

‘Chalk and Talk’ and the Development of 21st Century Skills in the Secondary Mathematics Classroom

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The ‘chalk and talk’ method has been and is still a dominant method for teaching secondary mathematics. ‘Chalk and talk’ involves talking aloud to students while writing the mathematical narrative on a display device such as a whiteboard (Artemeva & Fox, 2011). While the ‘chalk and talk’ method has some desirable characteristics, it is opposed to the development of 21st century skills, which are important to possess for the current generation of students due to the considerable changes that have occurred in society and workplaces in the early 21st century. There is a tension here for teachers. ‘Chalk and talk’ has characteristics that make it an attractive and viable teaching method. However, if teachers predominantly use ‘chalk and talk’, they are hampered in developing the skills students need to prosper in the global and technological world of today. Thus, this study is guided by two research questions:

- Why is ‘chalk and talk’ a preferred instruction method for current mathematics teachers?
- What do teachers suggest could be changed in their professional lives to incentivise the use of alternative teaching methods?

To assist in answering the research questions, four secondary mathematics teachers were interviewed and observed teaching classes. Three of the four frequently used ‘chalk and talk’, with at least 80% of observed lessons utilizing the ‘chalk and talk’ method in a similar way to that outlined above. However, one participant (Daniel) used it less frequently, at only 40%. For participants who largely used ‘chalk and talk’, three common reasons were given as to why they used it frequently. The first reason given was that students felt that they were doing ‘real mathematics’ only in ‘chalk and talk’ classes. Second, these participants often felt time pressured, and preparing a ‘chalk and talk’ class requires less time compared to alternative methods. Third, assessments chiefly consisted of pen and paper tests meaning that the ‘chalk and talk’ method was most helpful in preparing students for assessment items.

Considering the reasons for their use of ‘chalk and talk’, all the participants suggested changes to assessment methods, professional learning programs and the culture of mathematics faculties are required to make alternative methods more viable, reducing the dominance of ‘chalk and talk’. Based on the suggestions of the participants, along with the experiences of Daniel, recommendations are made for change at both the school and government level to assist mathematics teachers in lowering their use of ‘chalk and talk’. Additionally, these recommendations are designed to assist teachers in creating classrooms that are more conducive to the development of 21st century skills, equipping students for the society and workplaces of today.

References

Artemeva, N., & Fox, J. (2011). The writing’s on the board: The global and the local in teaching undergraduate mathematics through chalk talk. *Written Communication*, 28(4), 345–379. <https://doi.org/10.1177/0741088311419630>

(2023). In B. Reid-O’Connor, E. Prieto-Rodriguez, K. Holmes, & A. Hughes (Eds.), *Weaving mathematics education research from all perspectives. Proceedings of the 45th annual conference of the Mathematics Education Research Group of Australasia* (p. 604). Newcastle: MERGA.