Response to Intervention in Canada: Definitions, the Evidence Base, and Future Directions

Kent McIntosh¹, Leslie D. MacKay¹, Theresa Andreou¹, Jacqueline A. Brown², Susanna Mathews¹, Carmen Gietz¹, and Joanna L. Bennett¹

Abstract
Based on challenges with the traditional model of school psychology, response to intervention (RTI) has been advanced as a model of special education eligibility decision making and service delivery that may address the drawbacks of the traditional models of assessment and result in improved outcomes for students. In this article, the RTI model is described, and the research base describing its rationale and outcomes is reviewed. Finally, a description of how RTI has been and can continue to be adopted and researched in Canada is provided.

Résumé
Basé sur les défis avec le modèle traditionnel de Psychologie en Éducation, la réponse à l’intervention (RTI) a été avancée comme un modèle d’éligibilité pour prise de décisions et de livraison de service de l’enseignement spécialisé qui peut adresser les désavantages des modèles d’évaluations traditionnels et qui en résulte dans les issues améliorées pour les étudiants. Dans cet article, le modèle de RTI est décrit, et la recherche qui décrit son raisonnement et les issues est examinée. Enfin, une description de comment RTI a été et peut continuer d’être adopté et évalué est fourni.

Keywords
response to intervention, Canada, three-tier model, prevention, intervention, schoolwide intervention, progress monitoring, academics, research

¹University of British Columbia, Vancouver, Canada
²University of California, Santa Barbara

Corresponding Author:
Kent McIntosh, The University of British Columbia, 2125 Main Mall (ECPS), Vancouver, BC V6T 1Z4, Canada
Email: kent.mcintosh@ubc.ca
In Canada today, schools are bombarded with demands to do more in an environment where time and resources are already stretched to capacity (Naylor, 2002). Given that the vast majority of the average Canadian school psychologist’s time is spent conducting psychoeducational assessments for special education services (Saklofske et al., 2007), it is worthwhile to assess the extent to which these activities are the most effective use of time and resources to improve outcomes for students. A rising dissatisfaction with the traditional model of assessment and service delivery has caused many to question this role in search of more proactive, intervention-based approaches. Within this evolving process, there is the promise of a changing role of the school psychologist—from that of a gatekeeper to a dynamic agent of change in the school system. Response to intervention (RTI) is a promising model of service delivery and special education identification. The purpose of this article is to describe the challenges associated with the traditional model, define the principles and evidence base of the RTI model, and provide considerations for broader implementation of RTI in Canada.

**Challenges With Traditional Eligibility Practices**

The traditional approach for determining eligibility for learning disabilities often occurs through administration of cognitive assessments at one point in time and either calculating an ability–achievement discrepancy or identifying cognitive processing deficits, or both. Though other data are collected, such as interviews and observations during testing, the results of the cognitive measures are relied on heavily for decision making. There are several challenges with this approach that have been noted in the literature.

**Validity of Classification by Cognitive Assessment Results**

Research has demonstrated that the traditional approaches of classification can be statistically and diagnostically problematic (Kavale & Forness, 2000; Sternberg & Grigorenko, 2002). Measurement error increases when comparing multiple difference scores, as is done in a cognitive processing approach (Fletcher, Francis, Morris, & Lyon, 2005; Kavale & Forness, 2000; Watkins, Glutting, & Youngstrom, 2005). Moreover, the traditional approaches have been shown not to distinguish between students who can benefit from relatively modest short-term intervention and those with true disabilities (B. A. Shaywitz et al., 2004; Simos et al., 2002). Consequently, students who are referred but are not identified for services tend to be low achieving (Shinn, Good, & Parker, 1998). Yet research shows that low-achieving students are often less able to achieve long-term success than those who are most likely to be classified with a learning disability (i.e., students with low achievement but moderate to high cognitive ability; S. E. Shaywitz & Shaywitz, 2005).

The common overreliance on cognitive assessment results becomes more problematic when cultural bias in cognitive testing is considered (Helms, 1997). Many argue that cultural bias embedded in the process of cognitive assessment has led to an
overrepresentation of poor and minority students in special education, particularly for Aboriginal Canadians (Baydala et al., 2009; Naglieri & Johannes, 2001; Prifitera, Weiss, & Saklofske, 1998).

**Treatment Utility**

Research over the years has consistently shown that the classifications from traditional psychoeducational assessment have not, in themselves, led to effective instructional recommendations (Kavale & Forness, 2000; Reschly & Tilly, 1999; Watkins et al., 2005). Though there have been important recent methodological advances in the area of cognitive assessment (Flanagan & Harrison, 2005), these models still have as of yet unproven treatment utility (Braden & Shaw, 2009). In contrast, RTI-based assessments have been shown in many studies to provide valuable information for instructional planning and intervention selection (e.g., Hagans, 2008).

