

Research Article

Variability in Interpreting “Educational Performance” for Children With Speech Sound Disorders

Kelly Farquharson^a and Lisa Boldini^a

Purpose: Speech sound disorders (SSDs) can have a negative impact on literacy development, social–emotional well-being, and participation across the life span. Despite this, many public schools do not provide appropriate or timely services to this population of children. In large part, this is a result of variation in how state and local agencies interpret “educational performance” as outlined within the Individuals With Disabilities Education Act. The purpose of this study was to explore which educational performance factors speech-language pathologists (SLPs) consider when determining eligibility for children with SSDs.

Method: This study surveyed public school SLPs to investigate how educational performance is interpreted for children with SSDs. Data from 575 SLPs across the United States are included.

Results: Results supported variability in interpretation of educational performance within a nationwide sample of SLPs. Specifically, SLPs appear to consider educational performance as multidimensional. We also found within-state and between-states variability, indicating ambiguity in interpreting federal mandates. Finally, caseload size and number of years of experience were significantly related to which educational performance factors SLPs chose.

Conclusion: There is significant variability across the United States with respect to factors considered part of educational performance for children with SSD. This variability reflects the general quality and specificity of guidelines and/or special education code published by individual states. Clinical and legislative recommendations are included.

Speech sound disorders (SSDs) can have a negative impact on several aspects of a child’s educational performance. Children with SSD are at an elevated risk for later literacy deficits, including difficulties with reading, spelling, and phonological awareness (Felsenfeld, Broen, & McGue, 1994; Larrivee & Catts, 1999; Overby, Trainin, Smit, Bernthal, & Nelson, 2012; Raitano, Pennington, Tunick, Boada, & Shriberg, 2004), and SSDs can be negatively pervasive across the life span (Farquharson, 2015; Felsenfeld et al., 1994). As such, school-based speech and language services are paramount for this population of children—and mandated as a part of the Individuals With Disabilities Education Act (IDEA). Indeed, nearly 90% of school-based speech-language pathologists (SLPs) report

providing services to children with SSD (American Speech-Language-Hearing Association [ASHA], 2016a). However, initial evidence suggests that there is variability in service provision with respect to the interpretation of “educational performance” under IDEA. Specifically, some SLPs have reported not providing services to students with mild articulation disorders when they “were doing fine in school,” whereas other SLPs considered the “large social impact” of the students’ articulation difficulties (Sylvan, 2014). In this study, we surveyed school-based SLPs nationwide to explore variability in how the IDEA terminology of educational performance is interpreted.

Federal Guidelines and ASHA Guidance

According to ASHA, “professionals working with students with disabilities are specifically charged with helping them access the general education curriculum” (ASHA, 2010a). As such, SLPs have a responsibility to address and consider the educational needs of children for whom they provide therapeutic services. To qualify for school-based SLP services under IDEA, three criteria must be met: (a) the child is diagnosed with qualifying disability, (b) the

^aEmerson College, Boston, MA

Lisa Boldini is now at Adams 12 Five Star Schools, Broomfield, CO

Correspondence to Kelly Farquharson, who is now at Florida State University, Tallahassee: kelly.farquharson@cci.fsu.edu

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disability adversely affects a child's educational performance, and (c) specialized instruction and related services are necessary for the child to make progress (IDEA, 2004). IDEA clearly outlines qualifying disabilities, but it does not further define "adversely affects" or "educational performance," thus allowing room for interpretation. Dublinske (2002) reviewed letters exchanged between ASHA and the now Office of Special Education and Rehabilitative Services (OSERS). ASHA had requested a policy interpretation after receiving reports that schools were requiring children with speech-language impairments to demonstrate concomitant academic difficulties in order to qualify for services (Dublinske, 2002; OSERS, 2007). The department's response assured that such a definition of educational performance for children with speech impairments was "unreasonably restrictive" and "inconsistent with the intent of the Act" (Department of Health, Education, and Welfare, 1980, p. 1). The letter further clarified that educational performance cannot be limited to academic performance and "The extent of a child's mastery of the basic skill of effective oral communication is clearly includable within the standard of 'educational performance'" (Department of Health, Education, and Welfare, 1980, p. 2). Furthermore, Thomas (2016) noted that the Department of Education specifically chose the term "educational" instead of "academic," which may indicate that the intention was to encompass "nonacademic performance, such as behavior, emotional development, and interpersonal relationships for the purpose of determining eligibility for special education and related services" (p. 85). Still, there remains inconsistency and confusion among SLPs working in federally funded public schools (Sylvan, 2014), who are required to follow IDEA regulations (ASHA, 2016b).

ASHA's position on the phrase "adversely affects educational performance" is clear: Educational performance is not limited to one single factor (e.g., grades) and should take into consideration a child's entire educational experience (Dublinske, 2002; OSERS, 2007). The entire educational experience includes but is not limited to social interactions; peer, teacher, and self-perception; behavior; social-emotional well-being; willingness to participate orally in class; and completing an oral presentation before a group (Dublinske, 2002). In addition, ASHA has a position statement and a professional issues statement regarding the roles and responsibilities of SLPs in schools (ASHA, 2010a, 2010b). These documents specify, among other things, that SLPs should "provide direction in defining their roles and responsibilities and in ensuring appropriate services to students" (ASHA 2010b). As such, in some cases, the interpretation of educational performance is solely the responsibility of the SLP. Importantly and according to ASHA, "the SLP's comfort level should not be the factor that determines eligibility or recommendation for services. All decisions must be made based on the individual needs of the student" (ASHA, 2012, p. 3).

