
The “Response to Intervention” Model and the Role of the Speech Language Pathologists within Schools: A Literature Scoping Review

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PREFACE

This report is an initial exploratory scoping review prepared for Dr. Christa Carey, Speech Pathologist, Victorian Department of Education and Training. Support for this report was provided by La Trobe University, Department of Public Health Participatory Field Placement Internship program (PHE3PFP).

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ABSTRACT

Aim / Purpose: The aim of this scoping review was to identify and synthesise the evidence regarding the effectiveness of the “Response to Intervention” (RTI) model within schools. Additionally, this review aims to identify the evidence that exists with respect to the RTI model and the role of SLPs in schools. **Method:** A scoping review framework modified from Arksey and O’Malley (2005) was utilised to map the research area utilising a predetermined process of: (i) identifying the research question, (ii) developing inclusion and exclusion criterion, (iii) identifying relevant studies for study selection, (iv) charting the data, and (v) collating, summarising and reporting the results. **Results:** Six key themes were identified within the articles and resources; (1) Collaboration, (2) Service Delivery, (3), Advocacy for the RTI model, (4) Understanding the RTI model, (5) Responsiveness Criteria, and (6) Early Intervention. **Discussion:** There is a significant amount of literature available relating to the effectiveness of the RTI model and SLPs within schools. The literature suggests that there are growing concerns about the success rate of the RTI model. Similarly, the findings recommend that for the RTI model to be successful, SLPs and other service providers must carry adequate knowledge of the framework to see the best results for the student. **Conclusion:** This scoping review demonstrates the growing concerns regarding the success of the RTI model. However, the themes that were evident within the literature identified several recommendations to the RTI model. By collaborating with other professionals, understanding the RTI model, and implementing EI, future student outcomes may improve over time.

Keywords: Response to Intervention Model, Speech Language Pathologists, the Victorian Department of Education and Training, Multi- Tiered Systems of Support, Tier 1, Student, School, Evaluation.

INTRODUCTION

According to McLeod and McKinnon (2007), 13% of Australian children will have speech, language or literacy difficulties during their primary and secondary school years. There is a distinct link between language competence and school success rates, with higher risk students finding the classroom environment overwhelming due to expressive and verbal demands (Snow, Sanger & Caire et al., 2015). These factors make it difficult for some students to learn and progress academically (Snow, Sanger & Caire et al., 2015). Overall, language competence

is needed to secure future employment, improve social interactions, and sustain educational demands (Snow, Sanger & Caire et al., 2015).

To address these challenges and to mitigate the risk of difficulties into adulthood, students with poorer language skills require identification, and intervention. Identification and intervention are often facilitated by Speech Language Pathologists (SLPs) within a “Response to Intervention” (RTI) model. In an Australian context, the Victoria Department of Education and Training (DET) employs SLPs as part of a multi-disciplinary Student Support Service (SSS) team who provide learning and development support and services for Victorian children (Victorian Department of Education and Training, 2019a). This support is either delivered *directly* to individual students or groups of students or *indirectly* through building teacher competence and capability. This scoping literature review intends to investigate the “Response to Intervention” (RTI) model within a school-age population and the role of SLPs within this model. This review seeks to understand what evidence exists regarding how the effectiveness of the RTI model is evaluated within schools and what evidence exists with respect to the role of SLPs in the RTI model in schools.

The RTI Model

The RTI model is a multi-tiered approach to intervention that provides students with learning and reading difficulties the support and services they require to address their learning needs (National Centre for Research in Learning Disabilities, 2006). Ehren and Whitmire (2009) state that the objective of the RTI model is to ensure that all students can access high-quality instruction and learning opportunities. Student progress when receiving services within an RTI model is closely monitored to ensure progress at each stage of intervention (Ehren & Whitmire, 2009). Ideally, students who are experiencing difficulties with their learning are identified early to ensure that they feel well supported and capable as they progress in their education (Ehren & Whitmire, 2009).

RTI can be practiced across general, compensatory and special education by applying a three-tiered approach (Ehren & Whitmire, 2009). Tier 1 is a standardised level of support for all students and uses universal screening to identify students that need assistance with learning and reading (National Centre for Research in Learning Disabilities, 2006). Tier 2 provides targeted intervention for students who are not making adequate progress in Tier 1; this tier of support is often provided in a small group setting (National Centre for Research in Learning Disabilities, 2006). Tier 3 assists students who require individualised intensive intervention to target specific skill deficits (National Centre for Research in Learning Disabilities, 2006). In

summary, RTI services become increasingly specialised and individualised for children with greater needs (Ebbels, McCartney, & Slonims et al., 2019). For the purpose of this scoping review, Tier 1 will be considered. Considering that Tier 1 of the RTI model provides universal support to children in classrooms, this scoping review will consider all school aged students. More specifically, primary and secondary students aged five to eighteen.

Speech-Language Pathologists

Speech-Language Pathologists (SLPs) are a profession often involved in the provision of RTI services within schools. SLPs study, diagnose and treat communication and swallowing disorders, including difficulties with speaking, listening, understanding language, reading, writing, social skills, stuttering and using voice (Speech Pathology Australia, 2016). SLPs work with individuals who have communication difficulties caused by developmental delay, stroke, brain injury, learning disability, intellectual disability, cerebral palsy, dementia and hearing loss (Speech Pathology Australia, 2016). They may also work with people across the lifespan with communication and swallowing difficulties of no known cause (Speech Pathology Australia, 2016). SLPs are often referred to as speech pathologists, speech therapists and speech language therapists. For the remainder of this review, the term Speech-Language Pathologist (SLP) will be used to refer to the profession.

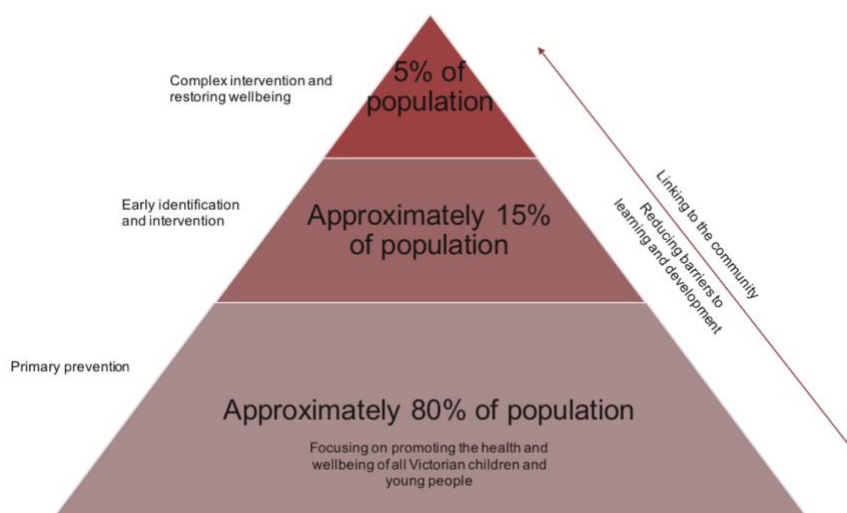
Victorian Department of Education and Training (DET)

The Victorian Department of Education and Training (DET) offers learning and development support and services for Victorian students (Victorian Department of Education and Training, 2019, para. 2). The Victorian DET employs SLPs as part of a multi-disciplinary Student Support Service (SSS) team. The DET's aim is to support Victorians, regardless of their background, to reach their full potential, and to develop the skills and attributes to thrive in Victoria's complex society. The DET ensures they meet this aim by providing unbiased access to education and training, to work with stakeholders to build a birth to adulthood education and development system and to universally support children, young people and adults with targeted services (Victorian Department of Education and Training, 2019, para. 4). The Health Wellbeing and Inclusion Workforce (HWIW) framework has recently been applied as a "continuum of intervention for health and wellbeing" (Victorian Department of Education and Training, 2018, p. 21). This framework, based on the RTI model, outlines 80% of staff involvement is in primary prevention, or RTI Tier 1, 15% in early identification and intervention (RTI Tier 2) and 5% complex intervention and restoring wellbeing (RTI Tier 3) (see Figure 1) (Victorian Department of Education and Training, 2018). As an SLP's main

duties are to work at the ‘Tier 1’ or prevention level, this review was requested to investigate the scope of practice for how Tier 1 work is evaluated.

Figure 1

The continuum of intervention for health and wellbeing (Victorian Department of Education and Training, 2018, p. 21)



RTI Tier 1

At present, there appears to be limited research and evidence pertaining to Tier 1 of the RTI model. This is due, in part, to the lack of consistent terminology which inhibits important research and practice (Law, Lee, & Roulstone et al., 2012). Available literature demonstrates that the RTI model can be effective when used within schools; according to Ebbels, McCartney, and Slonims et al. (2019), staff who are adequately trained and well supported can address the speech, language and communication needs of school aged students. Greenwood, Bradfield, and Kaminski et al. (2011) discuss how the RTI model is increasingly being implemented in an early-childhood setting (from birth to 5 years of age) and support the notion that early identification and intervention is vital for children’s development (Greenwood, Bradfield, & Kaminski et al., 2011).

Given the emerging evidence describing the benefits of the RTI model and intervention within school-age populations, this scoping review aims to identify all literature that exists, with the hope of understanding opportunities for future research and to inform policy and practice with regards to SLP involvement in the school environment, to ensure successful implementation of the RTI model.

PURPOSE / AIMS

The purpose of this scoping review is to evaluate the evidence that exists regarding the RTI model. Additionally, the review aims to identify the evidence with respect to the RTI model and the role of SLPs. The review intends to look further into the Tier 1 universal level of support and how SLPs collaborate with educators to implement the RTI model. According to Law, Lee, and Roulstone et al. (2012), further investigation is required regarding how SLPs measure best practice in schools when delivering the RTI model as a Tier 1 approach.

METHOD

A scoping review framework modified from Arksey and O'Malley (2005) was utilised to map the research area utilising a predetermined process of: (i) identifying the research question, (ii) developing inclusion and exclusion criterion, (iii) identifying relevant studies for study selection, (iv) charting the data, and (v) collating, summarising and reporting the results (p. 22). Scoping reviews aim to map out the key concepts that underpin a specific research area and the sources of evidence available (Mays, Roberts & Popay, 2001). Mapping can be undertaken as a stand-alone project depending on how complex the area is, or if it has not previously been comprehensively reviewed (Mays, Roberts & Popay, 2001).

(i) Identifying the research question

The research questions were developed using the PICO (Population, Intervention, Comparison, Outcome) technique (Fineout-Overholt & Johnston, 2005) (see Table 1). The PICO technique provides the framework for the development of the research question/s.

The key questions for this research review were:

- i) What evidence exists regarding how the effectiveness of the Response to Intervention (RTI) model is evaluated within schools? (See Table 1)
- ii) What evidence exists with respect to the role of Speech-Language Pathologists (SLPs) in the Response to Intervention (RTI) model in schools? (See Table 2)

Table 1*PICO research question 1 development*

Population	Intervention/ Exposure	Comparison	Outcome
School Students	Response to Intervention Model	No comparison	All literature available regarding how this model can be evaluated

Table 2*PICO research question 2 development*

Population	Intervention/ Exposure	Intervention/ Exposure	Comparison	Outcome
School Students	Response to Intervention Model	Speech-Language Pathology	No comparison	All literature available on this topic

(ii) Inclusion and exclusion criterion for study selection

The same inclusion and exclusion criteria were implemented for research questions one and two. These were implemented both at the time of searching, dependent upon database search functionality, and when screening papers for inclusion in this scoping review. This scoping review included articles and resources published between January 2000 and September 2020 and considered papers and resources that addressed students aged between five and 18 years only. All research must have addressed intervention in a school setting and must have included the Tier 1 level of the RTI model. Though this review did not aim to locate research from a particular country or region, research published in Australia and the United States of America was most prevalent within the findings.