**An “All or Nothing” Approach**

Traditional approaches often exist within a context of an “all or nothing” eligibility determination where only students with a large discrepancy between their cognitive assessment and achievement scores are provided special education. However, all other groups of children are not served, including low achievers, who are arguably the most vulnerable students in need of services (Shinn et al., 1998). Under the traditional approaches, students who do not qualify for services often receive no additional support (Fletcher et al., 2002).

**A Focus on Within-Child Deficits**

Within traditional models, there is a greater tendency to attribute learning characteristics as fixed within the child rather than emphasizing the role of the environment (Fletcher et al., 1998). If problems are identified as fixed traits as opposed to instructional mismatches, teachers have fewer options for intervention, leaving less direction for school personnel in intervention planning. Moreover, recent research points to evidence that aspects of intelligence thought to be fixed may be malleable through intervention. Jaeggi and colleagues (Jaeggi, Buschkuehl, Jonides, & Perrig, 2008) recently demonstrated that intervention to improve fluid intelligence resulted in improved scores on cognitive assessments that were not related to the training activity. If even fluid intelligence can be enhanced through intervention, there are challenges to using intelligence scores at one point in time to determine disability.

**A “Wait to Fail” Approach**

The delay in services in the current system (i.e., until a problem becomes substantial), allows students to fall further and further behind their peers (Fletcher et al., 2005).
Currently, most students experiencing challenges are not evaluated until Grades 3 or 4, after a critical developmental period when intervention is most effective (Lau, Sieler, Muysken, Vankeuren, & Marston, 2006). Failure to intervene proactively leaves these students at higher risk for developing negative attitudes towards learning (Marsh & Yeung, 1997), antisocial behaviour (McIntosh, Horner, Chard, Boland, & Good, 2006; Trzesniewski, Moffitt, & Caspi, 2006), and school dropout (McGee, Prior, Williams, Smart, & Sanson, 2002). However, studies demonstrate that early identification and intervention in primary grades has positive effects on student performance outcomes (O’Connor, Fulmer, Harty, & Bell, 2005; Vellutino, Scanlon, Small, & Fanuele, 2006).

Within the “wait to fail” approach, students receive specialized services only after they have demonstrated severe need, and support until this point may only be delivered through a prereferral intervention process that can suffer from lack of structure, resources, and specialized attention from school psychologists. Given that school personnel can often identify who is likely to fail long before a traditional assessment (Loeber & Dishion, 1983), a proactive approach in the early elementary years could lead to improved student outcomes.

**RTI**

The RTI approach has arisen from consultation-based service delivery models to address concerns with traditional approaches to assessment and service delivery. RTI is a systems-level approach to school psychology service delivery that integrates instruction, the scientific model, formative assessment, and the psychoeducational assessment process. The RTI process provides preventive support for all students and experimentally excludes exposure to quality instruction as a cause of disabilities. Whereas the end result of the traditional approaches is a classification and recommendations based on the testing of unfamiliar skills in an unfamiliar environment (Bronfenbrenner, 1977), the end result of the RTI approach is a scientific test regarding what level of support is required for success (Tilly, 2008).

RTI is not simply a different method of special education eligibility decision making but a change in the way that services are provided. Though there are variations, the general RTI approach includes the following principles: (a) a focus on quality schoolwide instruction to prevent challenges, (b) schoolwide screening and progress monitoring to identify overall effectiveness and students who require additional support, (c) a tiered model of service delivery, and (d) eligibility determination consisting of identifying the required level of individual support (Batsche et al., 2005).

**Focus on Quality Schoolwide Instruction to Prevent Challenges**

A primary goal of RTI is to maximize learning for all students. The most effective and efficient method of achieving this goal is providing schoolwide and classwide instruction that supports the vast majority of students (Vaughnf, Linan-Thompson, & Hickman,
As such, emphasis is placed on enhancing the quality of general education instruction. An important goal is increasing the use of evidence-based practices within general education (Walker, Colvin, & Ramsey, 1995). When there is a higher population of students at risk, it is important to focus on improving the intensity of schoolwide instruction (Sadler & Sugai, 2009). As a result, more students can have improved outcomes, and the number of students requiring additional support can be reduced drastically (McIntosh, Chard, Boland, & Horner, 2006). When the quality of schoolwide instruction can be enhanced, referrals can be reduced drastically (O’Connor et al., 2005; Scanlon, Gelzheiser, Vellutino, Schatschneider, & Sweeney, 2008; Torgesen et al., 2001; Vellutino et al., 2006). For example, VanDerHeyden and colleagues (VanDerHeyden, Witt, & Gilbertson, 2007) reported results from an experimental design that on implementation of RTI in a school district, referrals were reduced dramatically, particularly for students from ethnic minority backgrounds.