Educational Performance and SSDs

The lack of consensus around educational performance ultimately affects children with SSD who may be

at risk for later academic and literacy deficits. Although a child's articulation or phonological disorder may not directly affect their grades, research has shown that SSDs can have a significant impact on educational performance. For instance, literacy development (Cabbage, Farquharson, & Hogan, 2015; Larrivee & Catts, 1999; Preston & Edwards, 2007, 2010; Preston, Hull, & Edwards, 2013), working memory (Couture & McCauley, 2000; Farquharson, Hogan, & Bernthal, 2017; Munson, Edward, & Beckman, 2005), social-emotional well-being (Hitchcock, Harel, & Byun, 2015), and participation in employment and relationships throughout the life span (Felsenfeld et al., 1994; McCormack, Mcleod, Mcallister, & Harrison, 2009) can be negatively impacted by SSDs. In fact, Overby, Carrell, and Bernthal (2007) reported that classroom teachers hold significantly different academic, social, and behavioral expectations of children with SSDs. Even if academic issues are not present early in elementary school, SSDs can continue to impact educational performance after the speech production error is remediated (Farquharson, 2015; Raitano et al., 2004). In a systematic review of 57 studies, McCormack et al. (2009) examined the association between childhood SSDs and participation restrictions across the life span, as defined by the World Health Organization. The authors found that SSDs may be associated with several limitations and restriction areas, including learning to read/reading; learning to write/writing; attention and thinking; calculating; communication; mobility; relating to persons in authority; informal relationships with friends/peers; parent-child relationships; sibling relationships; school education; and acquiring, keeping, and terminating a job. All of these factors are directly or indirectly related to educational performance. The evidence supports that SSDs can negatively affect children across educational and personal domains. Inconsistent interpretations of the factors that contribute to educational performance are likely to influence service provision for children with SSD. A lack of or a delay in services can exacerbate the detrimental effects of SSDs.

State-Specific Legislation

Despite federal guidance on the definition of educational performance, ambiguity continues to exist and has been documented by several studies and law reviews over the past 15 years (Dublinske, 2002; Sylvan, 2014; Thomas, 2016). Because IDEA does not define "adversely affects" or "educational performance," each state has the freedom to produce more specific guidelines using IDEA as a baseline. Some states, such as Connecticut, Texas, and Virginia, have published thorough guidance documents for SLPs and educators to follow (Connecticut State Department of Education, 2008; Texas Speech-Language-Hearing Association, 2009; Virginia Department of Education, 2011). In contrast, other states provide limited guidance outside a brief definition of articulation disorders within the state's special education code (e.g., Massachusetts Department of Elementary & Secondary Education, 2017).

Only nine states explicitly define “adversely affect,” “educational performance,” or both, and variability exists even within those definitions (Thomas, 2016). For instance, Thomas (2016) reports that West Virginia defines educational performance “to include both academic areas and nonacademic areas, such as ‘daily life activities, mobility, prevocational and vocational skills, social adaptation, self-help skills, etc.’” (p. 89). By contrast, Vermont lists “oral expression, listening comprehension, written expression, basic reading skills, reading comprehension, mathematics calculation, mathematics reasoning, and motor skills” as the basic skills encompassed within educational performance. These inconsistent definitions can lead to varying levels of service provision between states. In states that have not provided definitions of “adversely affect” or “educational performance,” there is additional room for interpretation at the district, school, or individual SLP level.

How SLP Characteristics Impact School Practice

With limited state and federal guidance, SLPs’ individual clinical judgment can play a large role in eligibility decisions for children with SSD. SLPs’ decision making can be affected by job characteristics such as caseload size, number of schools serviced, and years of experience (Blood, Ridenour, Thomas, Qualls, & Hammer, 2002; Brandel & Frome Loeb, 2011; Katz, Maag, Fallon, Blenkarn, & Smith, 2010). Caseload size has been associated with job satisfaction (Blood et al., 2002), program intensity (Brandel & Frome Loeb, 2011), and caseload manageability (Katz et al., 2010). In turn, job satisfaction has been found to be predictive of therapy quality (Biancone, Farquharson, Justice, Schmitt, & Logan, 2014). Time pressures associated with large caseloads and servicing multiple schools may lead SLPs to focus more on tangible data (e.g., grades or standardized scores) and prevent follow-up on all educational performance factors associated with SSDs (e.g., social-emotional impact and oral participation).

Years of experience has also been associated with aspects of SLPs’ job performance and decision making. Skahan, Watson, and Lof (2007) found that years of experience was predictive of the amount of time SLPs spent during the assessment process with children who have SSDs. SLPs with more experience reported spending more time, particularly during the postassessment process. Brandel and Frome Loeb (2011) also found an association between years of experience and decision making, concluding that years of practice appear to influence SLPs’ recommendations regarding program intensity and service delivery. As with caseload size, the number of years of experience has been associated with job satisfaction. Across multiple studies, SLPs with more years of experience report greater job satisfaction (Blood et al., 2002; Pezzei & Oratio, 1991). SLPs with more years of experience have also reported feeling that their caseload is more manageable compared to SLPs with fewer years of experience (Katz et al., 2010). As such, it is important to consider job characteristics that can affect SLPs’ decision making, including how they

interpret the concept of educational performance when determining eligibility of services for children with SSDs.

