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A Speech-Language Pathologist's Dilemma:
What is the Best Choice for Service
Delivery in Schools?

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Structured Abstract

Clinical Question: What is the most effective system of speech-language intervention service delivery in a school-based setting?

Method: Scenario Review

Sources: EBSCOhost search engine, Google Scholar, ASHA publications, 3 Expert Opinions

Search Terms: systematic review, schools, language, speech, service delivery

Number of Included Studies: 2

Primary Results:

(1) Systematic Reviews: collaborative and pull-out were suggested with a modest advantage to collaborative, but a lack of controls limit conclusions. Some promise for parent training to deliver a language program to children with autism. There was minimal support for a collaborative service delivery type over pull-out for language literacy.

(2) Expert Opinion: delivery of services should consider student needs, point of intervention, and type of disorder as well as practical considerations such as time of day, curriculum, and workload.

Conclusions:

(1) No one service delivery model was more markedly efficient or effective than another.

(2) Decision to implement a program may be related to nature of outcomes measured.

(3) SLPs should gather their own data and develop local solutions that work best in context of the student, the problem, and the setting.

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Scenario

The school district has seen a 25% revenue reduction over the past year due to the loss of funding associated with the property taxes that support local education. The school board has directed the district administration to investigate ways to maximize the delivery of all student services while reducing resources demands. The district administration asked its Director of Speech, Language, and Hearing (SLH) Services to examine the service delivery options to (a) improve outcomes, (b) shorten times to dismissal, and (c) reduce costs. The report is due in 4 weeks.

The Director must outline a plan that addresses the school board directive while providing credible results. She has decided to address the request with an evidence-based approach in the form of a *scoping review*. Rather than attempt to conduct a comprehensive, systematic review and meta analysis, the Director is going to systematically retrieve and use a narrative summary of the relevant literature that addresses systems of SLH services in the school. With the resulting review, she can assess organizational and system delivery models and establish a basis for evaluating the current SLH service delivery in her district. The scoping review also may provide insight to the possibility of constructing an alternative delivery system that addresses the SLH services and resources available to the school district.

Background

Difficult economic times place an exceptional burden on schools to deliver the best education with fewer resources. Even when resources are bountiful, speech-language pathologists (SLPs) are expected to provide the most effective interventions, so being familiar with current clinical practice guidelines is essential. "Practitioners are expected to do no harm to their clients and are expected to maximize benefits" (Meline, 2010, p. 54).

The American Speech-Language-Hearing Association (ASHA, 1999) describes seven options for school-based SLH service delivery: (a) pull-out, (b) classroom-based, (c) collaborative-consultation, (d) self-contained, (e) community-based, (f) monitoring, and (g) combination.

The earliest and typical service delivery model is known as a *pull-out services* program in which children typically are provided remedial services one-on-one or in small groups in a resource room environment. According to ASHA (2008), pull-out remains the most prevalent service delivery option. Over the past 30 years, some have advocated for the development of curriculum-relevant service delivery options as an alternative to pull-out SLP services. This curriculum-relevant program model is known as a classroom-based service delivery (Christenson & Luckett, 1990). In *classroom-based services* (i.e., inclusion, curriculum-based, and integrated), the SLP or the SLP and classroom teacher provide services in the student's classroom. Classroom-based service delivery is curriculum relevant and inclusive; however, the approach has limitations that call into question the effectiveness of the service delivery (Kavale, 2002).

Another alternative service delivery model has risen in the past two decades is *collaborative-consultation* (Borsch & Oaks, 1992). The collaborative-consultation model is an indirect services model wherein the SLP consults with teachers, parents, and significant others. The primary role of the SLP is to assess the communication disorder, plan the program of intervention, train others to deliver the program, monitor the child's behavior change, and provide direct intervention on a limited basis. Though generally accepted as an alternative service delivery model, it also has limitations, such as the equality of services across caseloads and the role of the SLP as a consultant (Law et al., 2002).

