

Representation of Students with Special Educational Needs in Language Testing Research

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The presence of students identified as English Language Learners (ELL) and Special Education Students (SES) in mainstream settings is growing. However, representation of these populations within language testing research remains unknown. This is important because language testing scores are increasingly used to evaluate student learning, teacher quality, and school quality. This meta-synthesis examined the representation of these two exceptional populations within the mainstream language testing literature published in two language testing journals. This meta-synthesis utilized inductive analysis and descriptive statistics. Findings indicated highly skewed representations of ELL and SES within the research corpus of the reviewed journals. Further analysis of participant demographics, research settings, test formats and test modalities are reported and discussed. Results highlight critical needs for the fields of exceptional education regarding the language testing of ELL and SES populations. The paper closes with suggestions regarding such needed research.

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INTRODUCTION

Education, as described by the United Nations, is a human right (UN Human Rights Council, 2017). Additionally, the *American Educational Research Association Statement on Human Rights* states that educational research is critical to provide a quality education (2013). Together, these statements suggest all students have the right to an education supported by research. However, not all students are able to access education in a uniform way, requiring research that accounts for accessibility differences. Special education students (SES) and English Language Learners (ELL) are two populations that, due to their defining characteristics, require additional considerations if they are to receive a research-based education. SES are not able to meet minimal curriculum-standard outcomes without additional programming considerations/support due to sensory, mental, behavioral, and/or emotional needs, as described within the guiding documents of multiple countries including Australia (Commonwealth Government, 2006), Canada (Ontario Ministry of Education, 2017), and the United Kingdom (Children and Families Act, 2014). Similarly, ELLs are unable to meet minimal curriculum-standard outcomes without additional support due to a lack of proficiency in the English language when attending schools where instruction is given in English, as described within the guiding documents of multiple countries including Australia (Victoria State Government, 2015), Canada (Ontario Ministry of Education, 2008), and the United Kingdom (Secondary National Strategy for School Improvement, 2007). Given the established presence of these special populations within education systems, research supporting education and assessment must include SES and ELL populations if *all* students are to receive the basic right of a research-based education. The purpose of this meta-synthesis is to describe how these special populations are represented within the research base of two premier language testing journals: *Language Testing* and *Language Assessment Quarterly*.

Students with Special Needs and Testing

Research has documented that, around the world, ELL and SES students are making up an increasing percentage of the mainstream student population. For example, in the United Kingdom, the ELL population increased by 0.7% (14.3% to 15%) from 2014 to 2015, and the SES population increased by 15 000 pupils from 2016 to 2017 (Department for Education Year-End Reports: SFR 16/2015; SFR 37/2017). In Australia, across 17 years (2000 to 2017), the ELL population increased by 200% (Department of Education and Child Development- EALD, 2017). In the United States in 2013, the ELL population represented 9.3% of the total school population; by 2015 over half a million additional students were added (McFarland et al., 2018). Similarly, the SES population of the United States also grew by over half a million students from 2013 to 2015 (McFarland et al., 2018). Overall, exceptional populations are being included in mainstream settings at

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increasing rates around the world, and researchers suggest these populations will continue to increase for the foreseeable future (Copland & Garton, 2014; Fry, 2007; Genesee et al., 2005).

Language testing scores support accountability provisions and educational standards aimed at measuring school quality and effectiveness (Standards, 2014). Since the early 2000s, standardized testing has become the premier tool to measure educational quality around the world (Davison, 2004), and test scores are becoming the determining factor used to evaluate school quality, teacher quality, and student learning. Within this testing context, these growing exceptional populations (ELL and SES) have unique needs for accommodations and modifications to ensure access to fair, valid, and reliable test scores (Standards, 2014). Therefore, given the growth of these exceptional populations in mainstream settings, and their unique testing needs, research into how school-age exceptional populations are represented in mainstream language testing literature is critical. This meta-synthesis is relevant and timely due to the growth of testing importance and the increasing presence of exceptional populations within mainstream settings; investigating how these populations are represented in the literature of mainstream language testing education will help identify and address these expanding needs. This paper describes the representations of ELL and SES populations within LT and LAQ. The review is limited to these two journals for two reasons. First, it is not known if Chalhoub-Deville and Deville's (2008) findings regarding psychometric and non-psychometric research within LT and LAQ – the impetus for this literature review – extend to other language testing journals. Second, one goal of this literature review is to determine if a large-scale meta-synthesis or meta-analysis is warranted regarding research into ELL and SES language testing; to achieve this, only two journals are examined as an initial investigation.