This Study

This study was exploratory in examining which factors school-based SLPs use to interpret and determine educational performance for children with SSDs. Using a nationally distributed survey, we investigated the following research questions:

1. Which factors related to educational performance do SLPs take into consideration when determining eligibility for children with SSDs?
2. Do the factors related to educational performance vary by state?
 - (a) Are SLPs familiar with their state’s guidelines regarding educational performance?
 - (b) Where do SLPs in each state get their guidelines regarding educational performance?
3. Is there an association between SLPs’ job characteristics (caseload size, number of schools serviced, or years of experience) and which factors are chosen for educational performance?

Method

Data for the present investigation were obtained from a larger survey, which sought to collect robust information regarding how school-based SLPs make decisions on service provision for children with SSDs. A 53-question, web-based survey was distributed nationally to school-based SLPs via e-mail (Dillman, 2006) and social media. Respondents ($n = 575$) were public school SLPs working with children in preschool through 12th grade who were asked to provide (a) background and demographic information, (b) their current role and caseload information, (c) eligibility and dismissal criteria for children with SSDs at their school, and (d) their interpretation of IDEA and educational performance, including responses to grade-based cases. The survey was open for a total of 13 weeks.

Participants

A total of 844 SLPs visited the landing page and 575 SLPs completed the entire survey, yielding a 68% completion rate. Partial completions were included in our data analysis only for questions that were answered; not all questions were mandatory. The first few questions ensured that only public school-based SLPs currently practicing in the United States took the survey. SLPs who worked in settings other than IDEA-funded schools were disqualified from taking the survey. Retirees, clinical fellows, and graduate students were also excluded to ensure that responses were reflective of current, independent clinical practice. Participants reported a wide range of work experience, from 0 to 4 years (20.4%) through 20+ years (30.5%; see Table 1

Table 1. Summary of employment and caseload information.

Variable	<i>n</i>	Range	<i>M</i> ± <i>SD</i>
Caseload			
Caseload size	718	8–146	50 ± 17
SSD only	670	0–72	13 ± 11.1
SSD comorbid	667	0–113	22.3 ± 16.1
No. schools serviced			
1 school	412		
2 schools	184		
3 schools	77		
4+ schools	52		
Type of school			
Pre-K	268		
Elementary school	625		
Middle school	246		
High school	168		
Other	26		
Years of experience			
0–4 years	148		
5–10 years	162		
11–19 years	193		
20+ years	221		
Work status			
Full time	633		
Part time	61		
Gender			
Female	705		
Male	18		

Note. Participants could select more than one type of school if they serviced multiple schools. SSD = speech sound disorder.

for a summary of demographic, employment, and caseload information). The majority of survey respondents were female and were employed full time in elementary schools. Caseload size ranged from 8 to 146 ($M = 51$), and SLPs reported working with varying numbers of children with SSD as the only diagnosis or SSD comorbid with another disorder (e.g., language disorder; see Table 1). SLPs from all 50 states, Washington, DC, and Puerto Rico participated in the survey. The largest number of responses came from Massachusetts (MA; $n = 69$), Texas (TX; $n = 52$), California (CA; $n = 44$), New Jersey (NJ; $n = 42$), and Ohio (OH; $n = 28$; see Table 2 for the response rates from each state).

Survey Development

The questionnaire was developed using SurveyMonkey, an online survey software (SurveyMonkey Inc., www.surveymonkey.com). Question types included multiple choice, select all that apply, dropdown menu, and fill in the blank (e.g., to input caseload size). First, the survey was piloted by six SLPs who provided feedback on clarity of questions, length, and overall survey design. The final survey was estimated to take 15–20 min to complete.

We selected variables to include in multiselect questions regarding the definition of educational performance after an extensive review of state guideline documents and special education code. Educational performance factors were specifically adopted from the Connecticut State Department of Education (2008) Guidelines for Speech and Language

Table 2. Number of speech language pathologist respondents per state, from largest to smallest response rate.

State	<i>n</i>
Massachusetts	69
Texas	52
California	44
New Jersey	42
Pennsylvania	39
Florida	29
Ohio	28
Illinois	26
Virginia	25
New York	22
Michigan, Oregon	20
Minnesota, Missouri	19
North Carolina, Washington	17
Indiana, Wisconsin	15
Maryland	14
Arizona, Kentucky, Nebraska, Oklahoma	12
Georgia	11
Arkansas, Connecticut, Iowa	10
Alabama, Colorado, Mississippi, New Hampshire, Tennessee	8
Kansas	7
New Mexico, South Carolina	6
North Dakota, Vermont, West Virginia	5
Louisiana	4
Nevada, South Dakota, Utah, Wyoming	3
Alaska, District of Columbia, Idaho, Maine, Rhode Island	2
Delaware, Hawaii, Montana, Puerto Rico	1

Programs, as they were the most comprehensive and detailed across the 50 states. Specifically, the eight educational performance factors included were as follows: access to the curriculum; academic results/grades; oral participation in class; oral reading; spelling; social-emotional adjustment/behavior; reaction of self, peers, teachers, or parents; and/or other.

