

Understanding Mathematical Identities of Learners Who Chose Mathematical Literacy in High School After Participating in After-school Mathematics Clubs in Primary School

Wellington Munetsi Hokonya

Rhodes University

w.hokonya@ru.ac.za

This short paper presentation reports the mathematical identity of learners who participated in after-school mathematics clubs in primary school and chose to pursue Mathematical Literacy post the compulsory mathematics stage in high school. In South Africa, learners do Mathematics as a subject up to Grade 9 level, at which time they must choose whether or not to continue with Mathematics or to rather select Mathematical Literacy for Grades 10–12. In my doctoral study (Hokonya, 2021) I captured stories of the learners' mathematical journeys from primary to high school, written and narrated when they were in high school, several years after participating in after-school mathematics clubs. In this paper I present an analysis of three of the six learner stories to understand their sense in choosing to pursue Mathematical Literacy despite storying positive mathematical identities in their narratives. The paper is guided by the research question:

What are the mathematical learner identities of learners who chose to do Mathematical Literacy?

It draws on Sfard and Prusak's (2005) conceptualisation of narrative identity as the reified, significant and endorse-able stories people tell about themselves or others tell about them. Furthermore, I use Wenger's (1998) Modes of Belonging framework to analyse the three learners' stories. The participants were purposely drawn from a group of high school learners who participated in after-school mathematics clubs in primary school. The findings show student reasoning about their decision to choose Mathematical Literacy post the compulsory stage, and the way in which their mathematical identities built in after-school clubs play a role in their positive dispositions towards the subject. Additionally, it was their envisaged future career choices and the amount of perceived difficulty of high school mathematics that influenced their decisions.

Acknowledgment. This work is based on research supported by the South African Research Chairs Initiative of the Department of Science and Technology and the National Research Foundation (Grant No. 74658).

References

- Hokonya, W. M. (2021). An exploration of the mathematical learner identities of high school learners who participated in afterschool mathematics clubs in primary school. [Doctoral dissertation, Rhodes University].
- Sfard, A., & Prusak, A. (2005). Identities that make a difference: Substantial learning as closing the gap between actual and designated identities. In H. L. Chick (Ed.), *Proceedings of the Conference of the International Group for the Psychology of Mathematics Education*, (Vol 1, pp. 37–52). Melbourne: IGPME.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge University Press.