The remaining four service delivery options have received little, if any, in-depth attention in the professional literature, but are recognized conceptually as potentially viable models for school-based speech and language

services. In the fourth alternative service delivery model, *self-contained services*, the SLP assumes the role of classroom teacher and is responsible for curriculum instruction, as well as speech and language remediation programming and services. With the fifth alternative, *community-based service,* the SLP provides the services in the home or other daily living environment. The sixth service delivery alternative, *monitoring,* is usually implemented after dismissal and the SLP sees the student on an intermittent basis to check progress. The last option is not another type of service delivery per se, but is simply a combination of one or more of the others. The *combination* option is that the SLP utilizes pull-out and classroom-based services with a student or any other combination of service delivery models based on the individual student's need.

Unfortunately, there are no program delivery guidelines for organizing or implementing speech-language and hearing services in schools. When there are no definable or current guidelines, school-based SLP administrators are left to their own experience and the district administrative structure to develop and implement a system of service delivery for their school or district. The purpose for this review is to identify research literature that assesses service delivery options for SLP programs in a school-based setting and to provide a narrative summary of that literature.

Method

Scoping Review

Researchers often conduct a *scoping review* to determine the extent and availability of evidence on a topic or issue (Arsky & O'Malley, 2005). The scoping review process engages similar methodological procedures to the more comprehensive systematic review (Rumill, Fitzgerald, & Merchant, 2010) such as the transparent, documentable, and replicable process of study identification, inclusion, and data extraction. However, the scoping review differs from the systematic review at the analysis stage of the review process. Scoping reviews typically do not include a quantitative assessment of the outcomes, a statistical analysis or synthesis, or an application of the findings of individual studies to a population at large. The primary focus of the scoping

review is to identify and summarize relevant research for the purpose of mapping the evidence map of a given topic.

Inclusion Criteria

The Director identified three criteria for studies to be included: Each study had to

1. have a SLH service delivery program in a school-based setting;

2. use the Speech-Language Pathologist as the primary service provider; and

3. be reported in the last 10 years.

Search for Evidence

Initially, the director searched databases that were likely to contain relevant systematic reviews of scholarly works on SLP service delivery options in schools. *Systematic reviews* are an accumulation of studies that are typically reviewed for their methodological quality as well as results. They usually review the contemporary literature, abstract pertinent studies, and synthesize results. Systematic reviews reduce the effort and time needed to gather evidence because others have already accomplished the task. If there are no systematic reviews available, the search necessarily targets individual studies.

Search engines that were either public or otherwise generally available to school-based SLPs were used, such as *Google Scholar*. Google Scholar is recognized as "a simple way to broadly search for scholarly literature" (Google Scholar, 2010). The key words used in the Google Scholar search were: *systematic review, schools, language,* OR *speech.* Though the search was limited to the past 10 years, it returned 7,670 hits. A typical method for sorting through databases such as Google Scholar is to review first few pages of the search. The Director examined the first 100 hits returned from the search. A few citations were only marginally relevant and a reading of the citation description quickly revealed that none of the hits were appropriate for our purposes.

Next, the Director accessed the EBSCOhost search engine, using two sets of keywords: (1) *systematic review* AND *schools; (2) speech service delivery* AND *speech.* These keywords were chosen to better focus on the focus of the topic-school-based service delivery- at hand. The Director filtered the retrieval results for the past 10 years and retrieved total of five reviews for the first set of keywords

and 18 for the latter set. From those, she identified one as relevant citation that met the inclusion criteria.

As an additional information resource, the Director accessed the American Speech-Language-Hearing Association's publications search engine with the keywords: *review* AND *schools*. Given the smaller database, the Director simplified the search terms so as to include as many relevant articles as possible. The search was limited to the past 10 years and yielded 5 hits with two hits emerging as relevant to our review. Finally, the Director conducted a hand search of ASHA periodicals and examined the citations in the systematic reviews that were located. The interviews with expert SLPs also helped to identify one relevant article. In all, the Director identified two systematic reviews and two case studies that answered one or more of our questions.