Impetus for Meta-Synthesis

In 2008, Chalhoub-Deville and Deville examined the use of psychometric and non-psychometric research within two premier international language testing journals: *Language Testing* and *Language Assessment Quarterly*. Within this context, psychometric research referred to any methodologies that included quantitative statistical analyses; non-psychometric research, on the other hand, included qualitative analyses. Chalhoub-Deville and Deville (2008) found, across *Language Testing* (LT) and *Language Assessment Quarterly* (LAQ), that the use of psychometric and non-psychometric methodologies was skewed: 74% of studies employed psychometric methodologies and 26% employed non-psychometric methodologies (Chalhoub-Deville & Deville, 2008). This skewed pattern has interesting implications for the representation of ELLs and Special Education Students (SES) because, within the context of exceptional populations, ELL populations are usually associated with psychometric methodologies (Plonsky, 2015) and SES populations are associated usually with non-psychometric methodologies (Odom et al, 2005).

The connection between research methodologies utilized in LAQ and LT, and methodologies utilized with ELL and SES populations, suggests these journals may be representing ELL students and SES students at different rates indicating a possible skewed representation of these populations within the education literature of language testing. This possibility is concerning as ELL and SES students require accommodations to ensure fair and valid language test results (Standards, 2014). Should either, or both, of these populations have limited or skewed representation within the research literature, research-supported accommodations for these populations – critical for fair and valid language test results – will also be limited and skewed. Such lack of accommodations research can have negative implications as test providers attempt to conduct assessments with ELL and SES students using an inadequate research base, and as teachers attempt to fold biased or inaccurate language testing results into their teaching and support.

Hypothesis and Research Questions

The hypothesis, drawn from the impetus of this meta-synthesis, states: These exceptional populations (ELL and SES) will be represented with more psychometric than non-psychometric research. To test this hypothesis and identify knowledge and gaps in ways these exceptional populations are represented in the literature, the following research questions were developed:

1. What are the publication trends across and within LT and LAQ that include exceptional populations?
2. Are there any notable patterns of representation within and/or across the following variables?

- a. Population types
- b. Accommodations
- c. Test Modality
- d. Test Formats
- e. Participant Types (students, teachers, parents)
- f. School Level (Elementary, Intermediate, High etc.)
- g. Educational Setting (General Education, Separate Schools, etc.)

METHOD

Inclusion Criteria

Studies were included in this descriptive analysis if they were empirical, included ELL and/or SES populations, addressed children (i.e., birth to high-school graduation), and were published in LT or LAQ. Literature reviews, book chapters, and meta-syntheses/analyses were excluded. Table 1 describes the rationale behind each inclusion criterion.

Table 1: Rationale for Each Inclusion Criterion

Criterion	Rationale
a) Birth to high-school graduation participants	Research focus is the representation of “special populations” educated in mainstream settings.
b) Empirical research (i.e., no literature reviews, book reviews, meta-synthesis/analysis)	Building on the findings of Chalhoub-Deville and Deville (2008) regarding empirical psychometric and non-psychometric research.
c) Published between 2004 – 2020	LAQ began publication in 2004. If all publications from LT prior to this time (1984 – 2003) was included, the data would be skewed.

Search Procedures

To ensure the accuracy of the inclusion and exclusion process, both researchers hand-searched LT and LAQ using the inclusion criteria outlined above. The inclusion/exclusion decision for each article was made through mutual agreement, with both researchers jointly scanning each article to justify the decision. Inclusion and exclusion decisions were initially made based on the titles and abstracts of reviewed articles; however, if the title and the abstract were not detailed enough to make a decision, the researchers scanned the article. This preliminary search yielded 45 articles (LT=26; LAQ=19) from a total of (739) articles potentially accepted for coding.