**Schoolwide Screening and Progress Monitoring**

RTI systems rely on two types of formative evaluation for decision making (L. S. Fuchs & Fuchs, 2008). Schoolwide screening is a regular system for identifying student progress toward valued outcomes. Universal screening is often conducted at the beginning, middle, and end of the school year and determines whether school, class, or individual performance is meeting research-validated benchmark criteria for core curricular or developmental goals. Data collection at this level also serves to measure the effectiveness of schoolwide instruction and whether it needs modification to support more students preventively (McIntosh, Reinke, & Herman, 2009). For students not meeting benchmark criteria, evaluation is completed through ongoing progress monitoring, often monthly or weekly. Progress monitoring provides information to design interventions and change instruction based on student response.

Screening and progress monitoring take place using curriculum-based measurement, standardized, repeated, low-inference assessments of critical academic skills. Measures are brief and timed, with multiple alternate and equivalent forms (Shinn, 2008). Research-validated measures with demonstrated reliability and validity for assessing both level and growth in student performance exist in the areas of early literacy and numeracy, reading, reading comprehension, mathematics, handwriting, spelling, and written expression (L. S. Fuchs & Fuchs, 2008; National Center on Response to Intervention, 2010). These measures have more commonly been evaluated for elementary and middle school populations, but recent research has shown them to be valid for measuring performance of secondary students as well (e.g., Espin et al., 2008).

**Tiered Model of Service Delivery for Additional Support**

The RTI model includes a continuum of support to students through tiers of intervention, most commonly three tiers (Tilly, 2008). This service delivery model was first
proposed in the public health literature (see Gordon, 1983), and though many consider its application to education to have originated in the United States, it was used in schools in Saskatchewan in the 1970s (Sanche, 1976). Figure 1 presents Saskatchewan’s three-tiered model of service delivery. The model addresses development at all levels: Tier I (to prevent serious difficulties from emerging), Tier II (to remediate or ameliorate difficulties that have been identified), and Tier III (to address challenges when difficulties persist despite additional support). Tier I consists of quality school-wide instruction for all students, as described above, and high-quality Tier I support can reduce the prevalence of students who require support at Tiers II and III.

Figure 1. Saskatchewan’s three-tiered model of service delivery
Figure 2. Proportion of students supported by each tier based on (a) a British Columbia school implementing RTI and (b) the normative sample from Dynamic Indicators of Basic Early Literacy Skills (R. H. Good, Wallin, Simmons, Kame'enui, & Kaminski, 2002) (McIntosh, Chard, et al., 2006). A common goal for adequate Tier I support is for at least 80% of students to be successful with this level of universal support (McIntosh, Goodman, & Bohanon, 2010). When screening identifies that students are not successful with Tier I support, support is delivered at Tiers II and III. Figure 2 shows the proportion of students supported by a British Columbia school implementing RTI systems for literacy and the normative sample for Dynamic Indicators of Basic Early Literacy Skills (DIBELS), a curriculum-based measurement literacy screening system (R. H. Good & Kaminski, 2010). As seen, the percentage of students requiring support beyond Tier I in the RTI school is markedly smaller, ensuring success for more students and freeing resources for students requiring more intensive support.

Tier II support consists of efficient interventions that are delivered to a wide range of students in the same way (Crone, Hawken, & Horner, 2010). These interventions are often delivered in the form of supplemental, strategically differentiated, small-group instruction (Tilly, 2008). Student progress is monitored monthly, and instructional decisions are made by the school-based team based on RTI. If the student is successful with Tier II support, this additional support can be withdrawn and progress can be continued to be monitored to determine if the student remains successful with Tier I support. If the student requires Tier II support to be successful, the student can continue to receive Tier II support. If the student is not successful with Tier II support, the team may implement a different Tier II intervention or move to Tier III (L. S. Fuchs & Fuchs, 2008).
At Tier III, both the amount and intensity of support are increased in the form of smaller group or one-on-one instruction and should involve a small percentage of students when Tier I and II support are effective (Tilly, 2008). Tier III support involves interventions that are individualized to match the support needed by the particular student, and progress is monitored weekly. Students responding adequately to Tier III support may move down to Tier II. For those who do not make sufficient gains at the Tier III level, the team will make adjustments to enhance success. At this point, special education eligibility may be considered.

Eligibility Determination Based on the Level of Support Required to be Successful

Though the process may vary from district to district (as it does with the current models), each RTI system has a point at which special education eligibility is determined (Batsche et al., 2005). It is at this point when the team considers two basic questions. First, the team must rule out alternative explanations for performance (e.g., that a student’s poor performance is due to cognitive, hearing, or visual impairments, cultural or linguistic barriers, social-emotional challenges, or lack of opportunity to learn; British Columbia Ministry of Education, 2010). Moving through the RTI tiers generates valuable information about opportunity to learn because this process provides a test of response to evidence-based interventions that are effective for most students (i.e., an opportunity to learn). In addition, the team already has valuable information about the student’s skills and interventions that are effective and ineffective. Second, the team must decide whether intensive, individualized instruction is necessary for student success. As the RTI process directly tests what level of support is required for success, this question is more readily answered through an RTI process rather than inferring the level of support from traditional assessments. As such, the decision-making process is more straightforward. Nevertheless, the team may conduct additional testing if needed (Batsche et al., 2005).

