Scripted Identities of the Mathematics Learner: Blurring Fiction and Fact in the Presentation of Research Data

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Research on mathematics learner identity often relies on interview data and presents case studies of individuals. This method allows an in-depth understanding of the person and their relationship with mathematics but fails to generate a large picture of identity with more breadth. In our paper, we propose a method that blurs the boundaries of fiction and fact by creating fictional characters and a playscript for an innovative presentation of data that we hope will resonate with various stakeholders within and beyond mathematics education.

We generated our data by sending a questionnaire to senior secondary students of mathematics in seven schools around Aotearoa New Zealand. We gained responses from 641 students altogether. From this data, we hoped to gain a broad picture of common discourses or narratives about the learning of mathematics, both in-class and online, and an understanding of the various local practices in these contexts. Our research goals also align with many others within the field of identity in mathematics education in aiming to understand what may motivate students to continue studying in STEM-related fields such as mathematics.

The questionnaire included four open-ended prompts; two of which were: *"Thinking back over all your experiences learning mathematics, which would be the highlight? Please explain why."* and *"Thinking back over all your experiences learning mathematics, which would be the low point? Please explain why."* These prompts solicited stories from the respondents that could be read in terms of identity, albeit just one enactment of identity in one moment. We first conducted a more traditional analysis of the data generated by the questionnaire, yet we noted what seemed to be heartfelt storied responses to the questionnaire prompts and we wanted to do better justice to the messages that were told and to bring this data to life in a way that might resonate for a broader audience. Consequently, we conducted a second wave analysis of the responses to the two questions, first identifying what we called a 'resonating quote', and then using them to create 'characters' (eight in total) from these and other quotes. We then allocated all responses in the data set to whichever character we thought it fit. Finally, we created a playscript[1], in the fictional setting of a careers expo. All the spoken text of the play comes directly from the data, with only minor changes for grammar, tense, and allowing for action.

In many ways, the presentation of data, as described in this process, differs little from typical qualitative research. Themes were found and quotes were selected to present those themes. However, we hope that the playscript presentation brought the questionnaire data 'to life' so that the implications of findings might be more apparent than otherwise, and may be more engaging for a wider audience. We suggest that issues of retention and students' choice to continue studying mathematics (or not) might be unpacked with senior mathematics teachers using a playscript such as ours. The success of this strategy would certainly be an area for future research.

[1] https://drive.google.com/file/d/1iT9Z4cEQjc-yeF3NWvGgd-Ut2cCvpoSU/view