This scoping review excluded the RTI Tier 2 and Tier 3 levels of approach. All articles that were published before 2000 were disregarded. Any articles that did not include RTI and/or SLPs were not included in the study selection. Similarly, any research that was not completed in a school environment was excluded.

When database searching had concluded, the following criteria were implemented when screening the titles and abstracts of all found resources. In order to address the research question/s, the RTI model needed to be evident in all papers and resources. Research question 1 considers how the RTI model has been evaluated in a school setting, therefore, the considered measurement of evaluation must have been included. Additionally, for research question 2, the

role of SLPs needed to be clear. Finally, any titles or abstracts that mentioned Tier 2 or Tier 3 of the RTI model were quickly disregarded, as this scoping review considers Tier 1 only.

(iii) *Identifying relevant studies*

The PICO strategy (Fineout-Overholt & Johnston, 2005) was utilised to identify specific search elements, synonyms and key database search terms to identify relevant literature (see Table 3). The following databases were used for this search: Medline, PubMed, CINAHL, Cochrane Library, La Trobe University Library, and Google Scholar. In addition to this, two hand-searches were conducted. This involved screening the reference lists of highly relevant reports found following database searching and identifying authors and article titles cited that appeared relevant to this review.

Table 3

PICO element, related synonyms and database search terms

PICO Element	Synonyms	Database Search Terms
School Students	<ul style="list-style-type: none"> - Pupil - Learner - Scholar - Schoolchild 	Student* Pupil* Schoolchild*
Response to Intervention Model	<ul style="list-style-type: none"> - Response to Intervention - RTI - Multi-Tiered System of Support - MTSS 	"Response to intervention" OR "RTI" OR "Multi-tiered system* of support"
Speech Language Pathology	<ul style="list-style-type: none"> - Speech Pathologists - Speech Language Pathologists - Speech Language Pathology - Speech Therapists - Speech Language Therapists - Speech Language Therapy - Speech Specialist - SLP - Logoped 	"Speech Patholog*" OR "Speech-Language Patholog*" OR "Speech Therap*" OR "Speech Language Therap*" OR "SLP"

(iv) *Charting the data*

Many individual searches were completed due to the number of databases searched, and the need to address two research questions. Details of searches completed, including the specific search terms used, search limits applied, and the number of search results yielded can be seen in Appendix C. It is important to note that there was an edit to research question part-way

through database searching, where the word ‘*evaluation*’ was included as a search term. This yielded more relevant search results and minimised the return of irrelevant results. Details and abstracts of final articles that were deemed valid for thematic analysis were combined at Appendix B. Relevant themes based on the findings of each article were determined by agreement between authors. Each theme is identified and numerically coded in Appendix B and described within the results section. Once the searches had been finalised; duplicates were screened in Mendeley. Forty duplicates were found (see Appendix A).

The results were screened four times for relevance, and agreement was found between authors. Furthermore, hand searching was completed on six of the final articles deemed to be most relevant in addressing the scoping review purpose. Various databases did not require a second search to be conducted (see Appendix C) as the PICO elements, synonyms and search terms yielded the results that were needed. There are 28 articles that are included in the scoping review (see Appendix B). More specifically, ten articles for research question 1, and 18 for research question 2. See Appendix A for further detail on the number of relevant resources found for each research question.

RESULTS

(v) Collating, summarising and reporting the results

Key themes

Six main themes were identified within the literature: (1) Collaboration, (2) Service Delivery, (3) Advocacy for the RTI Model, (4) Understanding of the RTI Model, (5) Responsiveness Criteria and (6) Early Intervention (see Figure 2). Table 5 lists the research authors and the associated themes within their work.

Figure 2

Key themes identified within the literature

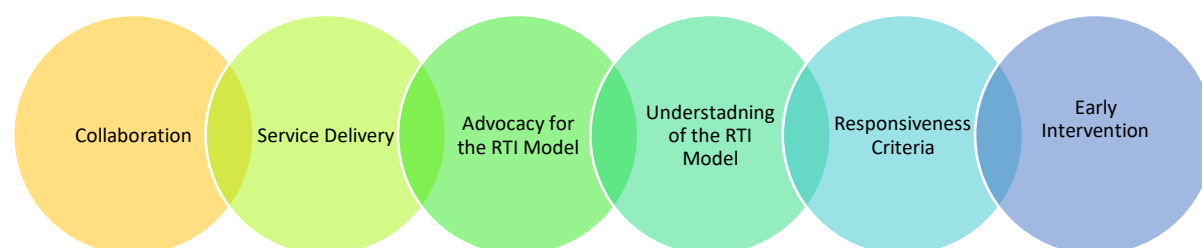


Table 5*Themes identified within the literature*

Author/s (Year)	1	2	3	4	5	6
August, Piehler & Miller (2018)	✓	✓		✓	✓	
Brendle (2015)	✓	✓	✓	✓	✓	
Bruce, Lynde & Weinhold et al. (2018)	✓	✓	✓		✓	✓
Ehren (2007)	✓	✓		✓		
Ehren, Montgomery & Rudebusch et al. (2009)	✓	✓		✓		
Ehren & Whitmire (2005)	✓	✓		✓	✓	✓
Ehren & Whitmire (2009)	✓	✓	✓	✓		✓
Fritz- Ocock (2016)		✓	✓		✓	✓
Greenfield, Rinaldi & Cardarelli et al. (2010)	✓	✓	✓	✓		
Grether & Sickman (2008)	✓		✓	✓	✓	
Hale, Alfonso & Berninger et al. (2010)	✓	✓	✓			
Hall- Mills (2019)					✓	
Jackson, Pretti- Frontczak & Harjusola-Webb et al. (2009)	✓		✓		✓	✓
Johnson & Smith (2008)	✓	✓	✓			
Kaufman (2016)	✓		✓	✓	✓	✓
King, Lambke & Reinke (2016)	✓	✓				
Linan- Thompson & Ortiz (2009)	✓	✓	✓			
Ohl, Graze & Weber et al. (2013)	✓	✓			✓	
Sanger, Snow & Colburn et al. (2012)	✓	✓	✓	✓		✓
Simmerman (2013)	✓	✓		✓		
Snow, Sanger & Caire et al. (2015)	✓	✓	✓	✓		✓
Snow, Sanger & Childers et al. (2013)	✓	✓	✓	✓	✓	✓
Staskowski & Rivera (2005)	✓	✓			✓	✓
Swaminathan & Farquharson (2018)	✓	✓	✓	✓		✓
Tolar, Barth & Fletcher et al. (2014)				✓	✓	
Troia (2005)	✓	✓	✓	✓	✓	✓
Ukrainetz (2006)	✓					
VanDerHeyden, Witt & Gilbertson, (2007)		✓				✓
Total:	24	22	16	16	14	13

Note: Themes are: (1) Collaboration, (2) Service Delivery, (3) Advocacy for the RTI Model, (4) Understanding of the RTI Model, (5) Responsiveness Criteria and (6) Early Intervention. Abstracts for each article are provided in Appendix B.

Summary of Themes

Collaboration

The most prevalent theme across 24 articles, collaboration is required by all involved in the implementation of the RTI model (SLPs, general and special educators and school leadership staff) for the model to be effective (August Piehler & Miller, 2018; Ohl, Graze & Weber et al., 2013; Sanger, Snow & Colburn et al., 2012; Simmerman, 2013). Collaboration is a fundamental part of the RTI model as it is critical for all involved to establish a cohesive, collaborative working relationship to truly maximise the benefits of the RTI model. This theme was consistently present when considering both the RTI model and SLP roles within the RTI model.

Across the literature, a common message was that collaboration between educators and SLPs and SLPs and other school leadership staff was critical for the successful implementation of a Tier 1 RTI model within a school (August Piehler & Miller, 2018; Ehren, 2007; Ehren, Montgomery & Rudebusch, 2009; Ohl, Graze & Weber et al., 2013; Sanger, Snow & Colburn et al., 2012; Simmerman, 2013; Snow, Sanger & Caire et al. 2013; Troia, 2005). Snow, Sanger and Childers et al. (2013) discussed the role of SLPs stating that SLPs are important member/s of the RTI team, when collaborating to address the needs of struggling learners in both general and special education settings. Stories of collaborative partnerships during progress monitoring are heard more and more frequently as schools initiate RTI models and realise that SLPs have the diagnostic and therapeutic skills to do so effectively and efficiently (Staskowski & Rivera, 2005).

Similarly, collaboration between SLPs, educators and parents are essential to providing a cohesive and seamless transition for those students within intervention programs. August, Piehler and Miller (2018) found that programs feature a variety of modalities including classroom-wide support systems and behavioural health curricula, small group socio-emotional skills training and peer support and comprehensive, multicomponent programs that typically integrate training for child, parent, teacher and SLP colleagues. Johnson and Smith (2008) found that the information that is collected on individual students, which includes a consistent description of the instruction and interventions attempted along with the student's response to the intervention, provides the implementation team with a more substantial and organised method of communicating concerns with parents and working in conjunction with them. Moreover, the study indicated school-based SLPs were willing to collaborate with other school-based SLPs (Simmerman, 2013) whilst Ohl, Graze and Weber et al. (2013) found that

therapists who spent time in the classroom consulting with teachers about individual students and the curriculum achieved better results.

Whilst collaboration was found to be the most prevalent theme, some authors discussed the challenges and hesitations SLPs and educators can face when working together in school settings to deliver the RTI model. It was found that there was a resistance to collaborate and that SLPs were uncertain as to whether some interdisciplinary team members were sufficiently knowledgeable and well trained to implement the RTI as intended (Simmerman, 2013). Simmerman (2013), however, acknowledged that SLPs recognised the importance of collaboration between themselves and well- trained educators in serving struggling learners and implementing the RTI model.

Ultimately, collaboration is a fundamental element of the RTI model, essentially ensuring all SLPs, general and special educators and other service- related providers work cohesively together to effectively implement the RTI model to those students who need it the most.

Service Delivery

Service delivery (SD) of the RTI model, integrates assessment and intervention to maximise a student's educational achievements (National Centre on Response to Intervention, 2010). When the Tier 1 approach is implemented, the use of suitable SD of the RTI model ensures that the model is applied in a consistent manner. SD was the second most prevalent theme that appeared within the literature pertaining to the RTI model and SLPs.

