

## The Challenge for Non-first-language-English Academic Publishing in English Language Research Outlets

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This paper is a reflective critique of practice within the field of mathematics education in relation to the challenges faced by non-first-language-English speaking academics when they attempt to publish in English language research outlets. Data for this study are drawn from communications between a German and an Australian academic as the Australian assisted the German in negotiating aspects of translation bound by syntactic, semiotic, cultural, and colloquial language considerations. The paper concludes by raising questions about the issue of the use of English as a universal language for the dissemination of new knowledge and offers possible solutions to the problem.

### Introduction

There is general acknowledgement that the use of “home” languages in multilingual mathematics classrooms, where children are not yet fully fluent in the language utilised to conduct instruction, limits students’ access to, and acquisition of, mathematical concepts (Setati & Planas, 2012). Further, it has been argued that language policies and dominant language ideologies affect students’ learning of mathematics through the dynamics of power in bilingual classrooms, as well as the bilingual students’ views of access to mathematics (Civil & Planas, 2012). Despite the recognition that the use of “home” languages limits non-multilingual students access to mathematical ideas and their participation in learning communities defined by mathematics classrooms, there appears to be no similar recognition that the access to new knowledge in mathematics education and participation in forums in which the acceptance of these new ideas are debated is more difficult for non-English-first-language mathematics educators because of the dominance of English language journals in this field. A similar issue was raised in the Education Research forum hosted by the web based research social network Researchgate where a participant, Professor Attila Szabo of Eötvös Loránd University, asked the question:

Does language-mastery barrier trim scientific knowledge and the chance of publication? What is your experience in your field?

([https://www.researchgate.net/post/Does\\_language\\_mastery\\_barrier\\_trim\\_scientific\\_knowledge\\_and\\_the\\_chance\\_of\\_publication\\_What\\_is\\_your\\_experience\\_in\\_your\\_field](https://www.researchgate.net/post/Does_language_mastery_barrier_trim_scientific_knowledge_and_the_chance_of_publication_What_is_your_experience_in_your_field), 19 Oct 2013).

Aligned with this question is an issue identified by McKay (2002).

The increasing number of bilingual speakers of English means that many speakers of English will be using English alongside one or more other languages that they speak, and hence their uses of English may be more specific and limited than monolingual speakers of English ... [thus there is] need to avoid comparing bilingual speakers of English to native speakers, and rather to recognise the many strengths of bilingual users of English who have a rich linguistic repertoire to serve their communication needs. (p. 139)

This paper is a reflective critique of practice within the field of mathematics education in relation to the question posed by Professor Szabo and the issue raised by McKay (2002). The paper draws on the specific experiences of a German academic (Rudolf), while developing a publication for an English language research outlet, and an Australian researcher (Vince) who provided a language check of the paper. Data for this study are

drawn from communications between the German and Australian academics as the Australian assisted the German in negotiating aspects of translation bound by syntactic, semiotic, cultural, and colloquial language considerations. This situation gave rise to the following research question:

What challenges must non-first-language-English mathematics educators negotiate in order to be published in internationally recognised English language research outlets?

In addressing this question we will: (1) provide a review of relevant literature; (2) examine the countries of origin of internationally recognised research publication outlets; (3) analyse exchanges between the two academics related to initial text proposed by the German academic and the suggested edits offered by the Australian academic in order to categorise the types and forms of language divergence, inconsistency and opaqueness between German and Australian English; and (4) offer suggestions that will support effective research publication collaborations between English and non-English-first-language researchers in the future.

### Literature Review

While a considerable corpus of research literature exists on teaching and learning mathematics in classrooms with students and teachers who do not have English as first language, there is a paucity of research, or even commentary, on the challenges faced by non-first-language-English-speaking academics when attempting to engage with the broader community of mathematics educators. For example, a search of MERGA publications including, *Mathematics Education Research Journal*, *Mathematics Teacher Education and Development*, and the *Proceedings of the annual conference of MERGA*, using ESL as a keyword yields only seven results, all of which are concerned with the teaching and learning of students in mathematics classrooms (e.g., Miller & Warren, 2014). Similarly, a search of relevant literature from within the US context reveals research related to mathematics and English Language Learners (ELL) but none related to the challenges faced by non-first-language-English academics. Consensus on what is known about mathematics ELLs is that mastery of content, the principles of literacy, and language acquisition are tied together—content, literacy, and language acquisition go hand-in-hand (e.g., Roberson & Summerlin, 2005). It is unclear how such findings would translate to the challenges faced by non-first-language-English academics.

By expanding the search to include non-research publications, a number of handbooks developed specifically for the purpose of providing advice to non-first-language-English speakers (e.g., Glasman-Deal 2009; Burnham & Hutson, 2007) as well as other material available on the internet (e.g. the webpage from Nature Education, 2014) were found.