The following example illustrates the decision-making process in an RTI system. Figure 3 shows progress monitoring graphs for two fictitious students in a school implementing RTI. In September (the fall benchmark period), all students were assessed in reading using curriculum-based measurement of oral reading fluency, measured by the number of correct words read per minute. The established benchmark indicating progress toward positive literacy outcomes in the fall of Grade 2 is 44 correct words per minute (R. H. Good & Kaminski, 2010). As seen, the class mean was 50 correct words per minute, indicating that overall, students were reading at or above the benchmark, and 83% of students met or exceeded the benchmark (indicating effective Tier I reading instruction). These results indicated that Tier I instruction was successful for most students. The students in Figure 3 read 21 correct words per minute, indicating that additional support was necessary. As a result, their progress was monitored for two more weeks to validate their initial scores and determine their growth in reading fluency with regular classroom instruction (L. S. Fuchs & Fuchs, 2008). Their
Figure 3. Progress monitoring graphs showing (a) adequate response to intervention and (b)
inadequate response to intervention

progress was compared with the school’s normative growth rate for Grade 2 students
as collected in previous years. Though the students’ skills were increasing, their
growth rates indicated a widening achievement gap, and regular classroom instruction
was deemed insufficient.

As a result, both students were provided a Tier II group reading fluency interven-
tion. Before additional support began, an aimline with a weekly growth rate of two
correct words per minute was selected based on normative growth rates established by
Fuchs and colleagues (L. S. Fuchs, Fuchs, Hamlett, Walz, & Germann, 1993). After 4 weeks of intervention, the team examined the students’ progress and identified that both students’ scores consistently fell below the aimline. The team hypothesized that both students could benefit from a different Tier II intervention that focused on both fluency and word decoding.

For the first student, there was an immediate response to the new Tier II intervention, as seen by the student’s scores consistently exceeding the aimline. These results indicate adequate growth at this level of support and a decreasing gap between the student’s scores and school norms. The team maintained the Tier II level of support until the student reached the middle of the year benchmark goal of 68 correct words per minute, at which point Tier II support would be discontinued but monthly progress monitoring would continued to ensure further growth.

For the second student, the response was not adequate, as evidenced by scores consistently below the aimline and a widening gap with the class. The team decided to implement Tier III individualized reading support and initiate a referral for special education eligibility. With the rich data already collected, the team had to collect little additional information to determine eligibility.

As seen in this example, intervention was used to test the level of support needed, the number of referrals for eligibility was decreased, and students received intervention throughout the evaluation process. Instead of focusing primarily on classification, the RTI model is used to provide and assess the instruction needed to help students succeed.

The Evidence Base for RTI

The literature supporting the RTI approach includes both basic and applied research. The following section provides an overview of relevant research in early literacy, neuropsychology, and supporting English language learners (ELLs).

Literacy Outcomes

As the majority of students with learning disabilities demonstrate reading difficulties (Vaughn et al., 2003), literacy is an important area for school psychologists, and it provides the strongest evidence base for RTI. Studies with rigorous methodology have evaluated implementation of RTI models and reported significantly enhanced student literacy outcomes (e.g., Scanlon et al., 2008).

The RTI model has been shown to increase the proportion of students on track for successful reading outcomes. McIntosh and colleagues (McIntosh, Chard, et al. 2006) found that with a comprehensive RTI approach, 90% of students in the district were proficient readers by the end of Grade 3. In contrast, in a national normative group (with more than 12,500 Grade 3 students), only 60% of students were proficient readers. Vaughn and colleagues (2003) showed that Tier II intervention at Grade 2 within an RTI model reduced risk for reading challenges. Of the 45 struggling readers, more
than 75% had strong growth in reading and were moved back to Tier I support, with continued growth in the classroom. Sadler and Sugai (2009) studied the implementation of RTI for kindergarten students at risk for reading problems. The percentage of students at “low risk” and “some risk” ranges (indicating that Tier I or Tier II support is needed) increased dramatically over 3 years from pretest to posttest follow-up, whereas the number of students in the “at risk” range (indicating the need for Tier III support) showed notable decreases.

Neuropsychological Evidence

Recent neuroscience research has indicated that RTI in reading skills corresponds to marked and enduring changes in brain activity. Neuroimaging research indicates that children with reading disabilities show lower activation in brain areas normally associated with reading. Readers without disabilities show brain activation in the posterior of the left hemisphere during reading tasks, whereas individuals with reading disabilities often show higher levels of activity in the frontal lobe and posterior regions of the right hemisphere, compensatory reading pathways that are drastically less efficient for processing (Simos et al., 2002). However, recent research indicates that RTI in individuals with reading disabilities is associated with normalization of brain activity, such that postintervention brain activity resembles the brain circuitry of typical readers (B. A. Shaywitz et al., 2004; Simos et al., 2002, 2007).