Measures

We answered our research questions by examining the responses to survey items regarding demographic information and educational performance. For our first research question, we examined responses from the survey item: *Which of the following would you consider to be part of “educational performance” when determining eligibility for children with speech sound disorders? (Select all that apply).* Participants chose from any or all of the following options: *access to the curriculum; academic results/grades; oral participation in class; oral reading; spelling; social-emotional adjustment/behavior; reaction of self, peers, teachers, or parents; and/or other.*

For our second research question, we compared responses on the educational performance question from five states: CA, MA, NJ, OH, and TX. These five states were chosen for three primary reasons: (a) we received a high number of responses from these states ($n \geq 28$), allowing for more robust data analysis; (b) during our extensive review of state guideline documents and special education code, these five states had substantial differences in what information was available; and (c) there is geographic variety and regional representation among these five states.

To answer the subquestions to our second research question, we looked at responses from the following items on the questionnaire: (a) *Are you familiar with your state's guidelines regarding "educational performance" when it comes to speech services?* Participants could select either (a) yes, (b) no, or (c) other (please specify) and (b) *Think about the current criteria used to identify a child with a speech sound disorder as needing an IEP (Individualized Education Program) at your school. Please choose one primary source of these criteria.* Participants could select either of the following: (a) state guidelines; (b) district guidelines; (c) state Speech-Language-Hearing Association (e.g., Massachusetts Speech-Language Hearing Association, Texas Speech-Language-Hearing Association); (d) federal guidelines (IDEA); (e) My school provides me with guidelines, but I am not sure where those guidelines originate; or (f) other (please specify). For our last research question, we examined reported caseload values, number of schools serviced, and years of experience in association to responses to the educational performance question.

Data Analysis

The data were analyzed using descriptive and nonparametric statistics, as appropriate for each research question. SPSS Version 25.0 was used for all analyses. Questions 1 and 2a were answered using descriptive statistics, due to the exploratory nature of the study in that little information was previously available to evaluate all of these variables within the same study. Questions 2, 2b, and 3 were answered using chi-square test of independence to determine any associations between our variables of interest. Within the contingency tables of the chi-square analyses, adjusted residuals were used to determine cell-by-cell significance. Adjusted residuals larger than 1.96 were considered significant (Sharpe, 2015).

Results

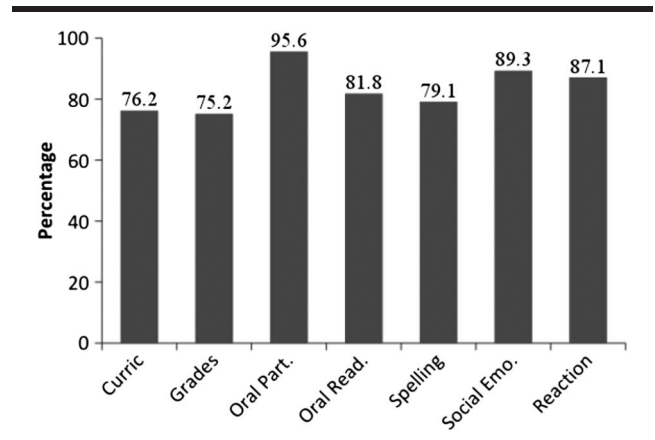
Educational Performance Factors

Our first research question asked SLPs which factors related to educational performance are taken into consideration when determining eligibility for children with SSDs. Figure 1 displays the percentage of SLPs who chose each educational performance factor. Each of the eight educational performance factors was chosen by at least 75% of respondents. The majority of SLPs chose *oral participation* ($n = 562$, 95%) as an educational performance factor. *Grades* was chosen least frequently ($n = 442$, 75%). On this survey item, participants could choose as many factors as applied to their experience; the number of total possible items was eight, which included the option of "other." The mean number of items chosen was 5.8, with a range of 0–8. The majority of respondents chose seven items ($n = 277$, 47%).

State Variability for Educational Performance

To answer our second research question, we analyzed group differences using descriptive statistics and

Figure 1. Factors considered part of "educational performance" based on all survey responses ($N = 588$). The labels on the x-axis correspond to individual factors that participants could select (could select multiple). Curric = access to the curriculum; Grades = academic results/grades; Oral Part. = oral participation in class; Oral Read. = oral reading; Social Emo. = social-emotional adjustment/behavior; Reaction = reaction of self, peers, teachers, or parents.



nonparametric measures for the five targeted states (CA, MA, NJ, OH, and TX). A series of chi-square tests of independence were used to analyze differences between states. There were significant differences across the five targeted states for five out of eight educational performance factors: access to the curriculum ($\chi^2 = 20.58$, $p < .001$), oral reading ($\chi^2 = 9.48$, $p = .023$), spelling ($\chi^2 = 9.48$, $p = .023$), social-emotional adjustment/behavior ($\chi^2 = 11.37$, $p = .010$), and reaction of self, peers, teachers, or parents ($\chi^2 = 12.56$, $p = .006$). The association was moderately strong for all: access to the curriculum (Cramer's $V = .330$), oral reading (Cramer's $V = .260$), spelling (Cramer's $V = .271$), social-emotional adjustment/behavior (Cramer's $V = .276$), and reaction of self, peers, teachers, or parents (Cramer's $V = .261$). Chi-square analyses for oral participation and grades were not significant. Post hoc analysis involved pairwise comparisons using the z test of two proportions with a Bonferroni correction. Cell-by-cell comparisons are included in Table 3 to highlight the differences between states. For example, in oral reading, respondents from MA had a strong negative association (adjusted residual = -3.2) and NJ had a moderate positive association (adjusted residual = 2.0).

