

Conceptualising Success in Mathematics Education: Three Immigrant Families Discussing Saturday Schooling of Their Children in Norway

Tamsin Meaney¹, Sigve Ferstad², Tod Shockey³

¹Western Norway University of Applied Sciences, ²Kristelig Gymnasium, ³University of Toledo

In Norway, Saturday schools, which are usually established to provide possibilities for children from immigrant families to learn about heritage languages and culture, can also include mathematics learning. However, the reasons why parents want their children to learn mathematics in their home languages has not previously been investigated. Consequently, we present case studies of three immigrant parents. Each parent was interviewed individually. In each case, the main reason for enrolling their children was to gain more opportunities to develop their language skills. However, they had individual reasons for sending their children to learn mathematics which were connected to what the parents considered would increase opportunities for their children's future education. For each parent, mathematics was important for their children to understand and use in order to gain access to future educational opportunities.

Keywords: parents, Saturday schools, educational futures

Introduction

The focus of this research is to explore why three immigrant parents to Norway chose to enrol their children in Saturday schools to learn mathematics. Saturday schools are common throughout the world, including in Ireland (O'Brien & Long, 2012). Some, although not all, provide opportunities to learn mathematics. With increasing numbers of children who themselves or whose parents are immigrants in many European countries, such as Ireland and Norway (Heckman, 2008), there is likely to be an increase in enrolment in such schools. This is because Saturday schools, set up by parents, sometimes in collaboration with the home country education system, provide one way of maintaining language and cultural knowledge (Okumura & Obara, 2017). Knowledge about Saturday schools can provide a way for curriculum content to act as a bridge between an immigrant community's cultural knowledge, mathematical practices and social issues (Quintos & Civil, 2007). Yet, in their study of a Polish weekend school in Ireland, O'Brien and Long (2012) found that integration of the Irish and the Polish ways of teaching and learning mathematics was done at the student level. Other possibilities which do not put the weight of cultural integration around mathematics on students, are needed. One way to do this is to understand why parents enrol their children in Saturday schools.

Generally, students are enrolled in the local schools from Monday through Friday and attend schools in their home languages, usually on Saturday, hence their name as Saturday schools. However, in some places, they are given other names, such as weekend schools (O'Brien & Long, 2012). Aoki et al. (2023) suggested that the teaching of mathematics at Japanese supplementary schools, based on the Japanese national curriculum, would contribute to children being able to seamlessly continue their education when they returned to Japan. Similarly, O'Brien and Long (2012) noted that changing economic situations often meant that

Polish immigrants returned to Poland after the Great Financial Crisis of 2008, indicating that the need for children to integrate back into Polish schools was likely to be one consideration for parents in enrolling their children into the Saturday school. Taking a different perspective, Okumura and Obara (2017) stated that the intention for teaching mathematics in Japanese supplementary schools was that “the mathematical knowledge acquired in the supplementary schools can be applied to learning mathematics in local schools” (p. 25). The mathematics learnt in Saturday schools is considered not to be in opposition to what is taught in local schools but to be in alignment with it. However, as noted earlier O’Brien and Long’s (2012) research showed that often the responsibility for integrating the two systems fell on the students. Although these two perspectives are mentioned as possible reasons for students to learn mathematics at Saturday schools, there remains a lack of research on the reasons why parents value their children attending these schools to learn mathematics (Ferstad, 2020). Therefore, our research question is: how do parents who send their children to learn mathematics in Saturday schools describe their educational aspirations for their children?