Within the literature, many authors stated that SLP's become a valuable resource when delivering services within the RTI model (Ehren, 2007; Ehren, Montgomery & Rudebusch et al., 2009; Ehren & Whitmire, 2009; Ehren & Whitmire, 2005; Fritz O'Cock et al., 2005; Snow, Sanger & Childers et al., 2013; Staskowski & Rivera, 2005; Swaminathan & Farquharson, 2018; & Troia, 2005). Ehren, Montgomery and Rudebusch et al. (2009) discuss how SLPs can make unique contributions when delivering the RTI model, such as: explaining the connection between spoken and written language, identifying the role that language plays in instruction, and assisting in the selection of screening measures to improve overall delivery. Furthermore, Ehren and Whitmire (2009) believes that SD models must expand in order to support the roles of SLPs in certain conditions. Snow, Sanger and Childers et al. (2013) supports this message, with 80% of participants in their case study agreeing that SLPs are a key element in RTI Tier

1 delivery. However, SD models requires ongoing development (Snow, Sanger & Childers et al., 2013).

An additional trend revealed in the literature is how the SD of the RTI model becomes a steppingstone to other types of services that are relevant to student's needs (August, Piehler, & Miller, 2018; Ehren & Whitmire, 2005; Fritz O'Cock, 2016; & Greenfield, Rinaldi, & Cardarelli et al., 2010). Fritz O'Cock (2016) discuss how the RTI model provides an alternative on the SD continuum as an additional type of support for students with articulation difficulties, who may not qualify for special education services. Similarly, the SD of RTI is a prompt form of therapy that assists students in the general education system that would not normally qualify for services. August, Piehler and Miller et al. (2018) acknowledge that schools have tried their best to address the mental health requirements of students and have adopted Multi-Tiered Systems of Support (MTSS) to assist in delivery evidence-based support, like the RTI model.

At times, SLPs face challenges regarding SD and the RTI model. Greenfield, Rinaldi and Cardarelli et al. (2010) stated that the professionals who do deliver the RTI model, in some cases SLPs, need to ensure that they are allocating adequate time to implement and process the desired change, as this will vary according to schools and children. Those who do not provide an appropriate time frame for SD in schools risk a time-pressured situation that can hinder student success (Greenfield, Rinaldi & Cardarelli et al., 2010). Another primary concern in SD of the RTI model is schools having to meet the growing demands of unfunded policy initiatives in an increasingly diverse population of students (Johnson & Smith, 2008). Similarly, Brendle (2015) discusses the challenges schools face in SD with limited staff, support and resources.

Advocacy for the RTI model

Advocacy for the RTI model, particularly from SLPs and general and special educators, is essential to ensure optimum results and successful implementation are achieved. The literature describes the many advantages of this instructional approach for students who have learning difficulties (Sanger, Snow & Colburn et al., 2012). Advocacy for the RTI model was a strong theme identified within the literature, for the reason that if those required to propose, develop and implement it do not also advocate for it, the reputability of the RTI model is likely to decrease.

Bruce, Lynde and Weinhold et al. (2018) found that one of the inherent benefits of the RTI model is its flexibility, stating that the freedom of the RTI model allows SLPs to adjust the process to fit their own individual context in a way that maximally benefits students. Specifically, the SLPs interviewed in this study strongly agreed with positive statements

regarding the benefits of the RTI models' use and believed they had an important role in the prevention and collaboration process (Fritz-Ocock, 2016). SLPs clearly believed that implementation of the RTI model would lessen workload demands whilst achieving maximum results (Fritz-Ocock, 2016). In a study by Brendle (2015), the use of a problem-solving team approach was found to be beneficial and was an integral part of implementing the RTI model in order to determine the difference between the students who can perform on grade level with instructional interventions and those who require special education services. For these variety of reasons, the RTI model should be a topic of serious conversation among all educators, with SLPs squarely in the mix (Ehren & Whitmire, 2009).

In a qualitative study by Sanger, Snow and Colburn et al. (2012) exploring the beliefs of SLPs reactions to the RTI model, overall findings indicated that SLPs responded with agreement, reflecting on their perceived important role within the RTI model, the value of screening, progress monitoring, assessment, and the prevention of continued failure for struggling learners. The systematic process of collecting evidence and evaluating performance at all levels of instruction has been invaluable in focusing efforts on improved instruction and interventions for students. Without the implementation of the RTI model and the focus of developing a professional learning community, the schools would not see the concerted effort of implementing such instructional practices as differentiation across the board (Johnson & Smith, 2008).

Johnson and Smith (2008) discussed one of the main advantages of the RTI model is its emphasis on ensuring appropriate learning opportunities for all students, begin in the general education classroom. Multidisciplinary intervention teams (made up of SLPs, general and special educators and school leadership staff) identified that the common goal of the RTI, is to serve as a resource for general education teachers as they develop, implement and document research- based interventions (Brendle, 2015). All professionals in mainstream and special education are "stakeholders" in advocating for children and adolescents who struggle to learn and approaches such as the RTI model must be continually monitored and evaluated with respect to fidelity and outcomes (Sanger, Snow & Colburn et al., 2012).

Understanding of the RTI model

Having a developed and progressive understanding of the RTI model is important to all those involved in delivery of the framework (National Centre for Research in Learning Disabilities, 2006). It is important to note that the definition of *understanding* can be different. For the purpose of this scoping review, more specifically the results, articles and resources that have

showed an understanding of the RTI model will have significant knowledge of the framework, considered Tier 1, will have administered screening and measurement assessments, acknowledged any challenges involved, and determined the best and most ethical approach.

The significance of the role SLPs play in the RTI model was well established in most articles (Ehren, 2007; Ehren, Montgomery & Rudebusche et al., 2009; Ehren & Whitmire, 2009; Ehren & Whitmire, 2005; Greenfield, Rinaldi & Cardarelli et al., 2010; Sanger, Snow & Colburn et al., 2012; Simmerman, 2013; Snow, Sanger & Childers et al., 2013; Swaminathan & Farquharson, 2018; & Troia, 2015). Ehren (2007) discussed how the RTI models give SLPs a specific and guided framework in which to assume responsibilities and apply their knowledge to relevant roles.

Furthermore, Sanger, Snow and Colburn et al. (2012) stated that it is critical that SLPs and other educators collaborate with in an RTI model for students who are identified as at-risk. Simmerman (2013) confirmed the need for schools to engage in professional development for SLPs, in order to encourage the implementation of RTI strategies in their daily work practices. Similarly, Ehren and Whitmire (2005) acknowledge that there should be an understanding that SLPs and other service providers have adequate knowledge and expertise to contribute to the RTI model.

SLPs and other education service-related providers perceptions of the RTI model was also documented throughout this theme (Brendle, 2015; Ehren & Whitmire, 2009; Greenfield, Rinaldi & Cardarelli et al., 2010; Snow, Sanger & Caire et al., 2013; Swaminathan & Farquharson, 2018; & Troia et, 2015). A study conducted by Brendle (2015) found that special education teachers believed that they have a higher degree of knowledge and understanding of the RTI model than general education teachers. Regarding rural schools, the same study found that general education teachers had some knowledge of the RTI process, and teams implemented various practices to develop and implement student interventions (Brendle, 2015). A similar study done by Greenfield, Rinaldi and Cardarelli et al. (2010) demonstrated that if educators were planning a school-wide reform, an implication is that teachers' perceptions are vital for understanding the RTI model. Teachers' variability during any school development should recognise that knowledge, understanding, and adoption can occur along a continuum (Greenfield, Rinaldi & Cardarelli et al., 2010). Furthermore, teachers perceived the RTI model as "working based on data to drive instruction" (p. 57), as they determined the effectiveness of the RTI model to be based around evidence-based research (Greenfield, Rinaldi & Cardarelli et al., 2010).

A study conducted by Swaminathan and Farquharson (2018) showed that analysing qualitative information on SLPs' perceptions of categories such as years of experience, caseload size, and the source of RTI guidelines could improve the understanding of SLPs' thoughts on school-based RTI implementation. Troia (2015) recognises that SLPs have the capacity to understand the greater recognition of the role that language plays in curriculum, instruction, and students' academic success. They also have a multi-faceted understanding of the language and literacy needs in diverse populations who require the RTI model (Troia, 2015).

Understanding how to deliver the RTI model was recognised in five articles (August, Piehler, & Miller, 2018; Ehren, Montgomery & Rudebusche et al., 2009; Ehren & Whitmire, 2009; Greenfield, Rinaldi & Cardarelli et al., 2010; & Snow, Sanger & Caire et al., 2013). The RTI model requires frequent changes to the assessment approaches of SLPs in addition to changes in intervention and instructional support (Ehren, Montgomery & Rudebusche et al., 2009). Regarding SLP delivery of the RTI model, working in areas that utilise traditional models will be challenging as educational models that focus on individual student performance over time are seen to be more effective (Ehren, Montgomery & Rudebusche et al., 2009). Ehren and Whitmire (2009) discuss how schools make the mistake of administering RTI screening for the whole school, as opposed to limiting it to students who may be suspected of language difficulties.

August, Piehler and Miller (2018) discuss the challenges in maintaining efficiency and feasibility while delivering the RTI model. While they acknowledge that the RTI model is promising for students who require this intervention, they believe the following set points should be used in any approach service providers use: selecting the most applicable interventions for the 3 tiers, determining the best sequence for the RTI model, and evaluating the best intervention sequence for the individual (August, Piehler & Miller, 2018). It is likely that schools will come across challenges that will make it extremely difficult to implement the RTI model in particular settings, and to determine which programs will produce the best results for their students (August, Piehler & Miller, 2018).

Greenfield, Rinaldi and Cardarelli et al. (2010) believe that understanding the RTI model will influence schools to adopt universal screening and progress monitoring measures, to assist in examining any future instructional practice. Teachers, SLPs, and any service-related providers will be able to address the needs of culturally and linguistically diverse students at Tier 1 before assisting in the special education process (Greenfield, Rinaldi & Cardarelli et al., 2010). Furthermore, Snow, Sanger and Caire et al. (2013) state that a key element of the Tier

1 approach is to modify the environment that service providers use to communicate to reduce any complexities that may risk later communication and/or educational failure.

Responsiveness Criteria

In order to develop an understanding on the effectiveness of the RTI model, it is critical that a responsiveness criteria (RC) is developed to allow for both SLPs and educators to assess the progress of students and establish whether the RTI implementation is achieving the desired results. RTI is an instructional framework that integrates assessment with instruction to “identify students at risk for poor learning outcomes, monitor student progress, provide evidence-based interventions and adjust the intensity and nature of those interventions based on a student’s responsiveness” (Tolar, Barth & Fletcher et al., 2014, p.1). Troia (2015) explained that as the RTI model is introduced and the characteristics of its varied models are reviewed, a broader, more comprehensive understanding of its success (or failure) can be explored. Prevalent throughout 16 articles, RC in the RTI model has been recognised as a promising alternative to a discrepancy or failure-based model, whereby struggling learners do not receive intervention when the problem is first identified but rather when no more progress can be made at Tier 1 or Tier 2, then Tier 3 intervention must occur (Staskowski & Rivera, 2013).

There are many methods and techniques that can be used when assessing a student’s responsiveness to the implementation of the RTI model. Implementing a SMART approach is one way to assess the RC and allows researchers to answer key tactical questions, such as “What is the best first stage intervention option,” “What second stage intervention option is best for individuals who do not show satisfactory response to the first stage intervention option,” “Which sequence of intervention options yields the best outcomes?” (August, Piehler & Miller, 2018, p.4). Bruce, Lynde and Weinhold et al. (2018) found that through using an RTI model with students who have speech errors, some SLPs have found a reduction in overall treatment time. Surveys are another keyway to assess the effectiveness/responsiveness to the RTI model implemented. From two national surveys, Brendle (2015) found that teams did not report clear goals relating to effective interventions. Brendle (2015) findings also identified that team practices, such as problem-solving, teacher support, developing interventions, and implementing interventions, were more effective than ineffective.