State Guidelines

Results from the entire sample of SLPs revealed that 73% of respondents were familiar with their state guidelines, 23% were not familiar, and 4% chose *other*. To examine any state-based differences, we analyzed descriptive statistics for the five target states (CA, MA, NJ, OH, and TX). Figure 2 displays the responses from each state. Chi-square analysis revealed significant differences across states ($\chi^2 = 23.82$, $p = .002$). This association was moderate

Table 3. Cell-by-cell comparisons between states for significant educational performance factors.

Variable	% of SLPs who chose the factor (adjusted residuals)
Access to curriculum	
California	91.4 (1.8)
Massachusetts	93.0 (2.9)
New Jersey	59.5 (-3.6)
Ohio	79.2 (-0.2)
Texas	71.4 (-1.5)
Oral reading	
California	74.3 (0.1)
Massachusetts	57.9 (-3.2)
New Jersey	86.5 (2.0)
Ohio	87.5 (1.7)
Texas	74.3 (0.1)
Spelling	
California	68.6 (0.2)
Massachusetts	50.9 (-3.1)
New Jersey	86.5 (2.8)
Ohio	75.0 (0.9)
Texas	65.7 (-0.2)
Social-emotional	
California	97.1 (2.0)
Massachusetts	73.7 (-3.5)
New Jersey	91.9 (1.0)
Ohio	95.8 (1.4)
Texas	85.7 (-0.2)
Reaction	
California	100 (2.7)
Massachusetts	75.4 (-2.6)
New Jersey	91.9 (1.2)
Ohio	87.5 (0.3)
Texas	80 (-1.1)

Note. Adjusted residuals greater than 1.96 are significant. SLP = speech language pathologist.

(Cramer's $V = .361$). To determine differences between specific states and their familiarity, we examined the adjusted residual values for each cell in our contingency table. The largest adjusted residuals were from SLPs in MA who reported not being familiar (4.1) and from SLPs in NJ who reported being familiar (2.3).

Results from the entire sample of SLPs revealed that 47% of respondents obtain their guidelines from the state, 23% from the school district, 13% from federal, 5% from their school district with an unclear origin, 4% from their state Speech-Language-Hearing Association, and 8% from other. To examine any state-based differences, we analyzed descriptive statistics for the five target states (CA, MA, NJ, OH, and TX). Table 4 displays the percentage of total respondents from each state that selected each variable.

Job Characteristics

To answer our third research question, we first examined the association between caseload size and which factors are chosen for educational performance. We explored differences in the association between caseload size and educational performance factors using caseload as a categorical variable (i.e., small [20–40], average [41–60], and large [60+]; Biancone et al., 2014). A chi-square analysis revealed a significant association between caseload size and social-emotional adjustment/behavior ($\chi^2 = 6.8$, $p = .033$), but with no other factors. This association was small (Cramer's $V = .108$). To examine which caseload groups were more associated with choosing social-emotional adjustment/behavior, we examined the adjusted residual values for each cell in our contingency table. The largest adjusted residuals were for SLPs with small caseloads who chose “no” to social-emotional adjustment/behavior (2.2) and from SLPs with large caseloads who chose “yes” to social (2.0).

Figure 2. Familiarity with state guidelines by state.

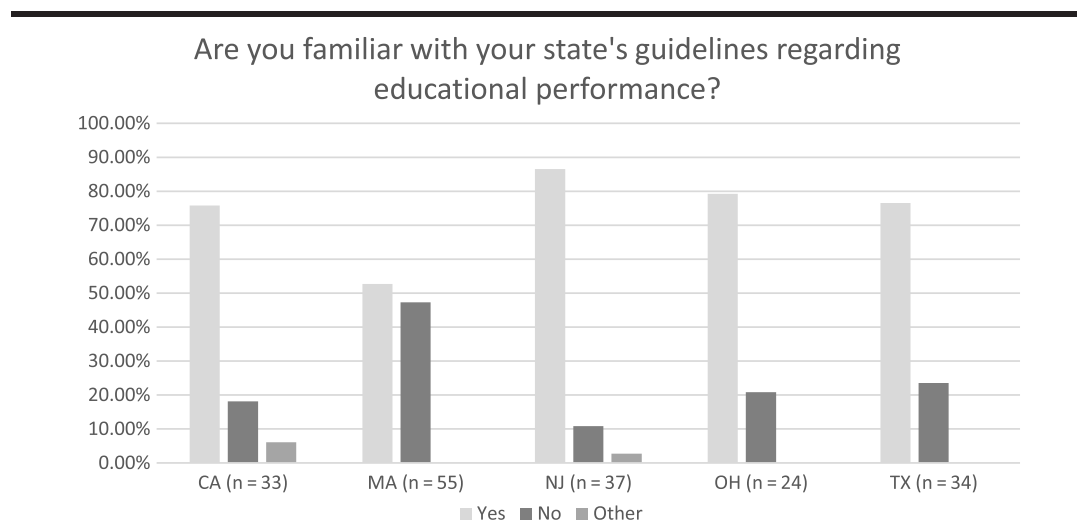


Table 4. Primary source of eligibility criteria for children with SSD by state.

SLP State	State	District	Association	Federal	Local	Other
California	57.10%	17.10%	0.00%	11.40%	2.00%	11.40%
Massachusetts	18.60%	30.50%	5.10%	20.30%	5.10%	20.30%
New Jersey	84.20%	2.60%	0.00%	10.50%	0.00%	2.60%
Ohio	34.80%	21.70%	4.30%	34.80%	4.30%	0.10%
Texas	28.60%	20.00%	34.30%	11.40%	5.70%	0.00%

Note. SSD = speech sound disorder; SLP = speech language pathologist.

