

Language Proficiency and Student Performance in English-Speaking Country Medical Schools: A Mini Review

W inny Setyonugroho (Corresponding author)
Department of Medical Informatics, School of Medicine,
Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta

Iman Permana
School of Medicine, Faculty of Medicine and Health Sciences,
Universitas Muhammadiyah Yogyakarta

Abstract

Background. An increasing number of students, who is not a native speaker, enroll in health care courses in 'western' country, raised concern regarding potential difficulties associated with English proficiency and academic performance. The authors set out to determine the extent to which the English language proficiency of student who are not native English speakers affect the performance. **Summary.** Research paper describing language proficiency and medical student performance were identified from Pubmed and ProQuest Education Databases. Thirteen papers were analyzed. There are two phases of education found in papers, undergraduate and postgraduate. Regarding language proficiency, nine papers had English as a second language as variable while the rest using standardized language test. Two studies concluded that the standardized test in language proficiency alone was not sufficient to adequately assess 'a non-native speaker'. **Conclusion.** There is a clear correlation between language proficiency and medical students performance. Even more, understanding culture is important too. Sensitive issue could arise because of this. Educator should not fear to analyze and judge student performance in the context of English-speaking statuses. Training in social skills might have a good influence in student acquisition of second language.

Keywords: non native speaker, second language, student performance

Background

It is evident from census documents that an increasing number of students, who speak English as a second language, are choosing to study at third level in Western countries.^{1,2} At the same time, enrollment in higher education, and especially in health care courses, has grown significantly.³ An obvious concern, in this regard, is the potential difficulties and challenges associated with English language proficiency and academic performance.

There is more to language proficiency than mastering reading and writing, in that students must also be able to interpret language in the context of non-verbal cues and cultural values.⁴ Whilst observing an Object Structured Clinical Examination (OSCE) station during the end of semester assessment in the our medical school, we noticed that approximately half of the students in the circuit were Asian and that the majority of these students missed important aspects from the history taking section of the assessment. In contrast, it was our impression that all candidates who were native English speakers were much more likely to elicit the relevant facts early in the consultation. This is consistent with previous descriptions of non-native students not understanding cultural values and societal norms and with them experiencing discomfort in asking about intimate matters.⁵

Several recent studies have been carried out on studying the relationship between language and students performance. Harvey *et al.* (2013) highlighted the impact of language and cultural differences on the learning process.³ Further more, Donnelly *et al.* (2009) reported that the cultural knowledge is highly correlated with student performance.² Difficulties in communicating with patients resulted in poor performance in clinical settings. Nevertheless, medical educators may need to approach this issue with a high level of sensitivity, given that judgment regarding the quality of personal language ability could potentially be interpreted as racist.⁶ By review of the international literature, we set out to determine the extent to which the English language proficiency of students who are not native English speakers affects student performance in medical school.

Method

A preliminary literature review, relating to language proficiency and student performance, was conducted in order to ensure that key points and conceptual frameworks were adequately covered in subsequent search strategies. A list of keywords was then developed from the results of this exercise, so that they could form the basis for a more extensive literature search detailed below.

A search was performed in order to identify studies which published relevant papers in peer reviewed

journals. The following databases were searched: PUBMED and the ProQuest Education Database (consisting of the Educational Resources Information Center, the British Education Index and the Australian Education Index). A series of search strategies were utilized to ensure correct results and limits were applied to remove false results. The example of keywords used were: language proficiency, English as a second language (including the abbreviation) or primary language. This followed by combining results, using the Boolean operator AND with words related to student performance such as: academic achievement, student competence, or grade average point (including abbreviation GPA). This Boolean operator was used for PUBMED and adapted accordingly to other databases. Whilst the Boolean string operator "NOT" was applied in PUBMED, application to the other databases was problematic. Thus, we used reference management software to overcome this issue.

Restriction was applied to English language literature. Only papers referring to discipline of medicine were included. The search was conducted in September 2013 and there was no restriction for the date of publications.