To be successful, children need language skills that support them in sharing what they know in appropriate forms. When children are engaged in literacy learning, they are actively involved in a lot of “talk”, and the language needed depends heavily on the task and the rules

of participation (Grether & Sickman, 2008). As noted earlier, by using an RTI model with students who have speech errors, some SLPs have found a reduction in overall treatment time (Bruce, Lynde & Weinhold et al., 2018; Fritz- O’Cock, 2016; Ohl, Graze & Weber et al., 2013; & Tolar, Barth & Fletcher et al., 2014). In order to prevent potential speech regression, Bruce, Lynde and Weinhold et al. (2018) found students were not dismissed from the RTI model until data indicated a minimum of 90% accuracy at the connected speech level (e.g., sentences, reading, and conversation) and parent input confirmed generalisation at home.

After an intervention is implemented, SLPs and educators reassess students to determine whether they are receiving the right behavioural or instructional supports (Ohl, Graze & Weber et al., 2013). Fritz-Ocock (2016) found that findings from current investigations are consistent with and build on information currently available in the literature relating to the perceived benefits of the RTI model used for speech sound remediation. Troia (2005) identified that students who appear nonresponsive to generally effective classroom instruction are provided with supplemental instruction that is sufficiently differentiated to address their individual needs, and their responsiveness to this tier of targeted intervention is closely monitored. Furthermore, Troia (2005) clarified how a lack of responsiveness would indicate that the student should receive long- term assistance, whilst also acknowledging that those who have not benefited from universal instruction and targeted interventions require extensive monitoring of their responsiveness to those treatments to monitor their progress. Universal instruction, targeted interventions, and/ or specialised treatments will result in permanent responsiveness status for any one student (Troia, 2005).

Early Intervention

The final theme that was prevalent across the literature was early intervention (EI). EI was present across 14 articles and resources. According to Early Childhood Intervention Australia (ECIA) (2016), EI is the process of providing individualised and specialised support and services for infants or young children with developmental delay. Additionally, EI provides support to families to assist in the promotion of development, wellbeing and community participation (ECIA, 2016). It is crucial for all involved in the implementation of the RTI model to promote early intervention for disabilities and/or developmental delay, as they do not subside over time and may manifest future complex psychosocial impairments (Snow, Sanger & Caire et al., 2013).

The literature demonstrated that there is a positive correlation between the RTI model and EI (August, Piehler, & Miller, 2018; Ehren & Whitmire, 2005; Jackson, Pretti-Frontczak,

& Harjusola-Webb, 2009; Sanger, Snow & Colburn et al., 2012; Staskowski & Rivera, 2005; & Swaminathan & Farquharson, 2018). Furthermore, if EI is initiated prior to the onset of severe problems, no ostensible clinical symptoms will be identified (August, Piehler, & Miller, 2018). Jackson, Pretti-Frontczak and Harjusola-Webb et al. (2009) believe that RTI should be held as a means of promoting a system-wide reform and partnership between early childhood professionals from different disciplines, such as SLPs. The purposes and principles that are strong in the RTI model are associated with multiple practices that have served EI professionals for years (Jackson, Pretti-Frontczak & Harjusola-Webb et al., 2009).

With regard to SLPs, EI was more predominant in articles that solely evaluated the performance of the RTI model. However, Ehren and Whitmore (2005) stated that, by providing EI to a wider range of students, it enables quicker access to services for language and literacy learning skills, without having to label students as having a speech impairment (Ehren & Whitmire, 2005).

Four articles discussed the significance of EI for students at risk of academic issues (Sanger, Snow, & Colburn et al., 2012; Staskowski & Rivera, 2005; Swaminathan & Farquharson, 2018; & VanDerHeyden, Witt & Gilberston, 2007;). EI allows early childhood professionals to attempt to rule out any educational disadvantage, lack of motivation, or lack of instruction that may contribute to future academic difficulties (VanDerHeyden, Witt & Gilberston, 2007). Similarly, Swaminathan and Farquharson (2018) believe that the RTI model encourages educators to be proactive in disorders or delays requiring EI, which may evolve into future academic challenges. In the past, students who required any more than basic remedial support were instantly referred to special education (Ehren & Whitmire, 2005). However, since the Individuals with Disabilities Education Improvement Act (IDEA '04) has changed, EI programs in addition to the RTI model, can now provide support and services on a short- or long-term basis (Ehren & Whitmire, 2005).

Alternatively, Bruce, Lynde and Weinhold et al. (2018) state that tension exists between EI and formal evaluation. This is one objection has been seen to arise about the RTI model and its connection with EI. Similarly, August, Piehler, and Miller (2018) believe that, while MTSS frameworks endeavour to offer various levels of support to students that are underpinned by their RTI efforts, the models often includes EI sequences that are not specifically tested for individual students. Ehren and Whitmire (2009) emphasise the importance of EI, and state that remediation and intervention is not usually associated with secondary education. When students reach middle school, they may already have a history of academic failure in their education to date, supporting the significance of EI (Ehren and Whitmire, 2009).

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The RTI model has been recognised as a favourable substitute to a failure-based model, as it provides a means of EI for learning disabilities, as well as a tool to assist in identification (Staskowski & Rivera, 2005). Above anything, any EI strategies that are affiliated with the RTI model must be built around current and progressive evidence-based research (Sanger, Snow & Colburn et al., 2012).

DISCUSSION

This literature scoping review examined two research questions regarding the RTI model and SLPs in schools. A total of twenty-eight articles were yielded to provide information that assisted in comparing and validating qualitative findings. There was a strong pattern across literature that the RTI model fosters prevention, helps achieve student success, and can develop collaboration between SLPs, service-related providers, and general and special education teachers. It became evident that 6 themes were prevalent across the articles and resources. These themes highlighted a strong congruence with the RTI model and its association with SLPs.

Collaboration was the most prevalent theme across all 28 articles and resources, emerging in 24. It is easy to understand this as collaboration is a fundamental part of the RTI model with collaborative working relationships laying the foundation for successful implementation of the RTI model to occur (August, Piehler & Miller, 2018; Ehren & Whitmire, 2009; Johnson & Smith, 2008; Ohl, Graze & Weber et al., 2013; Sanger, Snow & Colburn et al., 2012; Simmerman, 2013; Snow, Sanger & Caire et al., 2013 & Troia, 2005). SLPs have recognised the importance of collaboration between themselves and well-trained educators when serving struggling learners and implementing the RTI model (Simmerman, 2013). However, SLPs and general and special educators at times face hesitation and uncertainty when it comes to the RTI model implementation, with resistance to collaborate a fundamental concern as without a cohesive work relationship, successful implementation of the RTI model cannot occur (Simmerman, 2013). Furthermore, stories of collaborative partnerships during progress monitoring are heard more and more frequently as schools' initiate RTI models and realise that SLPs have the diagnostic and therapeutic skills to do so effectively and efficiently (Staskowski & Rivera, 2005).

It was evident in the literature that SLPs are a valuable resource when delivery the RTI model, and there is a clear correlation between RTI, SLPs, and SD (Ehren, 2007; Ehren, Montgomery & Rudebusch et al., 2009; Ehren & Whitmire, 2009; Ehren & Whitmire, 2005;

Fritz-Ocock, 2005; Snow, Sanger & Childers et al., 2013; Staskowski & Rivera, 2005; Swaminathan & Farquharson, 2018; & Troia, 2005). SLPs can make a unique and professional contribution to the delivery of the RTI model (Ehren, Montgomery, & Rudebusch et al., 2009). However, SD models must expand to support these contributions, as they require ongoing development (Ehren & Whitmire, 2009; & Snow, Sanger & Childers et al., 2013). Other challenges have been observed with SLPs delivering the RTI model as schools face the challenge of limited resources, staff, and funding (Brendle, 2015). Similarly, service-related professionals who are delivering the RTI model must ensure that they are providing a suitable timeframe to implement and process the framework to avoid a pressure-packed environment, and promote student success (Greenfield, Rinaldi & Cardarelli et al., 2010).

Advocacy for the RTI model is arguably one of the most important and fundamental themes. If the general and special educators and SLPs themselves don't advocate for the model, their ability to achieve optimal results and successful interventions significantly diminishes (Brendle, 2015; Bruce, Lynde & Weinhold et al., 2018; Ehren & Whitmire, 2009; Fritz- Ocock, 2016; Johnson & Smith, 2008; Sanger, Snow & Colburn et al., 2012). One of the inherent beauties of the RTI is its flexibility in which the freedom of the RTI model allows SLPs to adjust the process to fit their own individual context in a way that maximally benefits the students (Bruce, Lynde & Weinhold et al., 2018). Universally, SLPs responded with agreement reflecting on their perceived important role, the strength of the RTI model and the value of screening, progress monitoring, assessment and the prevention of continued failure (Sanger, Snow & Colburn et al., 2012). Finally, SLPs firmly believe in the benefits of the RTI model and the important role they play in the prevention and collaboration process (Fritz- Ocock, 2016).

It is important to note that the literature in the scoping review showed a developed understanding of the RTI model. The progressive role that SLPs play in the RTI model was well recognized in 10 articles (Ehren, 2007; Ehren, Montgomery & Rudebusche et al., 2009; Ehren & Whitmire, 2009; Ehren & Whitmire, 2005; Greenfield, Rinaldi & Cardarelli et al., 2010; Sanger, Snow & Colburn et al., 2012; Simmerman, 2013; Snow, Sanger & Childers et al., 2013; Swaminathan & Farquharson, 2018; & Troia, 2015). The collaboration between SLPs and the RTI model allows a specific and guided framework to be applied to SLPs existing knowledge (Ehren, 2007). To assist SLP knowledge, practice and evaluation, a 'peer-group consultation' approach for professional support and learning about the RTI model is recommended (Carey-Sargeant and Carey, 2012).

Furthermore, SLPs perceptions of the RTI model underpins their understanding of the framework (Brendle, 2015; Ehren & Whitmire, 2009; Greenfield, Rinaldi & Cardarelli et al., 2010; Snow, Sanger & Caire et al., 2013; Swaminathan & Farquharson, 2018; & Troia et al., 2015). Similarly, general and special education teachers' perceptions are also important to evaluate as they have a significant impact (Brendle et al., 2015; & Greenfield, Rinaldi & Cardarelli et al., 2010). The literature presented showed that by having a developed understanding of the RTI model, schools will be able to implement screening and progress monitor measures, that will facilitate future RTI practice, and support the needs of future students with development delays (Greenfield, Rinaldi & Cardarelli et al., 2010).

