

Appreciating the Intra-/Extra-mathematical Importance of Mathematics: Added Pedagogical Value Through Rapprochement and Synergy of Primary, Secondary and Tertiary Mathematics Teachers

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Although mathematics is seen as a *sine qua non* of curricula around the world, emphasis on appreciating the importance of the topics that constitute the backbone of said curricula within—and, crucially, beyond—mathematics is often limited. I draw on my experiences as mathematics education researcher and (non-research) mathematician to discuss the rarely tapped-into pedagogical potential of rapprochement and synergy amongst communities of mathematics teachers (primary; secondary; and tertiary, from within mathematics and in other disciplines).

Throughout the pandemic, public discourse about COVID-19—in the UK, led primarily by daily, televised conferences of the Government’s Chief Medical Officer and his Deputy as well as the Chief Scientific Adviser—brimmed with mathematical references. As debates raged about whether and how to convince the public of the utter necessity for the personal, social and economic sacrifices that tackling the virus required, a stark realisation started to emerge: that many of these references may not have the impact that the scientists who were making them were hoping to achieve (Skovsmose, 2021). In tandem with findings from research that indicated how invisible mathematicians and mathematics often seem to be (Yeoman et al., 2017; Nardi, 2017), I conjecture that relentless exposure of the public to said mathematical references may make some difference—but for this to become the case, rapprochement and synergy between communities of mathematics teachers across educational levels and across disciplines is utterly necessary. To explore this conjecture, I draw on research, teaching and professional development initiatives that illustrate elements of this rapprochement and focus on boosting the intra- and extra-mathematical visibility of mathematics. The underpinnings of the analyses I present are largely commognitive (Sfard, 2008), with a focus particularly on constructs such as *literate* (as in, e.g., mathematical) and *colloquial* (as in everyday, public) *discourses* (p. 118). I conclude with reflections on what this analysis may imply for school and university mathematics pedagogy (Nardi & Biza, in press; Herbst et al., 2021), especially for students who traditionally experience alienation from mathematics and/or are on the cusp of deciding whether to include mathematics in the pursuit of employment or further studies.

References

- Herbst, P., Chazan, D., Crespo, S., Matthews, P., & Lichtenstein, E. K. (2021). Considering the importance of human infrastructure in the apprenticing of newcomers in mathematics education research practices. *Journal for Research in Mathematics Education*, 52(3), 250–256. <https://doi.org/10.5951/jresematheduc-2021-0019>
- Nardi, E. & Biza, I. (in press). Teaching mathematics education to mathematics and education undergraduates. In R. Biehler, G. Guedet, M. Liebendörfer, C. Rasmussen & C. Winsløw (Eds.), *Practice-oriented research in tertiary mathematics education: New directions*. Springer.
- Yeoman, K., Nardi, E., Bowater, L., & Nguyen, H. (2017). “Just Google it?”: Pupils’ perceptions and experience of research in the secondary classroom. *British Journal of Educational Studies*, 65(3), 281–305. <https://doi.org/10.1080/00071005.2017.1310179>
- Nardi, E. (2017). Exploring and overwriting mathematical stereotypes in the media, arts and popular culture: The visibility spectrum. In R. Göller, R. Biehler, R. Hochmuth, & H. Rück (Eds.), *Didactics of mathematics in higher education as a scientific discipline. khdm conference proceedings*, 5, 73–81.
- Sfard, A. (2008). *Thinking as communicating. Human development, the growth of discourse, and mathematizing*. Cambridge University Press.
- Skovsmose, O. (2021). Mathematics and crises. *Educational Studies in Mathematics*, 108, 369–383. <https://doi.org/10.1007/s10649-021-10037-0>
2022. N. Fitzallen, C. Murphy, V. Hatisaru, & N. Maher (Eds.), *Mathematical confluences and journeys* (Proceedings of the 44th Annual Conference of the Mathematics Education Research Group of Australasia, July 3–7), p. 9. Launceston: MERGA.