The study employed the *Science Motivation Questionnaire II* (Glynn et al., 2011), the *Self-Description Questionnaire I* (Marsh, 1990), and program evaluation questionnaires. The program lasted six months and consisted of six extracurricular sessions, each 45 minutes in length. Fourth-grade students (n = 130) conducted experiments on various science topics under the guidance of sixth-grade tutors (n = 62). Control group members (4th grade, n = 144; 6th grade, n = 193) did not participate in these activities. A total of ten educators, including classroom and science teachers, were involved in the program.

The results indicated a small positive effect on certain components of the tutored students' science motivation, peer-related self-concept, and general school self-concept. The tutors' science motivation and general school self-concept remained unchanged, but their peer-related self-concept showed slight improvement. Both students and teachers found the program beneficial. Based on these findings, we conclude that peer tutoring can be effectively implemented in extracurricular formats within elementary school science education.