Responsiveness criteria is essential in helping SLPs and general and special educators develop an understanding of the effectiveness of the RTI model, particularly when assessing the progress of the students (August, Piehler & Miller, 2018; Bruce, Lynde & Weinhold et al., 2018; Fritz- O'Cock, 2016; Grether & Sickman, 2008; Ohl, Graze & Weber et al., 2016; Staskowski & Rivera, 2013; Tolar, Barth & Fletcher et al., 2014; Troia, 2015). For SLPs to gain a level of understanding as to how effective the RTI model is, it is necessary that evaluations and analysis occur regularly throughout the process. The SMART approach (entailing tactical questions), surveys, regular testing and monitoring of the students and their level of responsiveness to the intervention (Bruce, Lynde & Weinhold et al., 2018). Furthermore, a lack of responsiveness would indicate that the student/s have not fully benefitted from the universal and targeted instruction and that both SLPs and educators must revise the intervention plan in order to accommodate the specific needs of the student (Troia, 2005). Troia (2005) similarly explained how universal instruction, targeted interventions, and/or specialised treatments will result in permanent responsiveness status for students who received the intervention.

The literature showed that early intervention (EI) has a direct correlation between RTI and SLPs, as it provides individualised and specialised support for infants/children who have disabilities and/or developmental delay (ECIA, 2016). EI is also applicable to students at risk of academic difficulties (Sanger, Snow, & Colburn et al., 2012; Staskowski & Rivera, 2005; Swaminathan & Farquharson, 2018; & VanDerHeyden, Witt & Gilberston, 2007) as it allows SLPs and teachers to detect and rule out any educational disadvantage before they progress through their later schooling years. General and special education teachers must be proactive in their approach to EI to give students the opportunity at academic success (Swaminathan & Farquharson et al., 2018). Most importantly, EI strategies that are associated with the RTI

model have been built on evidence-based research (Sanger, Snow & Colburn et al., 2012) and are a favourable substitute to assist in early identification (Staskowski & Rivera et al., 2005).

CONCLUSIONS AND RECOMMENDATIONS

A scoping review framework from Arksey and O'Malley (2005) was utilised to map two research questions. Firstly, what evidence exists regarding how the effectiveness of the RTI model is evaluated within schools. Secondly, what evidence exists with respect to the role of SLPs in the RTI model in schools. The RTI model is a multitiered approach to intervention that allows students with learning and reading difficulties to access the support and services they require to address their learning needs (National Centre for Research in Learning Disabilities, 2006). The RTI model utilises a three tiered of approach, however this scoping review focused on Tier 1 only (Ehren & Whitmire, 2009).

Six main themes were identified within the literature: (1) Collaboration, (2) Service Delivery, (3) Advocacy for the RTI Model, (4) Understanding of the RTI Model, (5) Responsiveness Criteria and (6) Early Intervention. The overall findings of the literature suggest that for the RTI model to be successful, SLPs, general and special education teachers, and other service-related providers need to feel well supported and developed in their knowledge of the framework to see the best results for the student (August, Piehler & Miller, 2018; Ohl, Graze & Weber et al., 2013; Sanger, Snow & Colburn et al., 2012; Simmerman, 2013; Snow, Sanger & Caire., et al. 2013; & Troia, 2005). Additionally, the delivery of the RTI model is seen to be a steppingstone to other types of services that can target a student's needs more (August, Piehler, & Miller 2018; Ehren & Whitmire, 2005; Fritz-Ocock, 2016; & Greenfield, Rinaldi, & Cardarelli et al., 2010). Advocacy for the RTI model was also noted as one of the most important and fundamental findings of the scoping review. If service-related providers and SLPs do not advocate for the model, their ability to achieve optimal results and successful interventions significantly reduces (Brendle, 2015; Bruce, Lynde & Weinhold et al., 2018; Ehren & Whitmire, 2009; Fritz- Ocock, 2016; Johnson & Smith, 2008; Sanger, Snow & Colburn et al., 2012).

It was evident that there are growing concerns surrounding the success of the program. However, the themes that were presented in the literature demonstrated that there were several ways to make possible improvements to the RTI model. By collaborating with other professionals, understanding the RTI model, and implementing EI, future student outcomes may improve over time.

Collaboration is encouraged when implementing the RTI model as working in a multidisciplinary team (including SLPs, special and general education teachers and other service-related providers) ensures that clear communication, a strong working relationship, and common goals all contribute to the productivity and effective implementation of the RTI model. As a primary advocate for the implementation of the RTI model, SLPs are required to collaborate with not only special and general education teachers, but also parents and students to whom the RTI model is striving to support.

Any school that is considering the implementation of the RTI should have a deep and progressive understanding of the RTI model. The collaborative approach between SLPs and the RTI model allow a specific and guided framework that highlights relevant roles and responsibilities. More specifically, understanding the RTI model ensures schools can implement screening and progress measures that facilitate future RTI practice and support the needs of students with development delays.

EI would be beneficial to the success of the framework as there is an association between SLPs and the RTI model. EI can provide individualised and specialised support to infants and/or children who have showed signs of developmental delay, and for students who are at risk of educational difficulties. By implementing EI, SLPs, special and general education teachers, and other service-related providers can address any educational weaknesses.

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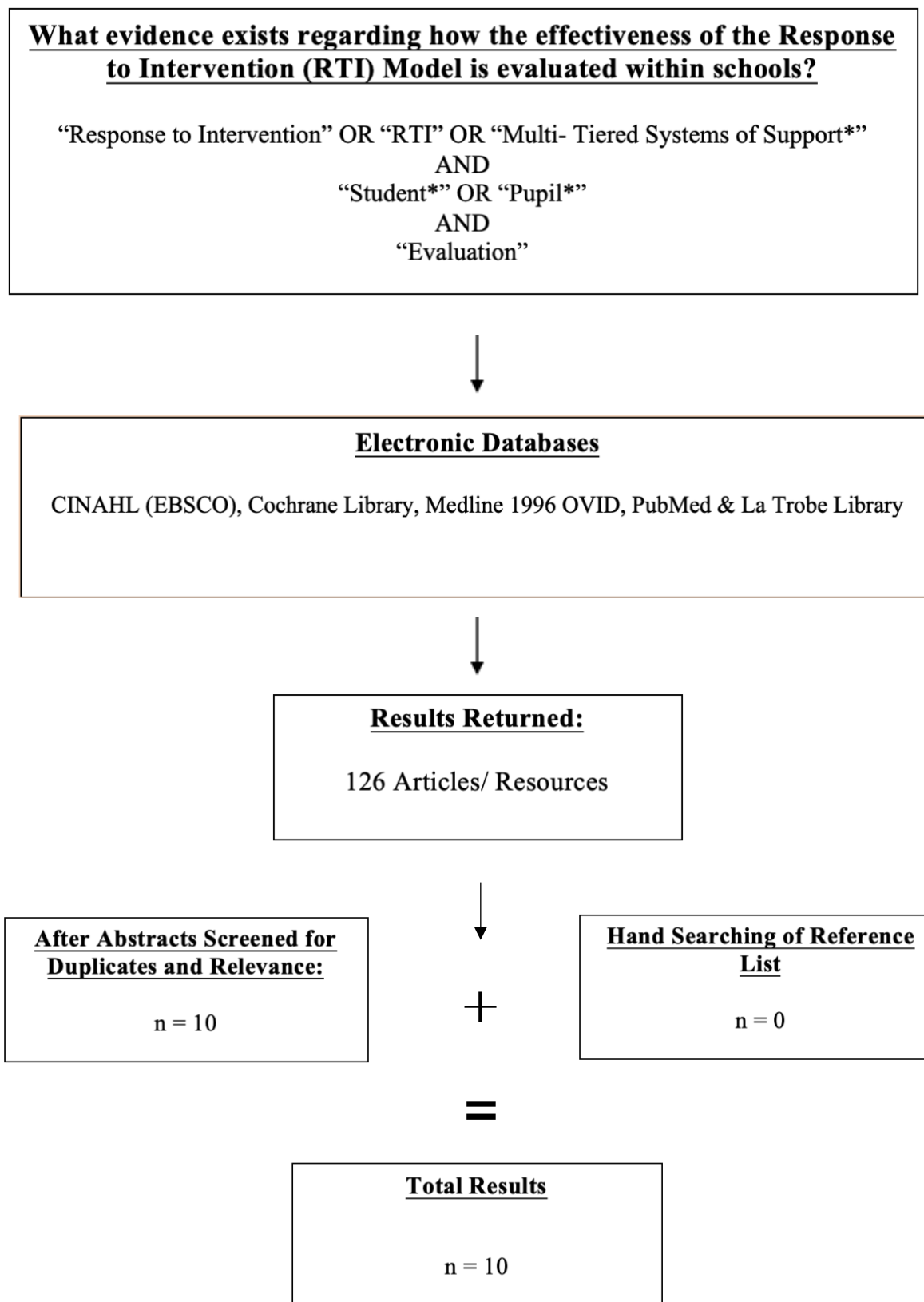
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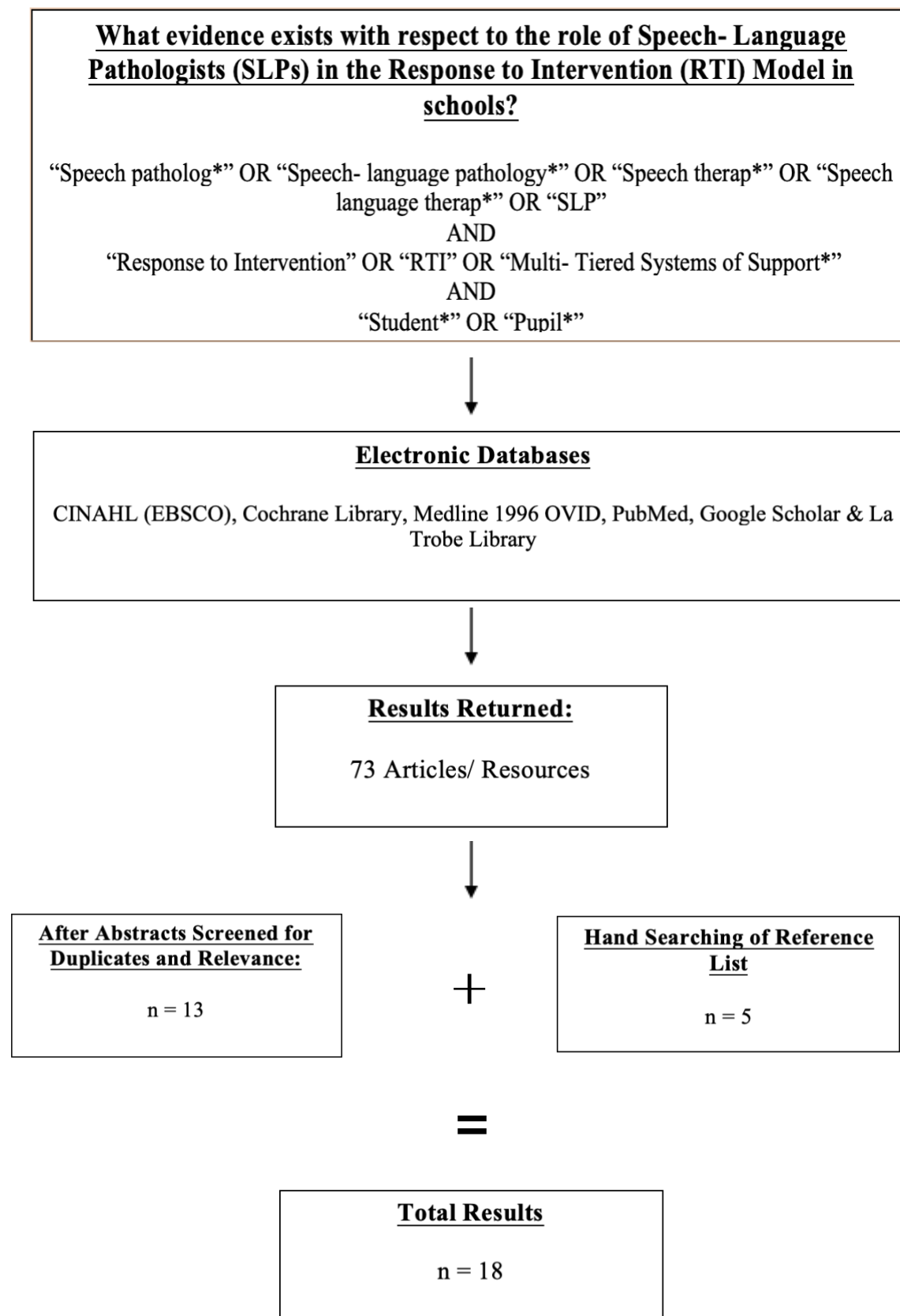
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APPENDIX 1