Results

The literature search identified 1191 research papers. After removal of duplicate papers identified from multiple sources, 1054 papers remained. After review of each of the titles and abstracts, 101 potentially relevant studies remained. In cases where it was not possible to make the decision to include or exclude a paper based upon its title and abstract alone, the full text of the paper was reviewed. Final studies included in the review were 13 papers.

The author found two phases of education – undergraduate and postgraduate – covered in reviewed papers. The majority of the publications ($n=7/54\%$) related to undergraduate education,⁷⁻¹³ whilst three (23%) related to postgraduate education¹⁴⁻¹⁶ and the remaining three were related to Licence examinations.¹⁷⁻¹⁹ The greater number of the papers focused upon clinical competence,⁸⁻¹⁹ whilst only one study analyzed both basic science and clinical competence.⁷

It is interesting to note that analysis of the included papers identified two contrasting approaches. First, correlation between language proficiency using standardized test and student performance. Second, those studies in which 'a non-native speaker' were added to increase the sensitivity of an analysis.

Nine (69%) of the included studies considered the importance of the variable of 'a non-native speaker' in relation to student competence.^{8-12,14,16-18} Alternative variables included primary childhood language, language background, English as a Second Language (ESL) and English Language Learner (ELL). Meanwhile, the majority of the publications reported common language proficiency measurements. These included, for example, the VR-MCAT (Verbal Reasoning Medical College), V-SAT (Verbal Scholastic Aptitude Test), IELTS, or TOEFL (Table 1).

Correlation between language proficiency and student performances were found in all of the studies. The majority of studies reported a positive predictive effect on clinical competence of the student. Only one study reported the correlation with student overall performance, by way of GPA (Grade Point Average).⁷ Two studies reported strong correlation between language proficiency and student performance.^{10,15} Two studies concluded that the standardized test in language proficiency alone was not sufficient to adequately assess 'a non-native speaker'.^{9,16} Interestingly, only one study clearly mentioned the sensitive nature of the questionnaire subject.⁹

Discussion

It would appear that language proficiency is proven to correlate with student performance. The majority of included studies focused upon clinical skills, suggesting that researchers are concerned about the effect of language proficiency upon clinical acumen. Given that a typical generalist with a 40-year professional career is estimated to engage in more than 120 thousand consultations, then communication becomes a vital component of a physician's competence.^{20,21}

It is interesting to note that majority of the studies included 'a non-native speaker' as an important variable. Researchers found that standardized testing is not sufficient to measure language proficiency in relation to subsequent prediction of student competence. Beck *et al.* (1999) highlighted that even when students have a high score for language proficiency, faculty and colleagues frequently considered the students' language skills to be poor.¹⁶ Eggle *et al.* (1999) suspected that the standardized English test may not be sufficient in assessing candidates pursuing medical careers.¹⁶ In another study, Chur Hansen *et al.* (1997) reported that the standard test did not significantly correlate with clinical test performance until a spoken language variable was added.¹⁰

Standardized tests, for instance IELTS or TOEFL, are measuring four aspects of English proficiency: reading, writing, listening and speaking. Non-native speakers are more likely developing 'passive' language skills (reading and writing).¹⁰ For some communication skills domains, such as interpersonal skills, an informal command of English and idiomatic English is required.^{6,22} The result is that a native English speaker is likely to have better ability in collecting information, giving advice and establishing and maintaining a doctor-patient

relationship.¹⁸

Students who enroll in medical schools in western countries, where the predominant language is English, face language as well as cultural differences.³ An underlying concept by Chur-Hansen and Vernon-Roberts (1998) mentioned that language fluency components are determined by the excellent use of paralinguistic, verbal proficiency and non-verbal language.⁶ In short, students need to have a high grade of English language proficiency, as well as a good understanding of 'Western' culture.

This review included only studies published in English and studies pertaining to medical students in English speaking countries. Thus it may not be appropriate to generalize results to assessment in other student populations and settings.