Previous relevant research

Research which has been done on the mathematics taught in Saturday schools (such as Okurmira & Obara, 2017; Aoki et al., 2023), has focused on how one or more languages are used to discuss mathematics. For example, Farsani (2015) investigated how gestures together with English and/or Farsi, the Persian language, are used as a resource to teach mathematics in a Persian Saturday school in England. He found that the gestures connected to a specific language created a different conceptual understanding of mathematical concepts. Similarly, Parvanehnezhad and Clarkson (2008) studied when children used Farsi, to solve mathematics tasks at the Persian Saturday school in Australia. When the difficulty of solving the problems increased, the children used Farsi more frequently. These studies provide insights into how the home languages were used in these Saturday schools when learning or using mathematics, but do not provide insights into how they contribute to the replication and maintenance of cultural knowledge, through the teaching of mathematics. In contrast, O’Brien and Long’s (2012) study investigated different actors’ views about attending Saturday schools. However, the focus was on students’ views and parents’ educational aspirations for their children were not discussed.

Yet, studies that investigated immigrant or minority parents’ views about mathematics education have highlighted differences to what is taught and how in the schools that their children attend during the week. Civil et al. (2005) compared how minority parents in Barcelona (Spain) and Tucson (USA) perceived their children’s mathematics education. In Barcelona, the parents largely accepted that their children had learnt new calculation methods, which resulted in the old methods being replaced. In Tucson, some parents considered that the teaching their children received in the local school was not good enough and the parents’ calculation methods were more efficient. Similarly, Takeuchi (2018) referred to previous research that supported parents wanting to preserve mathematics from their home country. This suggests that some parents may not see their local schools as being respectful of the

efficient methods that children bring with them from home and previous schooling experiences.

However, sometimes parents accepted that the children needed to learn new ways of learning and doing mathematics and so did not resist their own methods being replaced by these new ones. In Takeuchi's (2018) empirical research focusing on Filipino immigrants in Japan, when supporting their children to learn multiplication, preferred the Japanese memorization methods rather than using a calculation method with their fingers which they brought with them from their homeland. This seemed to be related to how they were positioned in society and their lived histories which influenced what they considered to be the valuable mathematics for their children to know. In Civil et al. (2005), a mother described how she wanted her child to focus on the mathematics that they taught in the USA, rather than continue with using mathematics from their home country. This was because the child would grow up in the USA and they did not consider that their family would return to Barcelona. The need to replace known methods with those taught in the local school seemed to be related to immigrant parents seeing their children's futures as being in the new country and to do well in that country required them to abandon what they themselves were familiar with.

Although not referring to mathematics specifically, Hall et al. (2002) referred to an example from a Tamil Saturday school, where the children attended because they wanted to improve their results in the Norwegian school. Thomas (2019) found that Tamil parents in Norway focused on ensuring that their children gained the most beneficial educational opportunities, "Whether we can afford it or not, Tamil parents do everything in their power to accommodate the educational needs of their children. They can work odd hours and sacrifice" (Thomas, 2019, p. 14). Therefore, this research goes some way into understanding how parents connect enrolling their children to learn mathematics in Saturday schools to the educational aspirations that they have for those children.

Methodology

Following the research of Takeuchi (2018) and Civil et al. (2005), qualitative interviews were used to elicit parents' opinions about why they sent their children to Saturday school. According to Johannessen, et al. (2016), the purpose of qualitative interviews is to obtain full descriptions, so that an issue can be illuminated from several aspects.

The interviews were semi-structured and conducted with three mothers (R1, R2, R3) in 2019 (Ferstad, 2020). At home, the families used Russian and Japanese (R1), Ukrainian and Russian (R2) and Tamil (R3). At the time of the interviews, R1 had been in Norway, just less than nine years; R2 for five years and R3, just over twenty years. R1 had two daughters, 10 and 7 years old. R2 had two sons, 6 years old and 1 years old. The oldest son had attended the Russian Saturday school since he was 5. R3 had three daughters, 25, 21, and 14, who had all attended the Tamil Saturday schools but the youngest one was the only one still at school. All of the children had their weekly schooling, in Norway, and had continuously attended the Saturday schools. The interviews were recorded and transcribed. Parents chose the language

of the interview, R1 chose English, the other two Norwegian. The interviews lasted for 30 minutes (R3), 45 minutes (R2) and 90 minutes (R1).