Taking *Science research writing for non-native speakers of English: A guide for non-native speakers of English* (Glasman-Deal 2009) as an example, advice is specific to particular publication types, such as journal articles, and offers only a single structure for writing empirical articles, that is: Introduction; Methodology; Results; Discussion; and Conclusion. There is no advice on how to structure and write other forms of research publications, such as theoretical or discussion. Within this standardised structure for a research paper, the handbook offers suggestions for appropriate vocabulary and use of grammar as these related to different sections of an article. For example, advice is provided about grammar and writing skills within the Discussion/Conclusion section (see pp. 154-159), where there is a discussion on the use of modal verbs like “should, must, can, ought to, may, could”.

A different approach is offered in *Scientific English as a foreign language* (Burnham & Hutson, 2007) which offers specific advice on how to avoid predictable mistakes in English. Based on the experience of consulting with non-English speaking colleagues, the authors offer 59 comments on mistakes to avoid, for example, common mistakes associated with the use of commas, colons and semicolons, and dashes” (see pp. 34-38). Other examples include discussion of pairs of words with overlapping semantics, such as: locate and localise; borrow and loan; teach and learn; make and do; and, experience and experiment (see pp. 7-14).

Other advice is available from online collaborative learning spaces such as Scitable by Nature Education (2014, <http://www.nature.com/scitable>) or Unilearning (n.d., <http://unilearning.uow.edu.au/academic/2e.html>) where self-education modules such as *English communication for scientists* (Nature Education, 2014) are available. This particular module identifies obvious potential difficulties related to spelling and grammar and also flags challenges associated with: (1) expressing concepts associated with a single word in a native language in English where the concept may not exist; (2) expressing, in a precise manner, the subtleties associated with concepts that are similar but not the same as in a native language and English; (3) clarifying the meaning of words that have similar forms but different meanings (so-called false friends) in native language and English; and (4) using two different words in English for two meanings rendered by the same word in the native language.

Each of these problems, and associated advice, connects with broader questions related to the use of English as an international language for the communication of ideas and new knowledge among scientific communities. The issue is a complex one and a matter of debate among academics from non-English speaking countries. Ammon (2001), for example, poses the question of whether English should be accepted as the international language of science or if it should be a general means of communication within scientific communication. He argues that accepting English as the universal language is problematic as there are doubts about whether English can mirror the subtleties of research originally completed in other languages. It has also been noted (e.g., Baldauf, 2001) there are even differences between the way English speakers from different countries use their language, contributing to a lack of clarity in some scientific reports.

The issue of a universal language of science is taken further by McKay (2002) in arguing:

...the teaching and learning of an international language must be based on an entirely different set of assumptions than the teaching and learning of any other second or foreign language.

As the assumptions McKay refers to are rarely raised when non-first-language-English speakers attempt to publish in English language publications it is likely, native English speakers underestimate the size of the challenge faced by colleagues from non-English speaking countries.

In summary, the review of literature indicated that while there is general advice available to non-first-language-English-speaking academics on publishing in English language journals, there appears to be no specific advice to those academics whose native tongue is not English about publishing in English language journals devoted to mathematics education. It was also noted that while publication advice is available in handbooks and online forums with a focus on assisting non-first-language-English academics in publishing their work, there appears to be limited, at best, research literature available on this topic.

## English Language Journals in Mathematics Education

In attempting to gain a sense of the proportion of internationally recognised English language mathematics education journals in relation to non-English language journals, we conducted a search using the SCImago journal rankings. SCImago is an internationally recognised source of journal metrics. Only journals that achieve a benchmark metric are listed. While other agencies exist that also provide metrics data on journals, space in this paper does not permit a comparison between different journal rankings. SCImago has been selected, in this instance, because of its currently unsurpassed capture of journals in the social sciences – including mathematics education.

The search was initiated by using Mathematics (miscellaneous) as key words, which yielded 386 results. From the resulting list of journals, we followed-up with a manual search of the journals known to publish articles related to Mathematics Education / Didactics of Mathematics. This resulted in the 20 journals listed in Table 1.

Table 1  
*Ranked journal listed in SCImago under mathematics education*

Title	Country
<i>Educational Studies in Mathematics</i>	Netherlands
<i>For the Learning of Mathematics</i>	Canada
<i>International Journal of Computational and Mathematical Sciences</i>	France
<i>International Journal of Mathematical Education in Science and Technology</i>	United Kingdom
<i>International Journal of Mathematics and Mathematical Sciences</i>	United States
<i>International Journal of Science and Mathematics Education</i>	Netherlands
<i>Journal for Research in Mathematics Education</i>	United States
<i>Journal für Mathematik-Didaktik</i>	Germany
<i>Journal of Mathematics Teacher Education</i>	Netherlands
<i>Mathematical Intelligencer</i>	United States
<i>Mathematics Education Research Journal</i>	Netherlands
<i>Mathematische Semesterberichte</i>	Germany
<i>Notices of the American Mathematical Society</i>	United States
<i>PRIMUS</i>	United Kingdom
<i>Pythagoras</i>	South Africa
<i>Research in Mathematics Education</i>	United States
<i>Revista Matemática Iberoamericana</i>	Spain
<i>Teaching Mathematics and its Applications</i>	United Kingdom
<i>Technology, Knowledge and Learning</i>	United States
<i>ZDM - International Journal on Mathematics Education</i>	Germany