Next, we examined if the number of schools to which an SLP provides services is associated with which educational performance factors are chosen. Number of schools was used as a categorical variable: 1, 2, 3, or 4+ schools. A chi-square analysis revealed no significant associations between number of schools and educational performance factors.

Finally, we examined the association between years of experience and selected educational performance factors. The number of years of experience was a categorical variable: 0–4 years, 5–10 years, 11–19 years, and 20+ years. A chi-square analysis revealed a significant association between years of experience and access to the curriculum ($\chi^2 = 9.90$, $p = .019$), oral reading ($\chi^2 = 10.89$, $p = .012$), and spelling ($\chi^2 = 9.09$, $p = .028$). Table 5 displays the results of the pairwise comparisons, including adjusted residuals. Results revealed that SLPs with 0–4 years of experience were significantly more likely to select access to the curriculum compared to SLPs with 20+ years of experience but were less likely to choose oral reading and spelling compared to SLPs with 5–10 years of experience.

Discussion

This study explored how school-based SLPs in the United States interpret educational performance with respect

Table 5. Pairwise comparisons between experience levels for significant educational performance factors.

Variable	% of SLPs who selected “yes” (adjusted residuals)
Access to curriculum	
0–4 years	84.2 (2.3)
5–10 years	79.80 (1.1)
11–19 years	74.80 (–0.5)
20+ years	69.3 (–2.6)
Oral reading	
0–4 years	71.7 (–3.2)
5–10 years	86 (1.4)
11–19 years	84.7 (1.1)
20+ years	83.00 (0.5)
Spelling	
0–4 years	72.5 (–2.0)
5–10 years	86.8 (2.4)
11–19 years	81.00 (0.7)
20+ years	76.10 (–1.1)

Note. Adjusted residual values are considered significant if greater than 1.96. SLP = speech language pathologist.

to service provision for children with SSDs. Survey responses from a nationwide sample were analyzed. In addition, we explored between-states differences using five targeted states that varied geographically, varied in their state guidelines, and had robust response rates on the survey (CA, MA, NJ, OH, and TX). We will discuss the results of our research questions based on three key findings: (a) the majority of SLPs chose oral participation as a factor that influences educational performance, but they largely consider educational performance to be multidimensional; (b) SLPs are familiar with their state guidelines but do not consistently use them as evidenced by considerable variability within and between states; and (c) there are SLP job characteristics that are associated with interpretation of educational performance.

Educational Performance

This study builds on previous literature that explores the variability in interpretation of educational performance (Dublinske, 2002; Sylvan, 2014; Thomas, 2016). For children with SSD, we found substantial variability among a nationwide sample of school-based SLPs. One point of convergence was that the majority of the sample indicated that oral participation was an important factor of educational performance when considering service provision. In many ways, this was not surprising, as nearly all communication impairments stand to influence how a child orally participates in class. In addition, the terms “oral expression” and “oral communication” are frequently used within an SLP’s graduate training and are repeatedly referenced in IDEA (2004), the ASHA policy clarification letters, and the Common Core Standards (Common Core State Standards Initiative, 2017; OSERS, 2007). Although oral participation was the primary factor, most participants selected approximately six educational performance factors. This indicates that SLPs likely consider educational performance to be multidimensional. Although educational performance is paramount for school-based services, certainly other factors are taken into account when making eligibility and service delivery decisions. For instance, see the school-based intervention decision-making model proposed by Brandel and Frome Loeb (2011), which captures the complexities of these clinical decisions. Indeed, this sample of school-based SLPs acknowledged the complex nature of SSDs and their implications for classroom success. However, not all respondents chose the same six educational

performance factors. This lack of consensus also points to inconsistent interpretation across the sample.

State-Level Guidelines and Variability

We found that SLPs are familiar with their state guidelines but do not consistently use them, as evidenced by considerable variability within and between states. There were significant differences between states for five out of eight educational performance factors. It is likely that SLPs gravitate toward language used in their specific state guidelines or documents. For instance, Individualized Education Programs in MA include the question, “Does the student require related services in order to access the general curriculum?” and more respondents from MA chose access to the curriculum compared to other states. In another example, NJ Special Education Code mandates the completion of a functional assessment, including observations, interviews, collaboration with the classroom teacher, and review of the student’s developmental/educational history. This comprehensive set of guidelines may help to explain why more SLPs from NJ included “spelling” in their definition of educational performance compared to SLPs from MA, who do not have such a didactic list to follow.

Our data indicate that clinicians are likely making choices predicated on their experience within their state. Although this could be appropriate in many cases, there may be instances in which clinicians are making decisions against best practices and the empirical literature because of state mandates or lack thereof. One example of this from our data is the response to the educational performance factor of “reaction of self, peers, teachers, and parents.” This factor was selected by 100% of respondents in CA, but only 75% of the respondents from MA. Empirical reports have indicated that there are negative reactions from peers toward students who have even one speech sound in error (Hall, 1991; Silverman & Falk, 1992; Silverman & Paulus, 1989). Those negative reactions include assumptions from peers about intelligence (Freeby & Madison, 1989) and from teachers regarding academic success (Overby et al., 2007). As such, there may be students with SSD who have strong grades but are also experiencing negative reactions from peers and teachers; it is plausible in some states that these children do not receive services to remediate their SSD due to a limited interpretation of educational performance.