In the interviews, parents were asked about the experiences of their children, about their motivations for enrolling their children, their children's participation both in their Norwegian education as well as their children's sense of belonging to the cultural groups represented in the Saturday school. Following Hill's (2020) research with teachers of high-performing, immigrant students in Germany, a thematic analysis was undertaken of the interview data. For this paper, we focus on the parents' views on: enrolment in the Saturday schools; learning the specialised mathematics terms in the home language; gaining their children an advantage in learning and using mathematical skills and knowledge. Transcript extracts for R2 and R3 were translated into English.

Findings

Although the parents sent their children to different Saturday schools, there were often similarities in the points that they raised. For example, the main reason for the parents to enrol their children in Saturday schools was to maintain and develop the children's skills in the home language.

- R1: So, why we started, I mean basically everybody starts because of the language. You know, what you realise as a.. somebody who trains to maintain, your own mother tongue in your children, is that the, your regular family language exposure is very limited.
- R2: We come from Ukraine and for us it is very important that our children, we have two, have knowledge of Russian and Ukrainian languages. That was the reason why we sent the children to Saturday school.
- R3: I think it is very important that children learn their mother tongue.

As well, the parents highlighted the role that the Saturday schools played in developing their children's awareness of the importance of culture, heritage, and friendships with other children who spoke their home languages. This was often because there was a wish to maintain links with the home country. R3 stated, "we have been to my home country again and then my mother-in-law got a little angry because my daughter could not speak Tamil at first." The valuing of Saturday schools as supporting the development and maintenance of the home language and culture is not surprising as most Saturday schools were established with this intention (Okumura & Obara, 2017).

Each mother also described enrolling their children in mathematics at the Saturday school because it would support the development of the children's home languages and cultural knowledge. This can be seen in the following quote from R1:

- R1: And, math is added, by all schools, math is added.. mostly on demand, because children are differently gifted mathematically. And for majority actually there's this need to go through things again. And then, but also I feel, for my daughter because she didn't need the mathematics, we still left her in the mathematics class because, ... The

way you talk about mathematics in a language, right, it gives you a certain vocabulary. You use the phrases. You kind of need to know, what's multiplication, what's addition, what's subtracting...

Aoki et al. (2023) found that the Japanese teacher in the supplementary school in Sweden was able to emphasise through the language specific aspects of fraction representations. This was likely to extend the children's understanding of fractions, which were not easily recognisable in the Swedish language. Although these parents did not express it in the same way, they also considered learning mathematics in the children's "home tongue" to contribute to the children's mathematics learning in their Norwegian schools. For R2, Saturday school provided an advantage, as their child started in Saturday school a year earlier than starting in the Norwegian school.

R2: My son started at Saturday school last year, and the regular Norwegian school this year. So, when he started Norwegian school he understood the calculation method and which way to write 1, 2, 3, it was quite easy for him. And we asked our teachers if he can get extra tasks at regular school, and they said, "yes, he can". But as we understand that we are lucky because not all our friends have the same situation at school, some teachers say that, "he can just wait until next year", so we are very grateful to our teachers.

This advantage from attending Saturday schools, noted by the Ukrainian mother, was in alignment with what some Tamil parents in Norway have said about doing what they could to support their children's educational possibilities (Thomas, 2019). However, as noted by R2, not all the parents felt that the Norwegian schools were willing to provide extra opportunities for children who had earlier learnt mathematical knowledge and skills at Saturday schools. R1 repeatedly stated that the Norwegian school did not challenge her older daughter. In one story, she said that she begged her daughter to take her Japanese textbook to her mathematics class at school, but "she refused point blank because, "everybody would ask me, everybody would talk about it"". Her daughter did not want to stand out. This frustrated her mother who felt that her child was not receiving the mathematics education she needed. R1 found out about an extension programme available at the Norwegian school, but was unable to work out how to have her oldest child participate, because she did not have the knowledge of the schooling system:

R1: If you're a resourceful parent and you fight for your child, you get something and if you are not, I was starting as a foreigner and I didn't know anything about the Norwegian school, I.. I didn't know what to do ..
We found out too late that there was one child that was doing it. I would have jumped on and they would have gone together if the school had encouraged them to do it.

