

Teacher interventions in small group work in secondary mathematics and science lessons: a summary

It has long been known that one of the main roles of the teacher in the classroom is to promote discussion in the classroom (Coe et al, p21), and that dialogic teaching methods (Cross, 2020) are valuable in developing student understanding. Hofmann and Mercer's (2016) study examines the role of the teacher in small-group discussions between students. While the authors identify a wealth of research into group work in the classroom and the conditions required for its success, they also identify a gap in research on how teachers should manage group discussions. Hofmann and Mercer address this gap by examining teacher intervention in small-group discussions as part of the epiSTEMe research-based pedagogical intervention programme. They observed when, why and how teachers intervene in groups, the extent to which teacher intervention strategies are dependent on the understanding and discussion of the students, and how the effects of such interventions might be observed by a teacher.

The authors observed a total of 12 teachers of Year 7 students in 8 schools, totalling around 18 hours of teaching observed. Audio-visual data as well as written observations were taken. An analysis of this data identified 104 episodes of teachers visiting small groups of students, with 69 of these containing interactive data. These exchanges were transcribed and studied, to determine the communicative strategies used by the teachers and their consequences, as well as the 'problem situations' each exchange posed to the teacher.

Hoffman and Mercer identified two distinct approaches that teachers took to intervention: authoritative and non-authoritative, distinguished by whether the teacher took the lead in the problem-solving process or not. Non-authoritative approaches were much more common, and elaborated upon by the authors, who then discussed the strategies used when initiating an intervention, and then how teachers subsequently interacted with students. Initiation strategies identified include inviting students to speak and focusing students on the task. Continued interaction strategies identified include repeating relevant ideas, probing and exploring student's understandings and identifying resources for thinking. The authors also identified which strategies are most useful in certain 'problem situations', such as students not proposing ideas, or proposing incorrect ideas.

In surmising their results, the authors claim to have shown that it is possible for teachers to intervene to resolve the specific difficulties faced by a particular group of students whilst not inducing a dependence on the teacher to authoritatively provide or confirm a solution. This allays a concern raised by the teachers involved in the study that students who are not proposing ideas are wasting time if left to their own devices. Hoffman and Mercer then make an inference that, if the "autonomy, initiative and interdependence" (Chiu, 2004, cited by Hoffman and Mercer, 2016) of students is encouraged by the strategies they identified, then these strategies ought to have pedagogical value. Furthermore, the authors argue that, by solving the issues with group work that teachers see as problematic by the strategies mentioned above, teachers can be persuaded to adapt their practices, which research (Rainio and Hofmann, 2015) suggests are difficult to change.

Bibliography

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