Following an evidence-based reading intervention, Shaywitz and colleagues (2004) found that students with reading disabilities showed significant gains in reading scores, accompanied by a reorganization in brain activity. Following intervention, the brain activation pattern of students with reading disabilities more closely resembled the control subjects without reading disabilities. Furthermore, these changes in brain activity and reading ability not only maintained 1 year following the intervention but also continued to normalize, even after intervention had been withdrawn.

Another study by Simos and colleagues (2002) shows similar results. Prior to an intensive 80 hr reading intervention, students with dyslexia displayed little or no activation in an area of the brain normally associated with phonological processing. Following the intervention, all students improved in phonological processing, and these improvements corresponded to changes in brain activation profiles, such that brain activity was equivalent to that of nondisabled readers. These results are particularly interesting, as the students ranged in age from 7 to 17 years, indicating that older students can respond to intervention, and changes in brain activity are not limited to younger children, though not without significant effort and resources.

Using neural magnetic source imaging, Simos and colleagues (2007) once again demonstrated the relationship between intensive RTI evidence-based interventions and alterations to neural circuitry for students with reading disability. The 16-week intervention first targeted phonological awareness and decoding skills, then shifted to reading fluency. Assessment of electrical activity in the brain prior to and immediately following intervention showed significant effects of intensive evidence-based reading instruction on neural functioning.
Furthermore, research indicates that students who do not respond to intervention show not a normalizing of brain activity but an increased reliance on the compensatory areas of the brain that are traditionally associated with poor readers (S. E. Shaywitz & Shaywitz, 2005; Simos et al., 2007), implying that change in brain activity is highly related to RTI. Despite the important implications of neuroscience research, the most advanced neuroimaging technology cannot currently predict who will respond to intervention without delivering it and assessing response (Fletcher et al., 2005). Hence, the population of students identified with learning disabilities through the traditional models of eligibility determination includes students who may and may not have normalized outcomes on early intervention. However, because intervention effectiveness diminishes as students age (Vaughn et al., 2010; Walker, Ramsey, & Gresham, 2005), by the time that they receive assessment and intervention, the likelihood and ease of remediation is diminished. For this reason, RTI, because of its emphasis on high-quality instruction and early delivery of additional support, represents a critical improvement over the traditional models.

**RTI and ELLs**

Assessing ELLs for learning disabilities is an increasing challenge in school psychology, particularly in Canada. Inadequate training and linguistic and cultural biases within widely used assessment tools add to the complexity of assessment (Rhodes, Ochoa, & Ortiz, 2005), and recent attempts to interpret tests based on linguistic demand and cultural loading have not been shown to be valid (Kranzler, Flores, & Coady, 2010). Elizalde-Utnick (2008) notes that the critical question of the assessment process when ELLs are assessed is whether learning difficulties are due to a disability or to the second language acquisition process. The traditional models have specific drawbacks in this area because of the focus on one point in time assessment. Instead, what is needed is ongoing assessment of the student’s acquisition of academic skills in English. These rates can then be compared with rates of other ELLs in the school or district to assess whether the student’s rate of acquisition is expected. Curriculum-based measures used in the RTI model are well suited to measure acquisition rates, and research has consistently shown that their validity and reliability are strong and equivalent for ELLs and native English speakers (Baker & Good, 1995; Fien et al., 2008). Moreover, the RTI model’s focus on intervention effectiveness and contextual factors, as opposed to measurement of within-student traits, may make assessment more valid for students from culturally or linguistically diverse backgrounds. In fact, research in the United States and Canada has shown that ELLs at risk for reading disabilities benefit as much or more than native English speakers in an RTI model (Linan-Thompson, Cirino, & Vaughn, 2007; Linan-Thompson, Vaughn, Prater, & Cirino, 2006; Lovett et al., 2008).

**Limitations of the Evidence Base**

Despite the growing evidence base supporting RTI, there are still some areas with important, unanswered questions. Regarding the systems-level application of RTI,
research has primarily focused on the population of elementary schools, and early literacy in particular, with less research in other areas (Burns & Riley-Tillman, 2009). This focus has resulted in well-articulated model of RTI assessment and service delivery for elementary reading and mathematics (e.g., L. S. Fuchs & Fuchs, 2008; L. S. Fuchs et al., 2008), but less is known about effective implementation of RTI in middle and secondary schools (L. S. Fuchs, Fuchs, & Compton, 2010). However, there are research-validated models of Tier II and III written expression and content area instruction that have been used in secondary RTI models (Deshler et al., 2001; Graham, 2007). Recent research has indicated that effects of an RTI approach in middle and secondary schools have been more modest (Vaughn et al., 2010) and take more time to implement (Bohanon et al., 2006). Consequently, more research is needed to understand the effective use of RTI models in later grades, but existing evidence shows some promise.