In O'Brien and Long's (2012) study, the alignment of two educational systems was on the shoulders of the students. However, the parents in our study are suggesting that they wanted to engage with the schools and find ways to make bridges between the two systems

but did not always find the appropriate ways to do that. This suggests that the local schools could support parents to provide more input about their children which could be utilised in what was being offered to the children.

For R1, the Japanese Saturday school provided her two children with mathematics education which met their needs, which they did not receive at their Norwegian school. Thus, the experiences from the Saturday school reinforced this mother's concerns about their children's educational futures. Her concerns were in alignment with those raised by some of the parents in Civil et al.'s (2005) research. Both R1 and R2 considered, that because of possible changes in the parents' work, their children may have to move countries, there was a need for the children to have achieved an appropriate level of mathematics, in the new country, an issue raised also by O'Brien and Long (2012) and Okumura and Obara (2017).

R2: In Ukraine, we have very strong mathematics subjects. Like for example, if we decide to go back to Ukraine then it is good if my son understands mathematics at the same level as in Ukraine. Or if we decide to live in England for example. It is the same situation as mathematics being a very strong subject in England.

For the Tamil mother, the situation was different because she saw her children's futures being in Norway and so it was important that her children gained good results to have the best possible educational futures in Norway. Saturday schools provided support for her children to achieve better results in the Norwegian school system. This parent did not consider that the family would leave Norway and so the educational advantage for her children came from improving their grades in the Norwegian school, something that she did not think was possible without this extra support.

R3: Have sent the children to extra maths lessons because it is easier to do homework and ..., if one is to explain, for example in the same mother tongue then it is easier to understand. But the children are good at Norwegian too, they understand. I have heard he is a very good maths teacher, and he is in different meetings and explains problems, and the children can easily understand, solve the problems. There are so many students who have had teaching with him before, and then they got a very good grade. At first, they only got 2, but eventually when they got extra tuition, they had 5 and 6.

In the Tamil Saturday school, the mother reported that the parents appreciated the teacher because he spoke Tamil and Norwegian. This meant that parents could get information from him about how best to help their children with their Norwegian school homework. As well, the teacher knew the Norwegian school system, so he could provide appropriate extra tuition to help the students to get better grades. This was important for the children's future educational opportunities in Norway. Parents and students frequently sought out extra mathematics support, particularly when it was time for Norwegian examinations. This role for Saturday schools had not previously arisen in regard to teaching mathematics, but clearly some immigrant parents have little opportunities to return to their home countries or to move for work easily.

Conclusion

In the interviews, the parents made clear that providing support for the children's knowledge of the home language was the main reason for enrolling their children in Saturday schools. Although learning the specialised language of mathematics in the home language was part of developing their children's fluency, the parents also indicated that learning mathematics at Saturday schools provided opportunities for children to achieve the educational aspirations that the parents had for them. This could include, the children gaining the knowledge and skills needed to be successful in other countries, where the parents considered a higher level of mathematics was required than was expected in Norway, as well as to gain higher grades in the Norwegian education system, necessary for opportunities for further education. In raising these points, it seemed that the parents had not necessarily accepted Norwegian school expectations about mathematics education and the possible educational achievement that their immigrant children could gain at the local schools.

Although only a small study, it is likely that there would be other immigrant parents who had similar educational aspirations for their children. In some cases, those parents would not have the possibility to gain extra mathematics education from the Saturday schools because of a lack of availability in the areas in which they lived. However, in countries such as Norway where schools are expected both to engage with parents about their children's education, there seems to be a need for more schools to find ways to do this more successfully with immigrant parents.