Given the small number of included studies the Director also sought the expert opinion of three practicing school-based SLPs. These professionals were recognized by their peers as authorities in the delivery of speech-language services in schools. They were asked to respond to the following questions about SLH service delivery:

1. What service delivery models work best in schools?

2. Does the type of clinical disorder make a difference in delivery of services?

3. Do you know of any research that shows that one model of service delivery is better than another?

4. Do you think there is a need for research in this regard?

Results
Case Studies

The two case studies (Ritzman, Sanger, & Coufal, 2006; Swenson, 2000) were not included in the systematic reviews, but the Director regarded them as possibly relevant to our questions. Case studies are relevant when the research is otherwise sparse and may provide a picture of the context of topic of interest. Case studies are anecdotal accounts of one or more participants. Though case studies do not provide strong scientific evidence, they do suggest future courses of action. A description and results of the two case studies are shown in Table 1.

Ritzman, Sanger, and Coufal (2006) argued that collaborative services were superior to traditional service delivery models, but offered no evidence to support their proposition. On the other hand, Swenson's (2000) one participant demonstrated an advantage on the *Clinical Evaluation of Language Fundamentals–Revised* (CELF–R) when service delivery was changed from traditional therapy to collaborative services in the classroom. In the latter case, there is at least anecdotal support for the collaborative service delivery model.

Table 1. Citation, Description of Participant, Method, and Results for Two Case Studies Focused on Collaborative Service Delivery in the Classroom

Citation	Participant	Method	Results
Swenson (2000)	8:8 Male	Quantitative/Qualitative	Collaborative was superior to pull-out for language (CELF–R)[a]
Ritzman, Sanger, & Coufal (2006)	Female SLP	Qualitative	They did not confirm that the participant's collaborative services were superior to pull-out.

[a]The dependent variable (language behavior) was operationally defined with the CELF–R.

Systematic Reviews

Table 2 summarizes the two identified systematic reviews, numbers of studies included in each review, the review purpose, and summary conclusions for each review. The first of the two systematic reviews focused broadly on language intervention practices with spoken language disorders. Thus, Cirrin and Gillam's (2008) review of service delivery models in schools was tangential to the scope of their review. Nonetheless, they included Throneburg, Clavert, Sturm, Paramboukas, and Paul's (2000) comparison of vocabulary interventions through collaborative, classroom-based, and pull-out service delivery models. In the Throneburg et al. (2000) study, treatment effects were largest for collaborative and classroom-based treatments. As Cirrin and Gillam point out, Throneburg et al. did not include a no-treatment control group in their experiment and they reasoned that confounding factors such as intellectual maturation and learning outside the school setting could have influenced the results. Though the Throneburg et al. (2000) results suggested that collaboration and classroom-based treatments were superior for vocabulary learning no direct causal connection can be made between the service delivery models reported and the measured outcomes. A future study with additional experimental controls would help to resolve this question. Furthermore, the Throneburg et al. (2000) conclusions were based on one language

target. The same effects may not necessarily extend to other language targets such as grammar or social language learning.

The second systematic review aimed its research questions directly at the effects of SLP service delivery models on speech and language outcomes in schools. Cirrin et al. (2010) systematically reviewed the research literature from 1975–2009 for studies that included: (a) students in K–5 grades, (b) randomized clinical trials or quasi-experimental research designs, and (c) study questions about the effectiveness of service delivery models. They were able to locate five studies that met their criteria.

The five studies included in the Cirrin et al. (2010) review addressed the effects of SLH service delivery on outcomes of vocabulary, functional communication, and language or literacy. The authors concluded that the combined findings of these studies suggested that : (a) "a clear advantage [is suggested] for classroom-based team teaching for improving children's curricular vocabulary knowledge versus pullout intervention" (p. 247); (b) "training parents to implement a specific language program at home with their children with autism shows promise of being efficacious" (p. 247); and (c) minimal support exists to favor the classroom-based collaborative model as compared to pull-out services for learning language or literacy skills.

Table 2. Citation, Purpose, and Conclusions for Systematic Reviews that Examined SLP Service Delivery Types (SDT) with School-Age Children

Citation (Studies Included)	Purpose	Conclusions
Cirrin & Gillam (2008) (*n* = 21)	To evaluate language intervention practices	There are few comparisons of SDTs. In Throneburg et al. (2000), with spoken language collaborative and pull-out were disorders effective with an advantage to collaborative, but a lack of controls limit conclusions. Research is needed on the effects of different SDTs with different language targets.
Cirrin et al. (2010) (*n* = 5)	To evaluate the effect of service delivery type on speech-language intervention outcomes	Few studies identified, and those had limitations. Classroom-based SDT had an advantage over pull-out for vocabulary. Some promise for parent training to deliver a language program to children with autism. Minimal support for favoring collaborative SDT over pull-out for language literacy.

