

USING TRANSLANGUAGING TO RE-EXAMINE AND DECONSTRUCT EARLIER FINDINGS ABOUT BILINGUAL MATHEMATICS EDUCATION.

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In my 2005 doctoral thesis, I addressed the question of what is meant by individuals' growing mathematical understanding within a particular bilingual situation wherein those individuals use words with no direct or precise translation between English, a dominant Western language, and Tongan, an indigenous Pacific vernacular. As a result of that study, a defined number of structural categories of "language switching" were then identified which in turn provided a useful way of describing the pattern in which the studied bilingual individuals alternated between the two aforesaid languages. Since then, one remaining challenge is how exactly this type of *linguaging* can be formalized and practiced.

This study employs the socio-linguistic theory of "translanguaging" as an alternative framework for analysing bilingual teachers' language acts and as a new lens that allows me as researcher to re-examine and deconstruct my earlier categorisations and findings about the role of the two aforesaid languages in bilingual individuals' mathematical discussions and teaching. This alternative view of "bilingualism" recognizes that bilingual individuals may have only one *language system*, not two, and that effective instruction would involve finding ways to help these individuals draw on all their linguistic resources, their full repertoire, when learning academic content in a new language.

This study also employs and thus continues to demonstrate the power of Pirie and Kieren's Theory (Pirie & Kieren, 1994), which, along with its associated diagrammatical model, were presented and discussed previously at a number of PME meetings. Of particular interest and a focus in this new study is how translanguaging as a process, which is said to be accessible through a bilingual's prior knowledge, may directly be related to Pirie-Kieren's innermost *Primitive Knowing* layer – the starting point or "base knowledge" for the growth of mathematical understanding. This is an important link in using translanguaging as an analytical lens in this study as well as in re-examining the results of my earlier research work.

Video recordings of bilingual mathematics teachers in two high schools in Tonga, which is a small island country in the South Pacific, were made in 2019. Several episodes of these bilingual teachers' classroom language use are included in this poster presentation to illustrate the results and findings of the study. The preliminary findings not only corroborate many aspects of my earlier research work but also offer a different perspective. For while the new study supports the view that translanguaging is a normal yet personal practice in this type of bilingual classrooms, it also recognizes that effective instruction involves identifying clues that can help students draw not only on their entire linguistic resources and repertoire, but also on their *primitive knowing*.

However, there appears to be no one-size-fits-all remedy to translanguaging. It varies among bilingual individuals in how it is deployed to facilitate learning or mathematical understanding. It also puts a damper on my desire to continue searching for an effective systematic pedagogical approach toward using two languages in a bilingual classroom environment. This new realization comes from viewing the language system that underlies what bilingual individuals actually speak as personal and unique, even when there is a commonly shared cultural identity (Otheguy, Garcia, and Reid, 2015), as is the case in Tonga. If bilingual individuals, like Tongans, are allowed the flexibility of translanguaging and thus access to mathematical terms and images in either language, such a dynamical practice would allow bilingual teachers and students alike to creatively interact and co-construct mathematical meanings (Manu, 2005).

Using translanguaging to re-examine and deconstruct earlier findings about bilingual mathematics education.

References

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