Coding Procedures

Similar to the search procedures, both researchers also jointly reviewed and negotiated every code for each article. This comprehensive coding process and extended discussion led to excluding 16 more articles, found to be missing one or more of the inclusion criteria upon in-depth reading. In total, 29 articles met all the inclusion criteria and were coded for descriptive analysis. Using Excel, articles were coded for information pertaining to the use of psychometric methodology, the target population (i.e., children, school staff, parents, or multiple types of participants), the school level (i.e., primary, elementary, middle school, high school, preschool, or multiple school levels), the test format (i.e., paper, computer, through-the-air, or multiple formats), test modality (i.e., reading, writing, speaking, listening, signing, or multiple modalities), the setting (i.e., inclusive, resource room, self-contained, or separate school), and addressing accommodations (i.e., yes/no). Also, to ensure inclusiveness of the codes, options such as others, unclear, not applicable, and not reported, were added to all variables.

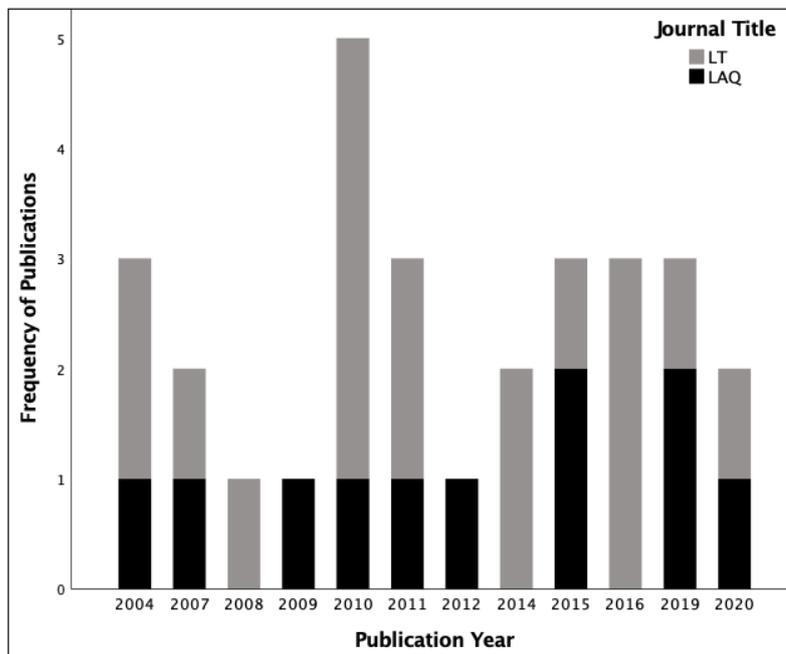
Data Analysis

Like the search procedures and coding procedures, data analysis was also conducted collaboratively. Using Statistical Package for the Social Sciences v. 25 (SPSS), the researchers used frequency counts and crosstab analyses to examine patterns of representation within and across variables. Data analysis began by analyzing the frequency of publication trends across both journals. Subsequently, the analysis focused on variables within each journal.

RESULTS

Findings indicated that across 29 studies, psychometric research designs were used in 22 studies (76%), and non-psychometric designs were used in seven studies (24%). These numbers indicate psychometric research occurred more frequently than non-psychometric research, and therefore the hypothesis that these exceptional populations (ELL and SES) are represented with more psychometric than non-psychometric research is accepted. Findings regarding publication trends across and within LT and LAQ indicated the rate of publication from 2010 to 2020 was double the rate of publication from 2004 to 2009. Publication rates experienced a particular surge in 2010, with the publication of five articles (representing 17% of all coded publications) in the form of a special issue. Figure 1 shows these publication trends.