Within-state variability was also observed for state guideline familiarity and educational performance factors. Across four of the five target states (CA, NJ, OH, and TX), approximately 80% of respondents reported being familiar with state guidelines, whereas 20% were not. However, MA respondents were split nearly in half; approximately half of the respondents indicated familiarity with state guidelines, whereas half indicated that they were not familiar. This lack of clear guidance may help to explain why MA had the most within-state variability when selecting educational performance factors, as explained below.

We also examined each educational performance factor to determine whether there was within-state variability for the five targeted states. If more than 75% or less than 25% of SLPs from a state selected a factor, we interpreted that as consensus between SLPs in the state. Any percentage between 25% and 75% was considered a lack of consensus and therefore variability between SLPs in the state. MA had the most within-state variability, only reaching a consensus on three out of seven educational performance factors. For the factors oral reading and spelling, only one state (NJ) reached consensus on whether they should be included, whereas SLPs within the four other states (CA, MA, OH, TX) did not reach a consensus. Within-state variability may suggest that the guidelines are unclear or are generated from a variety of sources across the state.

Examining State Guidelines

Within this sample of school-based SLPs, the majority indicated that they were familiar with their state’s guidelines regarding educational performance. Yet less than half of SLPs reported obtaining their educational performance guidelines from the state; instead, these respondents reported obtaining guidelines from their local school district. There are two plausible explanations for this. First, the district guidelines likely originated from the state, but that remains unclear. Second, certain states operate under a local decision-making framework. As such, each local education agency (LEA; e.g., school, school district, county-wide service provider) can develop its own guidelines. Certainly, these guidelines must be consistent with what is adopted by the state but can be more specific (U.S. Department of Education, Chapter 33, Subchapter II §1413). For instance, the U.S. Department of Education reports on the IDEA website that when a child moves from one LEA to another, the new LEA must determine “whether the child is a child with a disability” (U.S. Department of Education, Chapter 33, Subchapter II §1414). This raises the question: How can a child have a disability under one LEA and not another? Strong and clear guidance is necessary for appropriate clinical decision making regarding special education services for children with disabilities, including SSDs.

We observed this inconsistency in IDEA interpretation within our data and within the guidance available to the SLPs in those states. For example, MA and CA state guidelines address articulation disorders quite differently. The Massachusetts Department of Education website includes “articulation disorder” within its general definition of a communication disorder: “The capacity to use expressive and/or receptive language is significantly limited, impaired, or delayed and is exhibited by difficulties in one or more of the following areas: speech, such as articulation...The term may include a student with impaired articulation, stuttering, language impairment, or voice impairment if such impairment adversely affects the student’s educational performance” (Massachusetts Department of Elementary & Secondary Education, 2017). Conversely, CA special education code includes the Department of

Education's 2007 letter clarifying "adverse effect" and "educational performance," in addition to providing a specific definition for articulation disorder: "The pupil displays reduced intelligibility or an inability to use the speech mechanism which significantly interferes with communication and attracts adverse attention. Significant interference in communication occurs when the pupil's production of single or multiple speech sounds on a developmental scale of articulation competency is below that expected for his or her chronological age or developmental level, and which adversely affects educational performance" (California Department of Special Education, 2016). Our results reflect the impact of different types of state-level guidance. Taken together, these data support that detailed state guidelines can reduce variability and support SLPs' service provision for children with SSDs. Furthermore, these results point to an opportunity for SLPs to advocate to their district or states on behalf of children with SSD.

SLP Job Characteristics

We examined how SLPs' job characteristics of caseload size, number of schools serviced, and years of experience may be related to the educational performance factors chosen by SLPs. We anticipated that SLPs with larger caseloads may consider fewer of the educational performance factors, primarily because SLPs with larger caseloads may try to avoid any further caseload growth. However, our results supported that a large caseload size was more associated with choosing social-emotional adjustment/behavior as an educational performance factor than was a small caseload size. This was quite surprising. In our sample, it is plausible that SLPs with smaller caseloads were working in more specialized schools with more behaviorally complex or medically fragile cases. As such, these SLPs are working with fewer children with SSD and/or are only working with children with SSD who are severely unintelligible. However, it is also possible that the SLPs with larger caseloads more frequently practice within collaborative models, as has been previously reported (Katz et al., 2010). If that is the case, then SLPs with larger caseloads may have more available resources, allowing them to consider a broader view of SSDs and to include social-emotional adjustment/behavior.

Considering the social-emotional impact of a communication impairment is an important aspect of the educational experience. The pervasive issue of ambiguous state or district policies (Sylvan, 2014) creates difficult clinical decision-making situations for SLPs, particularly when caseload sizes are overwhelming. Certainly, children can have adequate or above average grades but still have poor educational performance based on the social implications of their SSD (Hitchcock et al., 2015). Hitchcock and colleagues surveyed parents of children with /r/ misarticulations; parents indicated that the strongest factor associated with their child's /r/ error was the social impact. As such, it is prudent that the social implications of SSDs are taken into consideration during the assessment process. State and district

guidelines must support the inclusion of social-emotional impact so that factors such as caseload size do not dictate eligibility decisions. We acknowledge and value clinical judgment but believe more policy guidance regarding the multidimensionality of educational performance would support SLPs in implementing best practices and advocating for additional support and resources.