Regarding the use of RTI in eligibility determination, there have been stronger criticisms of the current literature base (e.g., Reynolds & Shaywitz, 2009). Some criticisms can easily be refuted, such as the concern that under an RTI system, support is delayed until the RTI process is finished. In an RTI model, students receive additional support at the point of proactive referral, as opposed to waiting for a comprehensive assessment and reporting of results to begin formulating support. Similarly, Reynolds and Shaywitz criticized RTI systems for neglecting the needs of “bright struggling learners,” those with high intellectual abilities but low achievement. In reality, RTI systems provide support to all students with demonstrated need, not simply students with large ability-achievement or intraindividual cognitive discrepancies.

However, some concerns are much more substantial. For example, though there is a general consensus on the overall conceptualization of RTI for determining eligibility (Batsche et al., 2005), there is less agreement on which specific methodologies and decision-making criteria have the most research support (D. Fuchs, Mock, Morgan, & Young, 2003). For example, there is not currently a consensus regarding the most appropriate length of time for intervention or criteria for determining RTI, and different criteria can provide different results (Barth et al., 2008). Another critical point regarding RTI is that poor quality or fidelity of implementation of the interventions used could affect results (Reynolds & Shaywitz, 2009), though this particular concern can be mitigated with attention to these variables. As a result of these criticisms, some have argued that eligibility decisions using RTI must be accompanied by a full assessment of cognitive processes (Hale, 2008), though others have questioned what additional information to inform treatment would be gained (Fletcher & Vaughn, 2009). It seems from these debates that, as with all approaches for eligibility determination, further research into best practices for RTI methodologies is warranted.

**RTI in Canada**

In Canada today, most school psychologists are still commonly viewed as “testers,” as opposed to educational leaders in instruction and mental health promotion (Saklofske et al., 2007). Yet many Canadian school psychologists would prefer more of a focus
on prevention and intervention, consistent with an RTI model (Corkum, French, & Dorey, 2007; Harris & Joy, 2010; Jordan, Hindes, & Saklofske, 2009). In addition, teachers in two recent British Columbia Teachers Federation surveys reported that (a) levels of support are insufficiently coordinated to meet student needs, (b) access to collaboration is minimal, and (c) they often feel unqualified to deal with the unique challenges of individual learners (Naylor, 2002). Trying to serve the unmet needs of students, particularly those who fall in the “gray area” of requiring support but not meeting eligibility criteria, was listed as a top source of teacher stress (Naylor & White, 2010). RTI provides promise in aligning the interests of teachers and school psychologists. School psychologists have knowledge of evidence-based practices but often lack a systematic process for disseminating and implementing these interventions in classrooms (Lau et al., 2006). The RTI model provides promise in enhancing collaboration among teachers and school psychologists.

Policies Supporting an RTI Approach in Canada

Certainly, the ministries of education in all provinces allow and recognize prevention as an important goal for school psychologists, but some ministries have taken additional steps to support RTI in policy. In Nova Scotia, RTI is one option for designating a student with a learning disability, when a gap of three or more grade levels exists between a student’s academic and expected achievement, despite intensive intervention. British Columbia and Quebec also endorse the inclusion of “failed RTI” in their policies on learning disabilities (Kozey & Siegel, 2008). The British Columbia Ministry of Education guidelines include provisions for an RTI approach by classifying learning disabilities as persistent difficulties with learning where “assessment data should document systematic attempts to address the student’s difficulty through instructional adaptations as well as the extent of the student’s ongoing difficulties in spite of the variations in instructional approaches” (p. 47), in addition to an intraindividual cognitive ability discrepancy (British Columbia Ministry of Education, 2010). Saskatchewan no longer uses the discrepancy model to identify learning disabilities to allocate funding (Saklofske & Grainger, 2001); instead, the ministry promotes support based on individual needs, rather than a strict diagnostic approach, using a three-tiered model of service delivery (Education Act, 1995; Hayes, 1989). Interestingly, these changes predated the incorporation of RTI into law in the United States. Manitoba incorporates the RTI model into its designation of learning disabilities, with students showing inadequate RTI being referred for more in-depth assessment. In addition, Prince Edward Island and the Northwest Territories use a noncategorical approach to special education eligibility, which is consistent with an RTI approach (Kozey & Siegel, 2008).

Examples of RTI Implementation in Canada

New Brunswick. The province of New Brunswick has moved away from traditional testing and the ability-achievement discrepancy model of diagnosing learning
disabilities, and many school psychologists have adopted an RTI approach, with a focus on curriculum-based assessment and classroom interventions (Saklofske et al., 2007). Instead of focusing on the past model of “refer, test, place,” a prevention model is emphasized. School psychologists offer support at the individual, schoolwide, and district levels (Mureika, 2001; New Brunswick Department of Education, 2001).

Saskatchewan. The Saskatchewan Ministry of Education has consistently promoted a three-tier model as a method of providing a continuum of student support (Saskatchewan Ministry of Education, 2008). Recent efforts have integrated this approach into regular practice, including building a culture of collaboration to enhance the effectiveness of Tier I instruction for all students and designing monitoring and decision-making tools that emphasize this logic (Saskatchewan Ministry of Education, 2009).