Figure 1: Publication Trends Across Journals



Results related to representation of the ELL and SES population across all empirical publications are reflected in Table 2. Of note, from 2004 to 2020 (a sixteen-year span), LT published 18 articles, representing 4.4% of all articles (n = 409); and LAQ published 11 articles, representing 3.3% of all articles (n = 330). Furthermore, all the articles that considered the SES populations appeared only in LT journal.

Table 2: Publication Trends Across Journals

Publication Year	<i>Language Testing</i>	<i>Language Assessment Quarterly</i>
2004	2	1
2007	1	1
2008	1	0
2009	0	1
2010	4	1
2011	2	1
2012	0	1
2014	2	0
2015	1	2
2016	3*	0
2017	0	0
2018	0	0
2019	1	2
2020	1*	1

*Note: When the SES population was included.

Findings examining patterns of representation are displayed in Table 3. Of note, ELL populations were represented in 93.1% (n = 27) of the publications, SES populations were represented in 6.9% (n = 2) of the publications, and ELLs with special needs were not represented at all. The two studies that included SES participants are Mann et al. (2016) and Haug et al. (2020), both focused on language testing for deaf and hard of hearing students. Further analysis indicated that only five of the reviewed studies (17.2%) examined the use of accommodations in testing. Other studies targeted test modalities, where writing and speaking were represented in more than 51.7% (n = 15) of the reviewed studies, while reading and listening were represented in 13.7% (n = 4) of the studies. Six studies (20.7%) did not report testing modalities clearly enough to allow for coding. Furthermore, the test format was not described nor defined at all in four studies (14%). Finally, all articles targeting testing modalities were published at the LT journal. The reviewed studies utilized different test formats, where paper format was the mostly used (38%, n = 11), followed by through-the-air format (24%, n = 7) and computer format (10.3%, n = 3). Regarding the participant types, students were the most common type of participant, represented in 79% (n = 23) of all studies, followed by parents (n = 3) and school staff (n = 3), each within 10% of the reviewed studies. Finally, most of the reviewed studies were conducted at inclusive settings (89.7%, n = 26), and only one study (3.4%, n = 1) was conducted at a separate setting. Also, 45% of all the reviewed studies (n = 13) were conducted across multiple grade levels, followed by elementary level (34.5%, n = 10), intermediate school level (10.3%, n = 3), and high school level (10.3%, n = 3).

Table 3: Characteristics of the Reviewed Studies

Variable	n	%
Population Type		
ELL	27	93.1%
SES	2	6.9%
ELL-SES	0	0%
Accommodations		
Yes	5	17.2%
No	23	79.3%
Not Applicable	1	3.4%
Test Modality		
Reading	3	10.3%
Writing	8	27.6%
Speaking	7	24.1%
Listening	1	3.4%
Multiple	6	20.7%
Unclear	1	3.4%
Not Applicable	3	10.3%
Test Format		
Paper	11	37.9%
Computer	3	10.3%
Through-the-Air	7	24.1%
Multiple	1	3.4%
Unclear	4	13.8%
Not Applicable	3	10.3%
Participant Type		
Student	23	79.3%
School Staff	3	10.3%
Parents	3	10.3%
School Level		
Elementary	10	34.5%
Intermediate	3	10.3%
High School	3	10.3%
Multiple	13	44.8%
Educational Setting		
Inclusive	26	89.7%
Separate	1	3.4%
Other	1	3.4%
Not Disclosed	1	3.4%

Discussion

The purpose of this meta-synthesis was to examine patterns of representation for exceptional populations (ELL and SES) within a sample of the language testing literature. Findings indicated 79% (n = 23) of the research employed a psychometric methodology. The acceptance of the null hypothesis indicated that the findings from Chalhoub-Deville and Deville (2008), regarding psychometric use in the LT and LAQ journals are also reflected within language testing literature related to ELL and SES populations. Therefore, Chalhoub-Deville and Deville's (2008) concerns regarding methodological bias in the general language testing

literature base are also mirrored within the language testing literature related to the students with special needs. This finding highlights a call to the field of language testing to engage in more non-psychometric research to more fully understand the language testing needs of individuals with exceptional needs. As Creswell and Plano Clark (2018) suggest, the use of both psychometric and non-psychometric research creates a more complete and coherent understanding of topics under investigation. When different research approaches are used to study the language assessment needs of exceptional students, more appropriate and impactful educational services are designed and delivered.