Conclusion

This review demonstrates a clear correlation between language proficiency and medical student performance. Included papers identified that being a non-native speaker impacted upon performance. Furthermore, it is suggested that development of excellent communication skills requires an understanding of culture.

It may be challenging for medical educators to confront these issues, which are usually associated with race, ethnicity and immigrant status. Discussion of the differentiation of student achievement based upon these issues has the potential to be highly sensitive.

We suggest that medical educators should not fear to analyze and judge student performance in the context of English-speaking states. Failure to do so may preclude thorough assessment of a students' ability, given that a lack of understanding of students' language skills may inappropriately portray students as substandard.⁶ Consideration should be afforded to providing such medical students with social skills training and training in the use of English for medical purposes.

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Table 1 Details of papers included in the review and items measured in language competence and student competence correlation

No	Author	Language Items	Student Competence	Study Results
1	Esmail and Roberts 2013 ¹⁷	PLAB IELTS	Clinical skills assessment	Non-UK, black, and minority have higher fail rate than white candidates.
2	Van Zanten, Boulet, and McKinley 2003 ¹⁸	TOEFL	USMLE ECFMG CSA	Higher score in USMLE for native English speakers compare to non-English speakers.
3	Violato and Donnon 2005 ⁷	VR-MCAT	GPA MCCE Clinical reasoning	VR-MCAT positively related to the performance on MCCE Part 2.
4	Evans and Wen 2007 ¹⁹	VR-MCAT	COMLEX-USA	VR-MCAT positively predicts COMLEX-USA.
5	Fernandez <i>et al.</i> 2007 ⁸	Primary childhood language VR-MCAT	CPX	Student with non-English primary childhood language correlated with lower CPX.
6	Hays <i>et al.</i> 1996 ⁹	Language background	Oral communication skills examination	Recent arrival in country correlated with poor performance.
7	Chur-Hansen, Vernon-Roberts, and Clark 1997 ¹⁰	STAL	OSCI	STAL not associated with medical communication skills. Fluency of the spoken language has strong correlation with communication skills.
8	Winegarden <i>et al.</i> 2012 ¹¹	ELL VR-MCAT	USMLE	Less predictive in MCAT to the USMLE in ELL student.
9	Mann <i>et al.</i> 2013 ¹²	ESL TOEFL	OSCE	Language fluency can predict academic performance.
10	Part and Markert 1993 ¹⁴	FGEMS	ABIM rating	FGEMS significantly related to ABIM rating.
11	Roth <i>et al.</i> 1996 ¹³	V-SAT	USMLE	V-SAT is strong predictor for USMLE part 2
12	Ronai, Golmon, and Shanks 1984 ¹⁵	VR-MCAT	NBME	VR-MCAT is good predictor for NBME
13	Eggly, Musial, and Smulowitz 1999 ¹⁶	TOEIC SPEAK	ITE-IM	Language proficiency related to patient satisfaction.

* Numbering according to the alphabetical titles order ** Abbreviation list :

PLAP : Professional and Linguistic Assessment Board

IELTS : International English Language Testing System

VR-MCAT : Verbal Reasoning Medical College Admission Test

GPA : Grade Point Average

USMLE : United States Medical Licensing Examinations TOEFL : Test of English as a Foreign Language

ECFMG : Educational Commission for Foreign Medical Graduates'

CSA : Clinical Skills Assessment

COMLEX : Comprehensive Osteopathic Medical Licensing Examination

CPX : Clinical Performance Examinations

STAL : Screening Test for Adolescent Language OSCI : Observed Structured Clinical Interview

ELL : English language learners

FGEMS : Foreign Medical Graduate Examination in the Medical Sciences

ABIM : American Board of Internal Medicine

NBME : National Board of Medical Examiners

TOEIC : Test of English for International Communication

MCCE : Medical Council of Canada Examinations

SPEAK : Speaking Proficiency. in English Assessment Kit V-SAT : Verbal Scholastic Aptitude Test

ITE-IM : In-training Exam in Internal Medicine