Alberta. Alberta Education has recently begun an initiative called Setting the Direction (Alberta Education, 2009), a set of comprehensive reforms intended to bridge the current gap between general and special education through inclusive education. The initiative focuses on four critical features of an RTI approach: an emphasis on evidence-based practice, providing a continuum of support for all students, use of progress monitoring data to identify student success, and a systems-level approach to building capacity for effective support. These features are emphasized through three goal areas: curriculum (quality instruction), capacity (systems to support teachers), and collaboration (linking schools, families, and communities).

British Columbia. Several school districts in British Columbia have implemented RTI models with positive outcomes. One example is British Columbia School District No. 81 in Fort Nelson (McIntosh, Ty, & Turri, 2011). Fort Nelson is a small, rural town in the northeast corner of British Columbia, and based on high levels of community risk (Kershaw, Irwin, Trafford, & Hertzman, 2005), district and school personnel implemented an RTI system in early literacy in 2006. Schoolwide instruction consists of small-group reading instruction through flexible skill grouping provided by all school staff, with a focus on daily reading practice. All students are screened for additional support with phonological awareness measures in kindergarten and Grade 1. Students requiring additional support from kindergarten through Grade 12 receive supplemental instruction in phonological awareness, decoding, and reading fluency.

As a result, student literacy scores have increased in each of the 4 years of implementation. As seen in Figure 4, students’ scores on the Grade 4 provincial reading comprehension assessment were far above the provincial average for all students, with 92% meeting or exceeding expectations (compared with 68% provincially), and Aboriginal students, with 94% meeting or exceeding expectations (compared with 51% provincially). These outcomes have been realized despite high vulnerability in a provincial measure of child development, including ranking in the top five most vulnerable districts in the province in terms of social competence and emotional maturity (Human Early Learning Partnership, 2009).

A second district example in British Columbia is the Catholic Independent Schools of the Vancouver Archdiocese (CISVA). In response to mixed results from contracting for psychological assessments, the CISVA implemented an RTI model of school
psychological services (McKee, Tong, & Holmes, 2009). School personnel complete universal literacy benchmarking three times per year. These data are then used to assess how well classroom instructional systems are meeting the needs of students. For Tier II support (e.g., peer tutoring and repeated reading), services are often delivered in classrooms by classroom teachers with the support of special educators and school psychologists. At Tier III, school psychologists collaborate with special educators to implement and monitor individualized interventions. As a result, school psychologists are less involved in formal report writing and more involved in direct intervention with students and collaborative relationships with teachers.

St. Paul School, an elementary school in the CISVA, began implementing an RTI approach to literacy in 2007. The school staff have implemented change in practices based on the use of professional learning communities and the concerns-based adoption model (Hall & Hord, 2006), which can assist in implementing lasting change through collaboration. They began by administering DIBELS and letting data guide

**Figure 4. Differences in provincial Grade 4 reading comprehension assessment scores**
Source: Reprinted with permission from McIntosh, Ty, et al. (2011).
the process. Results indicated the need to implement evidence-based instructional practices, such as peer-assisted learning strategies (D. Fuchs, Fuchs, & Burish, 2000) and focus on curriculum adaptations in the classroom at Tier I. Their student literacy outcomes have improved steadily since beginning implementation. Their 2009-2010 student outcomes data were presented in Figure 2.

In addition, many schools in British Columbia (and across Canada) have implemented an RTI model for social behaviour known as schoolwide positive behaviour support (Chapman & Hofweber, 2000; Horner, Sugai, Todd, & Lewis-Palmer, 2005). Implementation of this RTI model, including three tiers of behaviour support and data-based decision making based on incidents of problem behaviour, reflects the same RTI approach used in academics. Schoolwide positive behaviour support allows school psychologists to dedicate their considerable mental health expertise within an RTI model to prevent and address student challenges in behaviour. In British Columbia and Alberta, Implementation of Tier I schoolwide positive behaviour support has been shown to lead to reduced discipline referrals and suspensions, improved student perceptions of school safety, and improved academic achievement (C. Good, McIntosh, & Gietz, in press; McIntosh, Bennett, & Price, in press). Due to its effectiveness in improving school climate and safety, schoolwide positive behaviour support has sustained in British Columbia schools for more than 15 years (Waterhouse & Chapman, 2006).

The Role of the Canadian School Psychologist in an RTI Model

Like in the United States, the role of the school psychologist in some regions of Canada is expanding to include consultation, individualized educational programming, counselling, and direct and indirect prevention and intervention. A broader perspective has recently been emphasized, where a coordinated system of initiatives based on the three-tier model may change future practice of school psychology in Canada (Saklofske et al., 2007).