This analysis also identified biased population representations. Although research suggests the increasing presence of students with exceptional needs in mainstream settings (Copland & Garton, 2014; Fry, 2007; Genesee et al., 2005), such rising representation is not seen in language testing research within the reviewed set of studies. Further, possible bias is also reflected in how these exceptional populations were represented relative to each other: ELL populations were represented in twenty-seven studies, SES populations were only represented in two studies, and ELL populations with special needs were not represented at all. However, all three sub-populations are described as exceptional due to their need for accommodations to access language tests that are valid and reliable (Standards, 2014). Yet, ELLs were predominantly represented in the data, suggesting that within the literature reviewed in this study, a gap of knowledge exists regarding accommodations for SES and ELLs with special needs.

Further, the lack of findings linked to specific grade levels is also a concern within this research base. When findings are delineated across grade levels, school-based team members (such as teachers, parents, and other professionals) can use this research to conclusively support their work within specific grade levels. Applying this research may be further limited by a lack of reporting specific test formats, where 27.5% (n = 8) did not do so, limiting the usefulness of its findings to support language testing of these exceptional populations. This highlights a call for specificity in reporting findings regarding test format, to support generalizability and research use.

This meta-synthesis suggests that test designers, test providers, and teachers alike, all have extremely limited access to information that could ensure language tests outcomes are reliable and fair for ELLs and SES students. The almost total absence of SES populations, and the lack of variable specificity within ELL-based research indicates a concerning chain reaction that could ultimately shape these students' education in negative ways. In fact, this skewed and inadequate research base implies that many children currently attend language tests without research to support their needed accommodation(s). It means that, test results drawn from these potentially biased language tests, lacking in research-supported accommodations, may provide outcomes that do not *truly* reflect test-taker's language skills. Using such potentially biased information might lead to teachers, parents, and administrators to make ineffective and inappropriate educational decisions. As the percentage of ELL and SES students continues to grow within mainstream education, ensuring fair and adequate assessment of their language skills through high-quality research must become a priority. Finally, these findings strongly indicate that further meta-syntheses or meta-analyses of ELL and SES population representation within other language testing journals is urgently needed, to understand the full extent and nature of their possible under-representation within the language testing field.

Limitations

This meta-synthesis has three limitations. First, the researchers accepted the labels of ELL and/or SES within the literature without evaluating the basis each study used to decide whether participants were ELL or SES; some samples represented within this literature may not meet the ELL or SES definitions set out by one or more governments. Second, it is possible that trends related to exceptional populations within other language testing journals or compilations (e.g., *International Journal of Language Testing and Assessment*, *Studies in Language Testing*) are different from trends identified within this analysis; further literature analyses are needed to address this limitation. Third, only sixteen of LT's thirty-seven years of publication (1984 - 2020) were coded; this limitation ensured an even amount of representation across journals within the data, as LAQ began publication 2004. Though this limitation increased the validity of the findings because the raw data were not skewed towards one journal from the outset, it is also not known if the trends identified within LT are reflective of that journal's entire publication history. Therefore, it is suggested that future research consider

conducting a more comprehensive review of the literature that examine the representation of the ELL and/or SES population at a larger scale, considering language testing research beyond the LT and LAQ journals.

Conclusion

This meta-synthesis aimed to examine how exceptional populations (i.e., ELL, SES, and ELL students with special needs) are represented across and within two premier international journals of the language testing field: *Language Testing* and *Language Assessment Quarterly*. Results indicated an overwhelming use of psychometric research, compared to non-psychometric research, and a lack of representation of SES and ELLs with special needs in this research base. The discussion provided multiple suggestions to the field, including: (1) encouraging more publications related to all exceptional populations, particularly SES and ELLs with special needs, (2) including a larger variety of stakeholders, (3) ensuring detailed reporting to guide application of findings, (4) and the need for further literature meta-syntheses of other language testing journals

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