Examination of this list shows that the country of origin of these journals stands at 11 English language countries (55%), 4 journals residing in the Netherlands (25%), 3 in Germany (15%), and one each in Spain, and France (5% each). Further scrutiny reveals that the 4 journals listed as emanating from the Netherlands are English language journals

(e.g., MERJ). One Journal (ZDM), from Germany, only publishes English texts. Consequently, 16 out of the 20 listed journals are English language (80%) – demonstrating a dominance of English language journals in the field of mathematics education.

### Approach and Analysis

In addressing the intent of this paper, we describe and analyse, in the form of a heteroglossic discourse (Bakhtin, 1981), correspondence between a non-first-language-English academic, Rudolf (the second author of this paper), who had been invited to be the respondent to a keynote address at a prestigious international mathematics education conference, and Vince, a first-language-English mathematics educator (the first author of this paper) who provided Rudolf with advice on a draft of his response. Rudolf's response was required to be written in English and published in the conference proceedings as a complement to the paper written by the keynote speaker. Rudolf contacted Vince for advice on his use of English language within the paper.

In outlining and describing this collaboration, we present the original text provided by Rudolf to Vince, Vince's suggested edits to this text, commentary from both Rudolf and Vince related to the nature of the suggested edits, and the fashion in which edits were received. Rudolf initiated the conversation as he was seeking:

A language check from Vince to be sure that my text was correct English, understandable in terms of the mathematics education arguments, and respecting the terminology in use in this scientific community.

While Vince was very happy to assist he was concerned about exerting too much influence on the text:

I was, of course, more than willing to assist a colleague. After a long association with Rudolf, I was aware of the difficulties non-first-language-English speakers face in having their work published in prestigious English language outlets. But the request also brought with it challenges for me, as there was a dilemma associated with changing Rudolf's text so that it was not just understandable but also acceptable within the conventions of native English, while at the same time also preserving the author's voice.

### Initial Texts and Edits

In this section, categories that represent the types of advice Vince provided to Rudolf are illustrated via excerpts from the text sent to Vince for comment. Each excerpt is accompanied by comments, from both Rudolf and Vince, which are intended to exemplify the type of editorial suggestions made by Vince and Rudolf's responses.

#### *Words that are Not Suited to the Context or are Unfamiliar in English*

##### Original text from Rudolf with comments from Vince

This definition *transports* the three categories of competencies (as defined in a longer, interdisciplinary project sponsored by OECD)...

Comment [Vince]: Do you mean "outlines or "describes" or "communicates"?

Vince: The use of the word transports did not appear to make sense in the context within it was used. Thus I made suggestions to Rudolf about alternatives.

Rudolf: As a German, I was not aware of "transport" being a word not used in this context. Consequently, I had no problem in changing to Vince's first suggestion "outlines", which perfectly met my intentions.

Later, Rudolf used a word that was unfamiliar to Vince.

Looking into Comparative International Surveys (“CIS”), this difference will prove helpful to better understand what CISs do. Following the competence approach of *sensu* Chomsky, CISs only gather information on performance.

Comment [Vince]: Are you sure of this word?

Vince: I was simply unfamiliar with the word *sensu*. I was aware that it is a Latin word used in some scientific disciplines but I did not know if this was a term in common usage in European education research literature or a term drawn from Rudolf’s home tongue. Thus, I asked if it was the right word rather than assuming it was incorrect and offering suggestions.

Rudolf: Checking the word *sensu* in English dictionaries, I had to realise that it is not a word commonly used in English (even if I was sure I had read it in an English text). So I changed this expression into “The competencies (in the sense of Chomsky and his followers) ...”

A direct translation from a native tongue can seem out of place when viewed by a first-language-English speaker. The challenge associated with this type of choice of words is consistent with the mistakes in English language usage identified by Burnham and Hutson (2007), who provide advice of the selection of words with overlapping semiotics.

### *Formal Versus Informal Expressions and Literal Translations of Words*

At times, Rudolf’s translations took the form of informal expressions when the expectation is that formal language is used in academic papers. There were also examples of literal translations that seemed awkward to a native English speaker.