Search Strategy: Research Question 1



Search Strategy: Research Question 2



APPENDIX

Literature and Thematic Coding

Article no.	Author/s (Year), Title	Abstract (or Key Excerpt)	Thematic coding
1	August, Piehler & Miller (2018) Getting “SMART” about implementing multi- tiered systems of support to promote school mental health	With the growing adoption and implementation of multi-tiered systems of support (MTSS) in school settings, there is increasing need for rigorous evaluations of adaptive-sequential interventions. That is, MTSS specify universal, selected, and indicated interventions to be delivered at each tier of support, yet few investigations have empirically examined the continuum of supports that are provided to students both within and across tiers. This need is compounded by a variety of prevention approaches that have been developed with distinct theoretical foundations (e.g., Positive Behavioural Interventions and Supports, Social-Emotional Learning) that are available within and across tiers. As evidence-based interventions continue to flourish, school-based practitioners greatly need evaluations regarding optimal treatment sequencing. To this end, we describe adaptive treatment strategies as a natural fit within the MTSS framework. Specifically, sequential multiple assignment randomized trials (SMART) offer a promising empirical approach to rigorously develop and compare adaptive treatment regimens within this framework.	1, 2, 4, 5
2	Brendle (2015) A survey of response to intervention team members’ effective practices in rural elementary schools	This study examined the perceptions of general and special education teachers regarding the effectiveness of intervention teams in rural elementary schools. The passage of IDEIA 2004 brought considerable support for the use of the Response to Intervention (RtI) process providing research-based interventions to students who are struggling. Response to Intervention emphasizes the use of multidisciplinary teams to problem solve and identify instructional interventions that will address educational deficits and curtail the need for special education services. This process presents a challenge for rural schools to develop effective team practices with limited resources and staff. The researcher surveyed general and special education teachers to examine perceptions of team membership practices and effectiveness based on quality indicators of effective intervention team practices as identified in literature. The study indicated the majority of rural schools represented by the teachers surveyed were implementing the team process. The findings identified team practices, such as problem-solving, teacher support, developing interventions, and implementing interventions, as more effective than ineffective. Quantitative results indicated special education teachers reported a higher degree of knowledge of intervention practices and the team process than general education teachers reported. In addition, the special education teachers reported a higher rate of student referrals to the team for intervention than general education teachers reported. The findings suggest the need for rural schools to consider ongoing professional development for both general and special education teachers regarding effective team intervention team practices in order to refine the process.	1, 2, 3, 4, 5

3	<p>Bruce, Lynde & Weinhold et al. (2018)</p> <p>A team approach to response to intervention for speech sound errors in the school setting</p>	<p>Purpose: Response to intervention (RTI) has been used within the school setting to support students at risk for a variety of communication disorders. Through RTI, these students can receive services prior to determining eligibility for special education, allowing students with speech sound errors (SSEs) to receive support from a speech-language pathologist speech language pathologist support while still in the stage of speech sound development. Method: This article discusses the implementation of a team-based RTI model spanning 6 years, which targeted three hundred eighty-nine 7- to 8.5-year-old students with SSEs. Results: One hundred seventy-two students completed treatment through the RTI process, requiring an average of 6 therapy hours. One hundred eight RTI students needed an Individualized Education Program (IEP) to complete their treatment. Of these students, a subset of 32 who started treatment through RTI and finished through an IEP required an average of 53 therapy hours. This is significantly less than the average of 82 hours found through chart reviews of our own district IEPs. Conclusions: An RTI process using individual therapy has the potential to reduce the overall treatment time needed for speech sound remediation. Advantages and drawbacks in using an RTI team model for SSEs and providing therapy through individual sessions are discussed.</p>	1, 2, 3, 5, 6
4	<p>Ehren & Whitmire (2005)</p> <p>Leadership opportunities in the context of responsiveness to intervention activities.</p>	<p>Speech-language pathologists (SLPs) working in the schools have been responsible for the evaluation and treatment of students with language disabilities. Treatment has been primarily provided outside of the classroom in small groups. Regular educators and SLPs have not generally collaborated about students who have not already been identified as having special education needs. Recent changes in federal special education law present school districts with the opportunity to use a student's responsiveness to intervention (RTI) as an important indicator of need for special education. These changes could significantly affect the role and responsibilities of SLPs. SLPs must be prepared to participate in the development and implementation of RTI procedures. This article provides information about the specific legal and fiscal changes driving the development of RTI procedures and offers suggestions for SLPs to take a leadership role in the process.</p>	1, 2, 4, 5, 6
5	<p>Ehren (2007)</p> <p>Responsiveness to intervention: An opportunity to reinvent speech-language services in schools:</p>	<p>Key Excerpt pg. 10</p> <p>Eavesdrop on a conversation of speech-language pathologists in the schools talking about Responsiveness to Intervention (RTI) and this is what you might hear: "Oh no, not one more thing to do. I'm overwhelmed. I can't add another thing on my plate." Such sentiments reflect the realities of providing speech-language services in schools, where a critical shortage of SLPs often increases job demands. Often SLPs serve several schools, sometimes ranging from preschool to high school; are inundated with paperwork; and spend a great deal of time in procedures required to meet legal mandates. Although the most recent data show that the average caseload size is 50 students, many SLPs face numbers much larger, in some instances in excess of 100 students (ASHA, 2006). It is understandable that many SLPs might be less than enthusiastic about becoming involved in RTI models, if it means assuming additional responsibilities.</p>	1, 2, 4

6	Ehren, Montgomery & Rudebusch et al. (2009) Responsiveness to intervention: New roles for speech-language pathologists	Key Excerpt pg. 1 The responsiveness to intervention (RTI) process is a multitiered approach to providing services and interventions to struggling learners at increasing levels of intensity. It involves universal screening, high-quality instruction and interventions matched to student need, frequent progress monitoring, and the use of child response data to make educational decisions. RTI should be used for making decisions about general, compensatory, and special education, creating a well-integrated and seamless system of instruction and intervention guided by child outcome data.	1, 2, 4
7	Ehren & Whitmire (2009) Speech- language pathologists as primary contributors to response to intervention at the secondary level	Response to intervention (RTI) is currently receiving attention at the middle and high school levels. Although many academic and behavioural needs in secondary schools may warrant an RTI initiative, lack of literacy skills in adolescents is among the most important because language and literacy are foundational to curriculum learning. Speech-language pathologists (SLPs) have much to offer secondary RTI initiatives, given their expertise in language and literacy. Therefore, they need to become primary contributors. This article addresses several important conditions necessary to bring SLPs into the forefront with RTI at the secondary level by discussing (1) having a common understanding of RTI that is being implemented differently across the country; (2) understanding the rationale for adopting RTI at the secondary level; (3) defining unique contributions of SLPs that add value to RTI initiatives in middle and high schools; (4) exploring what it takes for SLPs to become involved, including attention to curriculum and literacy, changing the perceptions of others regarding the roles of SLPs, restructuring of delivery models, and replacing a caseload approach to service delivery with a workload approach; (5) establishing productive working relationships among professionals in secondary schools; and (6) exerting leadership to move forward in RTI involvement.	1, 2, 3, 4, 6
8	Fritz- Ocock (2016) Use of the response to intervention model for remediation of mild articulation errors by speech- language pathologists in Indiana public schools	The role of the school speech-language pathologist (SLP) has recently evolved to reflect national trends of educational reform. In an era of accountability for all student learning, Response to Intervention (RTI) has become the predominant vehicle for providing preventative, intensified instruction to students at risk. School SLPs in Indiana have begun adopting this model for the unique purpose of speech sound remediation. The purpose of this study was to obtain additional information regarding school-based SLPs' experiences with and perceptions of RTI in one state. The study examined usage trends and SLP perspectives of the benefits and obstacles of RTI implementation and resulting program outcomes. Factors influencing SLP clinical decision- making regarding whether to use the RTI model for speech sound remediation were examined. Findings were discussed in light of current evidence, and suggestions for future research were made.	2, 3, 5, 6

9	Greenfield, Rinaldi & Cardarelli et al. (2010) Teachers' perceptions of a response to intervention (RTI) reform effort in an urban elementary school: A consensual qualitative analysis	Federal policies to increase student achievement and improve teacher quality underlie this study. After the first year of implementation, eight elementary teachers were interviewed about how they viewed a Response to Intervention (RTI) reform effort. RTI is a federal policy intended to reform instruction by using a tiered, school-wide system. The following question drove our research: After the first year of implementation, how do educators view the RTI change process? Data were analysed using a consensual qualitative methodology. Results indicated that teachers positively viewed the reform effort. However, many teachers expressed concerns about the implementation of RTI. The majority of teachers associated the following positive outcomes with the first year of reform: using data to inform instructional planning, using progress monitoring to measure the effectiveness of the instruction, and better knowing "when" to refer English language learners for special education services. Teachers identified the culture of the school as "positively mixed," meaning positive shifts are taking place and teachers are working along a continuum of understanding and adoption practices. Key concerns of implementation are also presented as implications for effective adoption of the model at the elementary school level.	1, 2, 3, 4
10	Grether & Sickman (2008) AAC and RTI: building classroom-based strategies for every child in the classroom	Educators were previously encouraged to use IQ-achievement discrepancy to identify children with learning disabilities. The Individuals with Disabilities Education Improvement Act promotes an alternative method, response to intervention, or RTI, not only to identify these children but also to provide early intervention to all children at risk for school failure. Children with complex communication needs who use augmentative and alternative communication (AAC) are at risk for failure in the classroom and can benefit from the educational supports provided through RTI. This article discusses the levels of support provided by RTI, the speech-language pathologist's role in RTI, and strategies and supports for achieving academic success for children who use AAC.	1, 3, 4, 5
11	Hale, Alfonso & Berninger et al. (2010) Critical issues in response- to-intervention, comprehensive evaluation, and specific learning disabilities identification and intervention: An expert white paper consensus	Developed in concert with the Learning Disabilities Association of America (LDA), this White Paper regarding specific learning disabilities identification and intervention represents the expert consensus of 58 accomplished scholars in education, psychology, medicine, and the law. Survey responses and empirical evidence suggest that five conclusions are warranted: 1) The SLD definition should be maintained and the statutory requirements in SLD identification procedures should be strengthened; 2) neither ability-achievement discrepancy analysis nor failure to respond to intervention alone is sufficient for SLD identification; 3) a "third method" approach that identifies a pattern of psycho? logical processing strengths and weaknesses, and achievement deficits consistent with this pattern of processing weaknesses, makes the most empirical and clinical sense; 4) an empirically-validated RTI model could be used to prevent learning problems, but comprehensive evaluations should occur for SLD identification purposes, and children with SLD need individualized interventions based on specific learning needs, not merely more intense interventions; and 5) assessment of cognitive and neuropsychological processes should be used for both SLD identification and intervention purposes.	1, 2, 3

