GENERAL EDUCATION TEACHERS’ KNOWLEDGE OF RESPONSE TO INTERVENTION

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By
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GENERAL EDUCATION TEACHERS’ KNOWLEDGE OF RESPONSE TO INTERVENTION

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ABSTRACT

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Response to Intervention (RTI) is a revolutionary innovation to the structure of educational services. With this innovation come changes in required knowledge and skills for all school personnel. General education teachers are major stakeholders in an RTI approach, yet there is a shortage of literature examining their knowledge of RTI. The present study involved surveying Ohio general education teachers’ knowledge of RTI with a 24-item RTI knowledge instrument. The survey measured knowledge in five areas of RTI: general ideology, problem-solving, tiers of service-delivery, data collection and interpretation, and intervention. Results demonstrated that teachers were more knowledgeable about RTI than previous studies found, answering 77% of questions about RTI correctly. Teachers’ strongest area of knowledge was problem-solving; their weakest area of knowledge was the tiers of service-delivery. In addition, various background
factors were investigated for their relationship to knowledge of RTI. Implications for improvements in teacher training in RTI are discussed.
This research is dedicated to my grandmother, Naoko T. Warren; you are an inspiration to perseverance.
ACKNOWLEDGMENTS

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CHAPTER I

INTRODUCTION

Response to Intervention (RTI) is a revolutionary innovation to the structure of public education. According to Hunley and McNamara (2010), RTI is a “school-based system designed to identify and meet children’s needs through increasingly more focused and intensive levels (‘tiers’) of assessment and intervention” (p. 1). Furthermore, RTI consists of using student progress monitoring data to make educational placement decisions (Batsche et al., 2006). As with any innovation, the adoption of RTI requires that school personnel understand its underlying principles and its application to their work. The RTI approach involves collaboration between all school personnel to meet children’s educational needs (National Joint Committee on Learning Disabilities, 2005). The majority of school personnel are general education teachers, and at the foundation of RTI is general education teachers’ research based instruction.

Although general education teachers are key stakeholders in a RTI approach, Greenfield, Rinaldi, Proctor, and Cardarelli (2010) found in a qualitative study that four out of eight teachers felt they were lacking in content knowledge about RTI (i.e. tiers of instruction, data-based decision-making, research-based intervention). One teacher reported that teachers’ knowledge about RTI is imperative to teacher acceptability and effective implementation. Teachers’ concern over their perceived lack of RTI knowledge is in itself a concern. It is even more alarming that even when teachers received training
in RTI, there was no significant difference between their RTI knowledge and that of teachers without RTI training (Swigart, 2009). It is important that general education teachers understand the basic principles of RTI to effectively deliver educational services that meet children’s diverse needs, yet there is a dearth of quantitative research about general education teachers’ RTI content knowledge in the research literature. Thus, the purpose of this study was to examine general education teachers’ overall knowledge about RTI, strengths and deficits in RTI principles, and background factors that relate to knowledge of RTI.
CHAPTER II

LITERATURE REVIEW

The literature review begins with an examination of the legislation that influenced the implementation of RTI as a school-based system of instruction. Basic principles of RTI are reviewed, including multiple tiers of instruction, problem-solving, data collection, data interpretation, and research-based instruction and intervention. Finally, school personnel’s knowledge, experience and perceptions of RTI are examined.

Response to Intervention (RTI)

The reauthorization of the Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004) influenced the introduction of RTI to schools in the United States (Wright, 2007; Cummings, Atkins, Allison, & Cole, 2008). IDEA 2004 calls for the use of scientific, research-based interventions prior to referral for a traditional evaluation for special education. Although RTI is historically connected to special education, the implementation of research-based interventions and collection of data to monitor student progress occurs in the context of the general education curriculum. As such, RTI is an approach to instruction and early intervention designed to meet the educational needs of all students (NJCLD, 2005). An overview of the key components of RTI follows.

Multiple tiers of service delivery. RTI involves establishing multiple levels (tiers) of instruction or intervention, typically ranging from two to four tiers depending on
the model (Fuchs & Fuchs, 2006). Overall, instruction/interventions and data collection methods intensify with regard to frequency and delivery. The intensity of intervention increases with each tier and is designed to be supplemental to existing instruction, rather than replace it (Fuchs & Fuchs, 2006).

Xu and Drame (2008) provide a description of the tiers and movement within the tier system. Tier 1 consists of quality, research-based instruction at a class-wide level. Universal screening occurs at tier 1 to identify students’ academic proficiency (Batsche et al., 2006). Assessment data are collected at the beginning, middle, and end of the year. All students in a school are part of tier 1, but typically 80% of students respond to instruction at this level (Burns & Gibbons, 2008). Xu and Drame (2008) state that students who are not making adequate growth based on progress monitoring data are selected to receive a tier 2 intervention in addition to tier 1 instruction.

Tier 2 interventions consist of more intensive instruction in a smaller group setting, typically a 5:1 student-teacher ratio (Xu & Drame, 2008). Approximately 15% of students respond to tier 2 interventions (Burns & Gibbons, 2008). Progress is monitored at this level at least once per month (Burns & Gibbons, 2008) or even once per week (Xu & Drame, 2008). Students who still do not make an increased rate of growth in relation to baseline and same-age peer comparisons are transferred to tier 3 intervention (Xu & Drame, 2008).