Original text (Rudolf): In xxx’s plenary, *I do like* two messages which I want to highlight and *bolster up*:

Edited text (Vince): In xxx’s plenary, I would like **to support** two messages, in particular, which I want to highlight and **reinforce**.

Vince: Rudolf used *I do like* – an informal expression in English. I made a suggestion I thought would capture the sense of the original wording, while shifting the expression towards a more formal form. I was, however, concerned about altering the original meaning. Also, *bolster up* appears to be a literal translation of a word Rudolf thought of in German when writing this sentence. I thought the word *reinforce* would be less jarring to a native English speaker’s ear.

Rudolf: Here, I simply trusted my Australian colleague, who must have a better feeling / knowledge on which words to use.

While it is no surprise that the use of colloquial language in a native tongue would creep into a translation, we did not find and specific advice in the literature. There was, however, advice to be found on the internet (e.g., Unilearning, n.d.).

### *Use of Punctuation*

Rudolf’s use of punctuation was different to that commonly seen in English. In the text below, the use of colons attracted Vince’s attention.

Original text (Rudolf): The first one is a repetition of this year’s conference theme: teaching and learning mathematics have to be discussed in a lifelong perspective, or: mathematics education is an issue “across the life span”.

Edited text (Vince): The first one is a repetition of this year’s conference theme, which the teaching and learning of mathematics must be discussed from a lifelong perspective or that mathematics education is an issue “across the life span”.

Vince: I noticed that Rudolf was using a colon to introduce a pause into his text. I was aware that colons can be used to indicate a long pause is needed in reading a text, but colons are most commonly used in English to mark the beginning of a list, or to mark the beginning of a quote (as in this paragraph). I made a suggestion on how to rewrite the text so that colons were not necessary.

Rudolf: I know that I have a personal over-use of colons. So I simply followed my colleague's advice – not realising that this is a more general issue.

That punctuation mistakes are a challenge for non-first-language-English authors has been identified by Glasman-Deal (2009) and Burnham & Hutson (2007). Again it is no surprise that the conventions of punctuation usage differ across cultures of mathematics education. It is a difficult problem to alleviate as authors, essentially, must unlearn the grammatical conventions of their native tongues in order to write coherently in English.

### *Words with Different Meanings in their Native Educational contexts*

Original text (Rudolf):

The same issue is relevant for a researcher in *Didactics* of Mathematics.

Vince: The meaning of the word *didactics*, in English, is often associated with direct teaching methods. In Europe it has a broader meaning including considerations of content knowledge and pedagogy. While I noted the use of the word, which I might have edited if the paper was for an Australian publication, I left the text alone as I knew it would be understood in the context in which it was to be presented.

Rudolf: Vince was correct in noting that *didactics* carries a meaning different in my research community from the use in an Australian and English research tradition. In France (where it is *Didactique*), Germany and Scandinavia, Didactics of Mathematics is the name of the scientific discipline analysing the teaching and learning Mathematics (to make a long story short). It does not have the negative connotation as it has in the Anglo-Saxon tradition.

The same or similar words with different meanings in different languages, as exemplified in the above exchange, has been identified as a frequently encountered difficulty by Burnham & Hutson (2007, e.g. see no. 7). Such words are known as *false friends* in German and other languages (for specific examples and a comment see Nature Education, 2014). In linguistic terms, even if words seem to be the same (in terms of vocabulary), they may be quite different in terms of their related semantic field.

## Conclusion

The excerpts from the initial text, the editing suggestions, and the author's reactions have provided some examples of the challenges which non-first-language-English authors from Mathematics Education / Didactics of Mathematics may face when publishing in English language research outlets. While space has prohibited a comprehensive list of such challenges, other issues exist, for example, the use of the original (in our case German) grammar while writing in English. These challenges potentially limit the full participation of non-first-language-English academics in the international mathematics education community.

A number of initiatives are needed to address this situation. The very least of which is that journal editors of English language journals need to be sensitive to this challenge. But what additional help could be provided in order to meet this challenge? Is it possible to identify a committed group of English language colleagues willing to help non-first-language-English authors with writing scientific papers? We believe this to be particularly important for early career researchers. Could the solution outlined and described in this paper become part of the institutionalised support structure of English language journals?

While this might be a plausible solution, it is only possible once English language colleagues are aware of the linguistic and cultural differences faced by non-first-language-English academics, and consequently themselves.

Our discussion has drawn attention to the problems non-first-language-English authors face when attempting to publish in English language research outlets, however, this issue is symptomatic of the situation in which English has become the universal language of science. As identified by McKay (2002), these challenges are far greater than simply learning English as a second language and then conducting a translation from their native tongue into English. Through the preceding discussion, we have attempted to raise the sensitivity of colleagues, in the mathematics education community, to this issue while, at the same time, offering one possible solution through the way in which this paper has been generated. Further systematic research is required, however, to find the best possible solutions.

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