12	<p>Hall-Mills (2019)</p> <p>A comparison of the prevalence rates of language impairment before and after response-to-intervention implementation</p>	<p>Purpose: This research note presents a secondary data analysis of language impairment (LI) prevalence rates of children in public schools before and after a state-wide mandate for response-to-intervention (RTI) implementation. Method State-wide and district-level LI prevalence rates were compared across 10 school years. Prevalence data from 67 school districts located in 1 state in the United States are reported as the proportion of the general student population (students ages 3-21 years) who were identified with a primary disability of LI. Results The mandated implementation of RTI within special education prereferral, evaluation, and eligibility processes coincided with significant changes in LI prevalence as a primary disability for most of the school districts. The majority of school districts experienced an increase in LI prevalence within 1 school year following RTI implementation. However, the degree and direction of change in prevalence rates varied across some of the school districts. Similar degrees of change were not evident across the other years of prevalence data review, suggesting the systemic change that occurred via RTI requirements coincided with fluctuations in the LI prevalence rates for the majority of school districts in the state. Conclusion A causal relation between RTI and LI prevalence cannot be established with the current data; however, this study establishes a temporal connection between the timing of RTI implementation and changes in LI prevalence in public schools of 1 very large state. Implications are presented for further research investigating the potential impact of systemic mandates on the identification of school-age children with LI. Supplemental.</p>	5
13	<p>Jackson, Petti-Frontczak & Harjusola- Webb et al. (2009)</p> <p>Response to intervention: Implications for early childhood professionals</p>	<p>PURPOSE: The purpose of this article is to discuss the importance of building strong early childhood communities of interdisciplinary practice in the application of a comprehensive curriculum framework. A curriculum framework is proposed as a means of applying and extending the principles of response to intervention (RTI) to early childhood education providers working with young children, including speech-language pathologists (SLPs). The article presents information regarding the elements of a curriculum framework and suggestions for practice., METHOD: Literature related to RTI was reviewed to identify common principles of practice. The resulting principles were then aligned to early childhood education recommended practices in order to illustrate the overlapping beliefs. Rationale and support for a curriculum framework as an early childhood education RTI model was then gathered to identify appropriate practices for working with young children who are served in a variety of early childhood settings., CONCLUSION: SLPs are important members of early educational teams, particularly when applying the principles of RTI using a curriculum framework. SLPs bring the expertise needed to ensure that children achieve critical outcomes. Implementation of the curriculum framework is made possible when everyone involved in supporting young children understands how to apply the elements of a curriculum framework.</p>	1, 3, 5, 6

14	Johnson & Smith (2008) Implementation of response to intervention at middle school: Challenges and potential benefits	Key Excerpt pg. 46 Middle school represents a major transition in a student's academic career. For most students, it means changing schools, adjusting to a longer school day, changing teachers for content courses, and meeting demands of more complex assignments requiring independent learning and critical thinking skills. Given these challenges, the fact that many students require additional support to experience academic success in middle school is not surprising. For a variety of reasons, such as existing learning difficulties, increased academic demands, language proficiency, and transience, early interventions to support success in middle school are routinely needed for an increasingly large and diverse population of students.	1, 2, 3
15	Kaufman (2016) A case study on the effectiveness of a response to intervention model for elementary students	This case study was designed to investigate the effectiveness of the implementation of a Response to Intervention model, examine teachers and interventionist's perceptions of reading gains, discuss the challenges experienced during implementation, and pose recommendations for improvement. This study was conducted in a mid-sized, East Texas elementary school with the focus on second and third grade teachers and interventionists. Data for this study were gathered through a variety of methods: face-to-face interviews, classroom observations (one second grade and one third grade teacher), and spreadsheet scores on the pre and mid-term benchmark assessments; with face-to-face interviews being the prominent mode for data collection. The findings revealed all participants perceived RTI was an effective method of intervention to promote reading gains and promote self-esteem. Some implications detailed the need for additional manpower, a concentrated effort for increased communication between the interventionists and teachers and a structured approach to intervention strategies.	1, 3, 4, 5, 6
16	King, Lembke & Reinke (2016) Using latent class analysis to identify academic and behavioural risk status in elementary students	Identifying classes of children on the basis of academic and behaviour risk may have important implications for the allocation of intervention resources within Response to Intervention (RTI) and Multi-Tiered System of Support (MTSS) models. Latent class analysis (LCA) was conducted with a sample of 517 third grade students. Fall screening scores in the areas of reading, mathematics, and behaviour were used as indicators of success on an end of year state-wide achievement test. Results identified 3 subclasses of children, including a class with minimal academic and behavioural concerns (Tier 1; 32% of the sample), a class at-risk for academic problems and somewhat at-risk for behaviour problems (Tier 2; 37% of the sample), and a class with significant academic and behaviour problems (Tier 3; 31%). Each class was predictive of end of year performance on the state-wide achievement test, with the Tier 1 class performing significantly higher on the test than the Tier 2 class, which in turn scored significantly higher than the Tier 3 class. The results of this study indicated that distinct classes of children can be determined through brief screening measures and are predictive of later academic success. Further implications are discussed for prevention and intervention for students at risk for academic failure and behaviour problems.	1, 2

17	Linan- Thompson & Ortiz (2009) Response to intervention and English- language learners: Instructional and assessment considerations.	This article presents issues associated with the implementation of a three-tier response to intervention (RTI) approach with English- language learners (ELLs). Instructional and assessment considerations are discussed particularly as they pertain to issues of language and literacy development. Opportunities for collaboration among bilingual education, English as a second language, and general education teachers, and speech-language pathologists are identified. In addition to effective Tier 1 and Tier 2 interventions, prerequisites to the success of RTI approaches for ELLs are discussed, including school climate and effective instruction.	1, 2, 3
18	Ohl, Graze & Weber et al. (2013) Effectiveness of a 10- week tier- 1 response to intervention program in improving fine motor and visual-motor skills in general education kindergarten students	OBJECTIVE: This study examined the efficacy of a 10-wk Tier 1 Response to Intervention (RTI) program developed in collaboration with classroom teachers to improve the fine motor and visual–motor skills of general education kindergarten students. METHOD. We recruited 113 students in six elementary schools. Two general education kindergarten class- rooms at each school participated in the study. Classrooms were randomly assigned to the intervention and control groups. Fine motor skills, pencil grip, and visual–motor integration were measured at the beginning of the school year and after the 10-wk intervention. RESULTS. The intervention group demonstrated a statistically significant increase in fine motor and visual–motor skills, whereas the control group demonstrated a slight decline in both areas. Neither group demonstrated a change in pencil grip. CONCLUSION. This study provides preliminary evidence that a Tier 1 RTI program can improve fine motor and visual–motor skills in kindergarten students.	1, 2, 5
19	Sanger, Snow & Colburn et al. (2012) Speech- language pathologists’ reactions to response to intervention: A qualitative study	Qualitative methods were used to explore reactions of 300 speech-language pathologists (SLPs) on Response to Intervention (RTI). RTI is a system approach to serving struggling learners. This study was part of a larger research project that surveyed 2000 SLPs across the US on their opinions about RTI. From 583 questionnaires returned, 300 (51.46%) responded to one open-ended question. Participants were asked, “What are your primary comments and/or concerns regarding RTI services for children and adolescents who struggle to learn?” Qualitative data analysis yielded 657 meaning units/codes and four themes emerged: (a) challenges and concerns, (b) support for the model, (c) implementation issues, and (d) role of SLPs. Challenges reflected in their reactions included: (a) the need for sufficient training, (b) SLPs’ already heavy workloads, (c) concerns over students who may be “stuck in the tiers of RTI instruction” and the delay in timely referrals of students who need language services, and (d) having educational leaders that support RTI as well as the need for everyone to be “on board”. RTI findings provide helpful considerations for SLPs and educators planning to implement the model.	1, 2, 3, 4, 6

20	<p>Simmerman (2013)</p> <p>Survey of response-to- intervention's challenges for school- based speech- language pathologists</p>	<p>With the introduction of the No Child Left Behind Act (NCLB), speech-language pathologists (SLPs) have experienced a new focus on language and literacy within their roles and responsibilities to provide services to students. The American Speech and Hearing Association (ASHA) support the role of SLPs in literacy efforts through their policies regarding expanded roles and responsibilities for school based SLPs. ASHA notes that school based SLPs have a clearly defined role in Response to Intervention (RTI) based on their expertise, knowledge and training to provide services as a resource and an interventionist when appropriate. The effect of the redefined roles and responsibilities of school based SLPs for children who are experiencing literacy difficulties has been largely unstudied in the state of West Virginia. This study was an attempt to begin to investigate the challenges that SLPs in the state of West Virginia feel they face within the RTI model. While an effective research-based framework such as RTI is essential to the success of students, the perceptions of the challenges that SLPs feel they face in their role in the RTI process directly impacts the effectiveness of participation in the RTI model in delivery of services on a day-to-day basis. SLPs' perceptions of the challenges they face in the RTI process, adequacy of training, willingness to participate in the documentation required within the RTI model, and the willingness to adopt collaboration techniques with other professionals within the RTI model are examined in the study. The sample population for the survey consisted of SLPs (n=227) from across the state of West Virginia. The study was conducted through a three-phase process. Phase One involved a pilot study of two counties in the state of West Virginia, Phase Two involved the use of a paper survey that was distributed at the 2011 annual West Virginia Speech and Hearing Association (WVSHA) Convention, and Phase Three involved the distribution of the survey via SurveyMonkey.com. Demographic information was collected, and participants were asked to state their agreement on 26 perception statements using a 5-point Likert scale. This quantitative study gathered data on the challenges SLPs from across the state of West Virginia feel they are currently facing within the RTI model. Results of the study indicate that the majority of school based SLPs in West Virginia do not currently participate in the delivery of RTI services to students. In addition, the study indicated that the majority of school based SLPs who participated in the study provide direct services to students through a caseload only model, which includes students who have a current Individualized Education Plan (IEP) in place and have not embraced a new framework called RTI to meet the challenges of appropriately offering interventions to students struggling with literacy issues. Based on statistical analysis of this survey utilizing both descriptive statistics and ANOVA, recommendations were made to help guide future professional development and training for school based SLPs in the implementation of the RTI model. The current study confirms the need for school based SLPs in West Virginia to consider adapting their service delivery model to address the unique needs of the children who struggle with literacy issues.</p>	1, 2, 4
21	<p>Snow, Sanger & Caire et al. (2015)</p> <p>Improving communication outcomes for young offenders: A</p>	<p>Background: Speech, language and communication needs (SLCN) are strongly overrepresented in young offender populations, and there is growing commitment internationally to ensuring access to speech-language therapy services for such young people. However, there is currently no framework in which such interventions might be conceptualized, delivered and evaluated. This is significant given the role of language competence in the development of prosocial skills and also in the transition to literacy. Aims: To present Response to Intervention (RTI) as a framework in which SLCN of young offenders might be systematically addressed and evaluated within youth justice settings, led by speech-language therapists, in</p>	1, 2, 3, 4, 6

