The relationship between mathematical skill and language ability in children learning English as an Additional Language

A) RATIONALE FOR THE PROJECT:
A large proportion of children in UK primary schools do not speak English as their first language (EAL). Research suggests that, compared to monolingual peers, children learning EAL have low levels of vocabulary which has a direct impact on their reading comprehension. In contrast, children learning EAL have comparable phonological and word reading skills to their monolingual peers. However, while there is a growing body of research focused on the language and literacy development of children learning EAL, little attention has been paid to the impact of low levels of language on maths performance. Importantly, different maths tasks have been shown to draw on different language skills. For example, while both phonological and non-phonological language skills (e.g. vocabulary and grammar) have been shown to be related to arithmetic tasks, problems that require attention to additional linguistic information such as word problems or math reasoning tasks have been shown to draw primarily on non-phonological skills. Given that children learning EAL typically show strengths in the area of phonological processing but weaknesses with text comprehension, it is reasonable to assume that they may find math tasks that rely more heavily on non-phonological language skills to be more challenging than those that rely on phonological skills. Moreover, performance on these tasks will vary as a function of proficiency with English. In addition, it is likely that some of the skills required to complete maths tasks are language specific while others are language independent. Given the growing number of children with different language backgrounds in classrooms across the UK it is vital that we develop our understanding of the influence of second language proficiency on second language maths development to inform effective maths support for second language learners.

B) REFERENCES THAT SHOULD BE READ (if you do not have access to these, please email me)

C) RESEARCH AIMS / QUESTIONS
Aim: The proposed study will investigate the relationship between phonological and non-phonological components of language and maths skills in children learning EAL over the course of KS2. In addition, the study will explore the language specific and language independent factors that contribute to performance on these maths tasks.
D) METHODS
It is expected that the proposed project will use quantitative methods to compare children learning EAL with their monolingual peers across a range of experimental maths tasks. Standardised measures of reading, language, phonological skills and maths skills will be used to select and match participants, and to investigate individual differences in performance.

E) SKILLS AND OPPORTUNITIES YOU COULD GAIN
You will gain skills in experimental design and statistical analysis, as well as building excellent communication skills through working with schools, parents and other academics. You will submit your work regularly to conferences, developing your dissemination skills and building networks of academics in similar fields.