In an RTI model, school psychologists focus on services that support a broader range of students, such as implementing prevention programs, designing schoolwide interventions, and providing ongoing support to school staff through data-based decision making and progress monitoring (Burns, 2009). This model would also enable school psychologists to support the needs of more students by helping implement programs to decrease the number of students who would otherwise require more intensive intervention. This role also includes consulting with school staff to help them adjust the level and type of support required by students who are not benefiting from classroom instruction. Because of their ongoing support in prevention and intervention at the individual and schoolwide levels, this would in turn lead to a decrease in the number of eligibility assessments conducted.

An important additional role for school psychologists is building capacity for RTI among school personnel. Though preservice programs in school psychology and teacher education can and do build knowledge and skills in RTI and some school
psychology certification bodies require training in intervention (e.g., British Columbia Association of School Psychologists, 2009), the large numbers of school personnel in the field make changes in preservice training insufficient for capacity building. As a result, school psychologists can meet this need by providing professional development on RTI methods to teachers, administrators, and fellow psychologists.

Next Steps in RTI Implementation in Canada

Implementation of RTI systems in the United States has been hampered in some districts by uneven implementation and lack of attention to capacity of school teams (Burns & Riley-Tillman, 2009). With a careful approach to RTI implementation in Canada, Canadian school psychologists may avoid some of the pitfalls of implementation in the United States. The lack of a federal ministry of education or national education policies, though a drawback in terms of large-scale reform, allows for regional variations. In absence of a federally mandated methodological approach, provinces and districts can use innovative approaches, which could indicate the most effective methodologies for RTI in the Canadian context. In this way, the lack of a federal or provincial mandate may better allow for a more measured, bottom-up, and collaborative approach to RTI implementation that would proceed only when a critical mass of support was reached.

For example, school teams implementing RTI in Canada can pay more attention to some features that have been identified in recent research as critical for RTI implementation. Teams can focus first on implementing quality instruction, screening and progress monitoring systems, and a continuum of support before implementing eligibility decision-making aspects of RTI. Such attention to prevention can enhance student outcomes and reduce the need for psychoeducational assessment (VanDerHeyden et al., 2007). In addition, Canadian teams can pay special attention to both intervention quality and fidelity of implementation (Fletcher & Vaughn, 2009). Teams should not make the assumption that because an evidence-based practice is purchased, and personnel are trained, it will be implemented with fidelity.

Given the challenges of systems change, RTI implementation might expand on a small scale, with a committed team, in one area of student support. With the available research regarding RTI in elementary schools (particularly in early literacy), many schools and districts have started implementation of RTI in early literacy (Batsche et al., 2005). The studies described in this article show that focusing on early literacy has improved student outcomes in Canada and had a generalized effect in reducing overall referral bias and special education placement rates elsewhere (O’Connor et al., 2005; Scanlon et al., 2008; Torgesen et al., 2001; Vellutino et al., 2006). Once school and district teams gain more experience in small-scale implementation of RTI, there is likely to be more local capacity for implementation, more Canadian examples of successful methodology, and more available research in other populations, including secondary schools.
Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the authorship and/or publication of this article.

Funding
This work was supported by the Social Sciences and Humanities Research Council of Canada (SSHRC; F09-05052). Opinions expressed herein are those of the authors and do not necessarily reflect the position of SSHRC, and such endorsements should not be inferred.

References


**Bios**

**Kent McIntosh**, PhD, is an assistant professor in the school psychology program at the University of British Columbia. His primary research interests are schoolwide approaches to academic and behaviour support, culturally responsive intervention, and sustainability of school-based practices.

**Leslie D. MacKay**, MA, a doctoral candidate at the University of British Columbia, has research experience with early literacy and curriculum evaluation. Her current research interests include schoolwide positive behaviour support and response to intervention (RTI) related to curriculum-based assessment in schools.

**Theresa Andreou**, MEd, is a doctoral candidate at the University of British Columbia and has a recent publication of a chapter on peer-mediated intervention strategies and a Canadian Psychological Association workshop on evidence-based learning strategies. Her research interests include RTI related to early reading instruction and sustainability of effective behavioural support in schools.
Jacqueline A. Brown, MA, is currently a doctoral student in the school psychology program at the University of California at Santa Barbara. She completed her MA in school psychology at the University of British Columbia. She has participated in schoolwide positive behaviour support training and has helped train professionals in school-based assessment measures. Her current research interests revolve around school-based prevention and intervention.

Susanna Mathews is a master’s student in the school psychology at the University of British Columbia. Her research interests include investigating the role of school personnel perceptions in predicting the sustainability of schoolwide positive behaviour support.

Carmen Gietz is a master’s student in the school psychology program at the University of British Columbia. Her research interests include examining students’ perceptions of school, how school-related factors can influence academic achievement, and the effectiveness of preventative programs aimed at increasing positive behaviour in schools.

Joanna L. Bennett is a master’s student in the school psychology program at the University of British Columbia. She received her BA in psychology from the University of Victoria. Her major research interests are schoolwide positive behaviour support, RTI, and early intervention.