We were surprised to see that the number of schools serviced was not significantly associated with factors related to educational performance. We hypothesized that an increase in the number of schools serviced is likely to affect time pressures (Biancone et al., 2014) and have potential negative effects for service delivery decisions. However, Katz et al. (2010) similarly reported that the number of schools serviced was not related to how unmanageable an SLP's caseload was. Thus, it seems that the number of schools to which an SLP is assigned is not related to their service delivery decisions with respect to educational performance.

Finally, the number of years of experience was significantly associated with choosing access to the curriculum, oral reading, and spelling. In particular, across each of these three educational performance factors, SLPs with 0–4 years of experience were significantly different from at least one other experience level (i.e., 5–10 years, 11–19 years, or 20+ years). Interestingly, for each factor, the direction of this association was different. That is, SLPs with 0–4 years of experience selected access to the curriculum significantly more than SLPs with 20+ years. However, that same group of SLPs chose oral reading and spelling significantly less than SLPs with 5–10 years of experience. This is interesting because both oral reading and spelling deficits would impact a child's access to the curriculum, yet this newer group of SLPs did not indicate that these factors were commonly part of their eligibility determinations. Previous research has also reported a relation between years of experience and caseload size, which is likely to be an influential factor in clinical practice. For instance, Katz et al. (2010) found that, in a group of SLPs with large caseloads, those with fewer years of experience found their large caseloads to be more manageable than those with more years of experience. These researchers suggested that newer SLPs were only familiar with large caseloads and had not yet experienced an overwhelming increase during their brief tenure. Related to the findings in this study, it is a possibility that newer SLPs have less experience with the classroom curricula or the demands of the classroom. Thus, perhaps they are not frequently considering oral reading and spelling as educational performance factors.

Implications for Children With SSD

IDEA exists to ensure that all students with disabilities receive a free appropriate public education that meets their unique needs and prepares them for further education, employment, and independent living (IDEA, 2004). This includes children with SSDs, for whom SLPs can prevent further negative effects by treating the speech disorder. School-based SLPs in the United States should question and

thoroughly investigate the source of their current eligibility guidelines for children with SSDs. There is a history of local educational agencies misinterpreting IDEA and using only grades to qualify children for services (Dublinske, 2002). This not only goes against ASHA's position and the federal position on "adversely affects educational performance" but also can have negative effects for children with SSDs. SLPs can reference their state department of education's website or contact their state association to ensure they are following state guidelines. SLPs are also encouraged to use the multitude of resources made available by ASHA (e.g., ASHA 2010a, 2010b) to lobby for better practices at the state level. Although some flexibility for clinical judgment is necessary, inconsistent interpretation of federal law ultimately puts children with SSD at risk for not receiving services. This is especially a concern in settings in which caseloads are high and/or there are students with more obvious and complex communication needs. The existence of specific eligibility guidelines can help SLPs become more informed and consistent while still meeting the individual needs of each child.

Limitations

Although this survey study addresses important issues related to service provision and policy, it is not without limitations. First, there were several states in which we had very small representation (e.g., $n = 1$), which made interpretation of any state-specific data difficult. Second, as with any survey, participants self-select based on their interest in the topic. As such, we may have only received input from SLPs who have a clinical interest in children with SSDs; we may be missing large numbers of school-based SLPs who make different eligibility decisions. Similarly, some participants were qualified to complete the survey but opted to leave the survey without answering all questions. It is unclear who the responders versus nonresponders are; thus, caution should be used in interpretation of results to avoid selection bias. Third, the phrasing of the survey question, *Which of the following would you consider to be part of "educational performance" when determining eligibility for children with speech sound disorders? (Select all that apply)*, could have been misleading to respondents. That is, participants could have selected items that correspond with best practices instead of their actual practice. However, the majority of questions that preceded or followed that target question included the phrase "at your school." Our hope is that participants responded in line with their own current practices. Future surveys should include questions similar to that in Brandel and Frome Loeb (2011), which asked participants to identify "the three most important characteristics" out of the provided list (p. 465). Doing so will not only clarify the intent of the respondents but will allow for predictive modeling of the data. Next, although it is interesting that many SLPs do not have a sense of where their guidelines come from, their report may be valid to varying degrees. That is, many school districts may have a clear understanding of where eligibility guidelines originate, but the

communication from administration to faculty may blur the lines between what is state-mandated and what is a local decision. Importantly, all of these limitations offer opportunities for future research. Next steps may include direct examination of how eligibility is determined for children with SSDs and long-term outcomes for children who receive and do not receive services.

Conclusion

There is significant variability across the United States with respect to factors considered to be part of educational performance for children with SSDs. This variability reflects the general quality and specificity of guidelines and/or special education code published by individual states. It is problematic to have such a lack of consensus about educational performance for children who have SSDs because their impairment may ultimately affect literacy acquisition and social-emotional well-being.

With rising caseloads composed of increasingly complex disorders, SLPs and special educators need to stay vigilant in following federal and state guidelines to ensure that children with SSDs receive the services they need. Similarly, SLPs have a responsibility (ASHA, 2010b) to ensure appropriate service provision to students and to keep current on educational legislation. Future research should include clinicians and children with SSDs to examine how the current eligibility process works and affects child outcomes. We also hope to engage influencers, such as policy makers, special education directors, and superintendents, in a conversation around state-specific guidelines and their effects on practices within their state.

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