Saturday schools have remained mainly unknown in mathematics education research. If they have been researched the focus has generally been on issues to do with language in mathematics. However, our findings indicate the need for more general research about Saturday schools. For example, R2's experiences suggest that research is needed to identify the circumstances in which local schools are successful in making use of the knowledge and skills that children bring from Saturday schools. This could contribute to students not having to carry the responsibility to bridge the two educational experiences. Findings from this research could then be included in professional development and initial teacher education.

Acknowledgement

The data were collected as part of the project, "Learning about Teaching Argumentation for Critical Mathematics Education in multilingual classrooms", funded by the Research Council of Norway (273404).

References

- Aoki, M., Asami-Johansson, Y., & Winsløw, C. (2023). *Learning to speak mathematically at the Japanese supplementary school in Sweden*. Paper presented at Congress of European Research in Mathematics Education, Budapest, 9-14 July.
- Civil, M., Planas, N. & Quintos, B. (2005). Immigrant parents' perspectives on their children's mathematics education. *Zentralblatt für Didaktik der Mathematik*, 37(2), 81-89. <https://doi.org/10.1007/BF02655717>

- Farsani, D. (2015). *Making multi-modal mathematical meaning in multilingual classrooms*. (Doctoral dissertation. University of Birmingham.)
<https://etheses.bham.ac.uk/id/eprint/5752/1/Farsani15PhD.pdf>
- Ferstad, S. (2020). *Minoritetsspråklige foreldres begrunnelser på barnas deltagelse i lørdagsskole for å lære matematikk [Minority-language parents' reasons for their children's participation in Saturday school for learning mathematics]* (Master's thesis. Oslo Metropolitan University.) https://oda.oslomet.no/oda-xmlui/bitstream/handle/10642/9151/Ferstad_skut2020.pdf?sequence=2&isAllowed=y
- Hall, K. A., Özerk, K., Zulfiqar, M. & Tan, J. E. C. (2002). 'This is our school': Provision, purpose and pedagogy of supplementary schooling in Leeds and Oslo. *British Educational Research Journal*, 28(3), 399-418.
- Heckmann, F. (2008). *Education and the integration of migrants: challenges for European education systems arising from immigration and strategies for the successful integration of migrant children in European schools and societies*. (NESSE Analytical Report, 1). Europäisches forum für migrationsstudien (efms) Institut an der Universität Bamberg. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-192500>
- Hill, K. D. (2020). Perspectives of teachers of high performing immigrant youth in a German secondary school. *European Journal of Educational Research*, 9(3), 1151-1165. .
- O'Brien, S. & Long, F. (2012). Mathematics as a (multi)cultural practice: Irish lessons from the Polish weekend school. *Journal of Urban Mathematics Education*, 5(2), 133-156.
<http://ed-osprey.gsu.edu/ojs/index.php/JUME/article/view/147>
- Okumura, S., & Obara, Y. (2016). Integrating language and content: Challenges in a Japanese supplementary school in Victoria. *Babel*, 51(2), 20-25.
- Parvanehnezhad, Z. & Clarkson, P. (2008). Iranian bilingual students' reported use of language switching when doing mathematics. *Mathematics Education Research Journal*, 20(1), 52-81.
- Quintos, B., & Civil, M. (2007). *Parental engagement as a boundary practice in a classroom community of practice: Implications for Latina/o students' mathematical learning* Second International Conference on Ethnography and Education: Migrations and Citizens, Barcelona, Spain.
- Takeuchi, M. (2018). Power and identity in immigrant parents' involvement in early years mathematics learning. *Educational Studies in Mathematics*, 97(1), 39-53.
- Thomas, P. (2019). Shadow schools—Tamil educational success in Norway. *Other Education: The Journal of Educational Alternatives*. 8(1), 4-26.