[a]Only conclusions regarding service delivery models are summarized here.

Cirrin et al. (2010) concluded that research-based evidence favoring one service delivery option over another is largely lacking. "Lacking adequate research-based evidence, clinicians must rely on reason-based practice and their own data until more [scientific] data become available" (p. 250) Given this backdrop, Cirrin et al. (2010) advised SLPs in schools to "select service models carefully, monitor students' progress on a regular and frequent basis, and validate the effectiveness of the intervention program for each student on their caseloads" (p. 250).

In regard to future needs, Cirrin et al. (2010) argued that researchers need to (a) implement controlled research studies that examine the effectiveness of a wide range of classroom-based and collaborative service models, (b) identify the optimal combination of service delivery variables to fit the varied needs of individual students, and (c) study the effectiveness of the various service delivery models with populations of children who have speech and language problems secondary to primary disabilities of autism, developmental cognitive delay, and developmental delay, and (d) study the effects of the frequency, number or length of treatment sessions, treatment intensity, and different schedules on communication performance.

Expert Opinions

As Cirrin et al. (2010) indicated, "In the absence of research evidence, service delivery decisions must be based on other criteria, often guided by traditional or expert opinion" (p. 234). We interviewed three SLPs who were experienced in school-based services and especially knowledgeable regarding service delivery options. The three "experts" were qualified by virtue of their 10 or more years of experience specific to the educational domain, as well as their records as master teachers. The following is the summary of their responses:

1. The goal is to match the student's needs with the appropriate service delivery option.

2. SLPs should consider the point of intervention, i.e., beginning, middle, and end.

3. The type of disorder has a bearing on the implementation of the chosen service delivery model (e.g., primary language disorder vs. speech-language problems secondary to autism and others).

4. There are many practical considerations to consider such as time of day and working around the general curriculum.

5. Time, given the sizable workloads, is a limitation.

Experts were generally unfamiliar with research involving SLH and service delivery options. At the time of the interviews, the Cirrin et al. (2010) systematic review was available in prepublication form, but unlikely to have been read by most SLPs. Some of the experts mentioned one-on-one vs. group interventions as an issue. Most said they preferred group to one-on-one intervention because the social milieu is advantageous. All the SLP experts agreed that further research must be done to delineate the issues and answer questions regarding the effects of service delivery models on speech and language outcomes.

Conclusion

When evidence-based practice does not have quantitative or scientific answers to questions of practice, the SLP must turn to an informed decision making by process. Though evidence was gathered from case studies, systematic reviews of the literature, and expert opinions, we are left with more questions than answers regarding service delivery options in the school setting. We know more than we did at the beginning of the evidence-gathering process, but the quality and quantity of evidence is weak. Few studies of high quality are available to support or reject one model of service delivery over and another.

Discussion

Cirrin et al. (2010) say that "Lacking adequate research-based evidence, clinicians must rely on reason-based practice and their own data until more data become available concerning which service delivery models are most effective (p. 233). Likewise, the Director of SLH services concluded that there is limited scientific evidence available that can be used for making decisions in her district as to the most effective/efficient service delivery model for school systems, caseloads, or individual students. Given the state of the evidence available, the Director of Speech & Hearing Services report will focus on the following conclusions:

(a) Collaborative-classroom models of service delivery sometimes may hold some advantages compared to

pull-out programs, but the success of collaborative-classroom models may be determined by the target of treatment as well as the student's unique attributes. Further, there is no evidence that one model holds a resource reduction advantage over another model. Though the collaborative-classroom model of service delivery is an option, it may not be appropriate for every child or every disorder.

(b)   No one service delivery model is likely to work best for every child. Instead, different models may fit different children's needs, or a combination of service delivery models should be used; minimal evidence supports parent training for delivering language programs to children with autism. In as much as the evidence is weak, the use of parent training in such cases should be monitored regularly to assess its efficacy.

(c)   Given the state of available research, SLPs should gather their own data and develop local solutions that work best for the school or district to meet the needs of their students.

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