	proposed response to intervention framework	conjunction with other education and welfare team members. Methods & Procedures: Literature regarding prevalence rates of SLCN in young offenders is reviewed, together with the limited extant evidence on interventions for this group. The importance of applying evidence-based interventions is argued, and a framework for adapting RTI for SLCN in custodial settings is outlined. Main Contribution: A framework for adapting RTI to design, deliver and evaluate speech–language therapy interventions in youth custodial settings is presented. Conclusions: Speech–language therapy interventions for young offenders will be better addressed at policy, practice and research levels if a framework such as an RTI adaptation is employed. It is expected, however, that this model will evolve over time, as intervention evidence pertaining to the youth offender population emerges.	
22	Snow, Sanger, Childers et al. (2013) Response to intervention in secondary settings: speech- language pathologists' perspectives	This study explored the reactions of 44 speech-language pathologists (SLPs) to Response to Intervention (RTI) in secondary settings. Respondents were part of a random sample of SLPs from across the US. A mixed-methods approach included quantitative data from a questionnaire containing 47 Likert-type items and qualitative findings from responses to an open-ended question. Results revealed participants value the model but recognize educators face challenges in implementation. Qualitative findings revealed four themes: (a) challenges and concerns, (b) support for the model, (c) implementation considerations, and (d) role of SLPs. Findings suggest that administrators and educators need to collaborate more closely in order to effectively implement RTI in secondary settings.	1, 2, 3, 4, 5, 6
23	Staskowski & Rivera (2005) Speech- language pathologists' involvement in responsiveness to intervention activities: A complement to curriculum- relevant practice	Responsiveness to intervention (RTI) initiatives have promise for meeting the literacy needs of all students, thereby preventing learning difficulties and school failure. In the authors' school districts in Michigan and Florida, speech–language pathologists (SLPs) are participating in RTI initiatives at every level. In some respects, RTI activities already are incorporated into SLPs' curriculum-relevant practices; in other respects, RTI initiatives introduce new roles for SLPs. This article places RTI models and activities in the context of a curriculum-relevant service delivery model and contrasts both with a traditional medical model. Case examples from the authors' districts illustrate how SLPs can play active roles in RTI initiatives and how it is possible to merge new roles with current practices by shifting from a caseload to workload view of time management.	1, 2, 5, 6
24	Swaminathan & Farquharson (2018) Using response to intervention for speech sound disorders: exploring	Purpose: Speech sound disorders (SSDs) comprise a large percentage of school-based speech- language pathologists' (SLPs) caseloads, particularly for those practicing in elementary schools. Many service delivery models have been proposed to manage rising caseload sizes. One particular approach, response to intervention (RTI), was introduced as an optional model of intervention in the 2004 reauthorization of the Individuals with Disabilities Education Act and in the 2015 Every Student Succeeds Act. This model ensures that children who may not yet require special education services still receive individualized support. Given the risk for literacy, cognitive, and social impairments in children with SSDs, it is imperative to explore how RTI is implemented for this population of children. Method: In this study, we asked 575 school based SLPs if they implement	1, 2, 3, 4, 6

	practice characteristics and geographical differences	RTI for children with SSDs. Furthermore, we explored which practice characteristics and geographical factors may be associated with the use of RTI for children with SSDs. Results: SLPs with smaller caseloads are more likely to implement RTI for children with SSDs. Conclusions: RTI is an optional approach that should be considered for children with SSDs to ensure appropriate and timely service provision. However, the characteristics of an SLP's work setting, such as caseload size, may impede the use of this approach. As such, administrators should work to improve the workload for SLPs, and state legislators should work to support RTI as an option for SLP services.	
25	Tolar, Barth & Fletcher et al. (2014) Predicting reading outcomes with progress monitoring slopes among middle grade students	Effective implementation of response-to-intervention (RTI) frameworks depends on efficient tools for monitoring progress. Evaluations of growth (i.e., slope) may be less efficient than evaluations of status at a single time point, especially if slopes do not add to predictions of outcomes over status. We examined progress monitoring slope validity for predicting reading outcomes among middle school students by evaluating latent growth models for different progress monitoring measure–outcome combinations. We used multi-group modelling to evaluate the effects of reading. ability, reading intervention, and Progress monitoring administration condition on slope validity. Slope validity was greatest when progress monitoring was aligned with the outcome (i.e., word reading fluency slope was used to predict fluency outcomes in contrast to comprehension outcomes), but effects varied across administration conditions (viz., repeated reading of familiar vs. novel passages). Unless the progress monitoring measure is highly aligned with outcome, slope may be an inefficient method for evaluating progress in an RTI context.	4, 5
26	Troia (2005) Responsiveness to intervention: roles for speech- language pathologists in the prevention and identification of learning disabilities	This article addresses ways in which speech–language pathologists can play a proactive and substantive part in schoolwide reading disability prevention and intervention efforts within the responsiveness to intervention framework. First, the driving forces that led Congress to alter how schools may operationalize learning disabilities are presented. Next, responsiveness to intervention is introduced and the shared characteristics of its varied models are reviewed. Finally, the likely benefits and potential limitations of this new approach for preventing and diagnosing learning disabilities are discussed. This information offers a backdrop for rethinking the role and responsibilities of school-based speech–language pathologists in the new millennium. Key words: early intervention, identification, learning disabilities, prevention, reading disabilities, service delivery models, speech–language pathologists.	1, 2, 3, 4, 5, 6
27	Ukrainetz (2006) The implications of RTI and EBP for SLPs: Commentary on L.M. justice	PURPOSE: This commentary responds to Justice's article on response to intervention (RTI) and evidence-based practice (EBP) for reading instruction. The educational changes brought about by RTI and EBP provide an opportunity as well as a challenge for speech-language pathologists (SLPs) to make fundamental changes in service delivery., METHOD: In this article, I discuss how RTI will change who qualifies as reading disabled and who receives special reading instruction. I examine how RTI might change who qualifies and how they qualify for speech-language services. Finally, I consider what can be taken from EPB and RTI to improve speech-language service delivery., CONCLUSION: RTI has the potential to fundamentally change regular	1

		education and its interface with special education. If SLP clinicians, researchers, and policymakers recognize the possibilities, RTI could also significantly and positively impact educational speech-language pathology.	
28	<p>Van Der Heyden, Witt & Gilbertson (2007)</p> <p>A multi- year evaluation of the effects of a response to intervention (RTI) model of identification of children for special education</p>	<p>The purpose of this study was to examine the effects of implementation of a systematic response to intervention (RTI) model on the identification and evaluation of children for special education. Using a multiple baseline design, a systematic model of assessment and intervention was introduced in consecutive years for all elementary schools (N=5) in the district. Effect of the RTI model on number of evaluations conducted, percentage of evaluated children who qualified for services, and proportion of identified children by sex and ethnicity before and after implementation of the model was examined. Additionally, outcomes for children who did not have an adequate response to intervention versus those who were at-risk but responded successfully to short-term intervention were examined. A cost analysis of use of the model was provided. The degree to which data obtained were used by the decision-making team was also examined. The assessment and intervention procedures, decision rules, and schoolwide training methods are described in detail and practical implications are discussed.</p>	2, 6

APPENDIX 3

Database Search Strategies

Database	Research Question 1		Research Question 2
CINHAL	Search 1: 95 results “Response to intervention” OR “RTI” OR “Multi- tiered systems of support*” AND “Student*” <i>Search Limit: All Child</i>	Search 1: 33 results “Response to intervention” OR “RTI” OR “Multi- tiered systems of support*” AND “Student*” OR “Pupil*” AND “Evaluation*” <i>Search Limit: All Child</i>	Search 1: 18 results "Speech patholog*" OR "Speech-language patholog*" OR "Speech therap*" OR "Speech language therap*" OR "SLP" AND "Response to intervention*" OR "RTI" OR "Multi-tiered system* of support" AND "Student*" OR “Pupil*” <i>Search Limit: All Child</i>
Cochrane Library	Search 1: 23 results “Response to intervention” OR “RTI” OR “Multi- tiered systems of support*” AND “Student*” AND “School*” <i>Search Limit: Nil</i>	Search 2: 18 results “Response to intervention” OR “RTI” OR “Multi- tiered systems of support*” AND “Student*” OR “Pupil*” AND “Evaluation*” <i>Search Limit: Nil</i>	Search 1: 1 result "Speech patholog*" OR "Speech-language patholog*" OR "Speech therap*" OR "Speech language therap*" OR "SLP" AND "Response to intervention*" OR "RTI" OR "Multi-tiered system* of support" AND "Student*" OR “Pupil*” <i>Search Limit: Nil</i>
Google Scholar	Search 1: 4,220,000 results Search terms: the effectiveness and the evaluation of the Response to Intervention model <i>Search Limit: Nil</i>	Search 2 was not necessary	Search 1: 45, 600 results Search terms: Response to Intervention model and Speech Language Pathologists <i>Search Limit: Nil</i>

La Trobe Library	Search 1: 534, 571 results Search terms: the effectiveness and the evaluation of the Response to Intervention model <i>Search Limit:</i> Nil	Search 2 was not necessary	Search 1: 11, 565 results Search terms: Response to Intervention model and Speech Language Pathologists <i>Search Limit:</i> Nil
Medline	Search 1: 95 results “Response to intervention*” OR “RTI” OR “Multi-tiered system* of support” <i>Search Limit:</i> All Child	Search 2: 23 results “Response to intervention” OR “RTI” OR “Multi- tiered systems of support*” Student* AND Pupil* Evaluation* (search as a subheading)	Search 1: 20 results “Speech patholog*” OR “Speech-language patholog*” OR “Speech therap*” OR “Speech language therap*” OR “SLP” “Response to intervention*” OR “RTI” OR “Multi-tiered system* of support” <i>Search Limit:</i> All Child
PubMed	Search 1: 155 results "Response to intervention*" OR "RTI" OR "Multi-tiered system* of support" AND Student* OR Pupil* <i>Search Limit:</i> Child: 6-12 years, Adolescent: 13-18 years, Preschool Child: 2-5 years.	Search 2: 50 results "Response to intervention*" OR "RTI" OR "Multi-tiered system* of support" AND Student* OR Pupil* AND Evaluation*	Search 1: 26 results "Speech patholog*" OR "Speech-language patholog*" OR "Speech therap*" OR "Speech language therap*" AND "Response to intervention*" OR "RTI" OR "Multi-tiered system* of support" <i>Search Limit:</i> Nil Search 2: 20 results "Speech patholog*" OR "Speech-language patholog*" OR "Speech therap*" OR "Speech language therap*" AND "Response to intervention*" OR "RTI" OR "Multi-tiered system* of support" OR "MTSS" <i>Search Limit:</i> 2005-2020, Preschool Child: 2-5 years, Child: 6-12 years, Adolescent: 13-18 years