The premise of tier 3 is that the primary cause of a student’s problem has not been identified; thus, tier 3 focuses on targeting the underlying cause with intervention tailored to an individual’s specific needs (Hunley & McNamara, 2010). At tier 3, progress is
continuously monitored once per week, and intervention is intensified, occurring at a 1:1 or 3:1 student-teacher ratio (Xu & Drame, 2008). Students requiring tier 3 intervention represent approximately 5% of the student population (Burns & Gibbons, 2008). If growth is not demonstrated or the resources required for growth are determined to be extensive at tier 3, referral for special education may be warranted.

Progress monitoring of students occurs at all tiers and changes to instruction are guided by the progress monitoring data (Fuchs & Fuchs, 2006). Progress monitoring involves assessing at-risk students’ performance and weekly growth in a specific skill (i.e. oral reading fluency, math computation fluency, etc.) and comparing it to the local or national norms (Xu & Drame, 2008). If students are failing to make adequate progress in relation to their peers, the problem should be investigated to determine a solution. Just as the intensity of interventions increases with each tier, the intensity of assessment and problem-solving also increases with each tier (Burns & Gibbons, 2008).

**Problem-solving.** The problem-solving model is an inductive, scientific, and collaborative approach to reaching a solution (Fuchs, Mock, Morgan, & Young, 2003; Fuchs & Fuchs, 2006). Burns and Gibbons (2008) provide an overview of problem-solving that occurs at each tier in the RTI model. Problem-solving at tier 1 involves identifying if a problem exists in the core curriculum by comparing class-wide assessment scores to a national norm. Tier 2 features more in-depth problem-solving for a smaller group of students by identifying the problem and category of deficit, such as reading phonemic awareness or oral reading fluency; broad interventions are linked to the group’s collective problems. At tier 3, problem-solving focuses on the functional cause
of a specific problem for an individual student; a comprehensive investigation is conducted to determine why the problem is occurring and to help provide individualized services that are linked to the identified problem. Data are imperative to effective problem-solving across all three tiers in determining the content and intensity of instruction.

**Data collection.** Decisions in an RTI approach are based on data rather than subjective opinions or perceptions of school personnel (Hunley & McNamara, 2010). Therefore, it is essential that schools collect data across all three tiers. According to Batsche and colleagues (2006), data are collected for three main purposes: *screening* to identify children who are not performing to expected levels, *diagnostics* to determine skills of students that are strengths and weaknesses, and *progress monitoring* to determine if interventions are effective in improving students’ academic and behavioral skills. Data are collected on students’ academic performance typically through the use of curriculum-based measurements (CBM). Curriculum-based measures (CBM) are brief, formative assessments of specific academic skills that are sensitive to growth over time (Batsche et al., 2006). Commercially available tools such as Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002), STAR (Beckmann et al., n.d.), and Academic Intervention Monitoring System (AIMS; Shinn & Shinn, 2002) and its web-based version, AIMSweb, are ubiquitous data collection systems used in schools to frequently collect data on students’ specific academic skills. Behavioral data are collected with standardized tools as well, such as the Behavioral Observation of Students in Schools (BOSS; Shapiro, 2006).
Data interpretation. To determine students’ learning progress in response to research based intervention, curriculum-based measurement data are analyzed and interpreted in two ways: level difference and rate of learning difference (Batsche et al., 2006). According to Batsche et al. (2006), level difference consists of a discrepancy between the CBM scores of a student who receives intervention and the benchmark level of same-age peers. Rate of learning difference is the discrepancy between the weekly growth of a student who receives intervention and the weekly growth of peers. Both a level difference and rate of learning difference in comparison to a student’s same-age peers has been referred to as the “dual discrepancy” (Fuchs & Fuchs, 1998). Burns and Gibbons (2008) advocate for the use of a dual discrepancy over a single discrepancy to make instructional and special education eligibility decisions.

Research-based instruction and intervention. Under the No Child Left Behind Act of 2001 (NCLB, 2002) and IDEA (2004), it is required that scientifically validated instructional methods and interventions are utilized to teach students. These instructional methods have documented effectiveness with the majority of students. Burns and Gibbons (2008) identify scientific researched-based interventions as those that have undergone rigorous scientific testing and data analysis and are empirically shown to be reliable and valid. Although problem-solving and individualizing interventions are key components of RTI, standard protocol interventions are an important first step to providing services for larger groups of at-risk students (Batsche et al., 2006; Burns & Gibbons, 2008). Standard protocol methods utilize empirically supported interventions for students who share a common deficit (Fuchs, Mock, Morgan, & Young, 2003). The
facilitator is thus trained in implementing specific interventions for specific problems. Standard protocols uphold high fidelity in implementation but do not consider individuals’ unique needs. Standard protocols can fit the needs of students at Tier 2 at a more intense level than in Tier 1, while problem solving is crucial at Tier 3 to identify and meet individual students’ specific learning needs. With a strong core curriculum in place and tiered, research-based interventions available in a RTI approach, students’ learning needs can be met without qualifying students for special education (Burns & Gibbons, 2008).

School Personnel’s Knowledge, Experience, and Perceptions of RTI

RTI is a general education initiative designed to meet all children’s learning needs. As such, instructional resources are allocated within general education (Burns & Gibbons, 2008). Depending on one’s job role, background training, and personal perceptions, the implementation of RTI impacts school personnel in different ways, requiring a wide range of new knowledge, skills, and competencies for school personnel (NJCLD, 2005). Research has been conducted with school personnel to assess their knowledge and perceptions of RTI, impact on job role, perspectives of the change process, and factors that influence training.

Teachers. Teachers’ knowledge of RTI and skills related to its implementation are crucial to its success, as they are on the frontlines of providing research-based, differentiated instruction, collecting progress monitoring data, and implementing interventions (NJCLD, 2005). Greenfield, Rinaldi, Proctor, and Cardarelli (2010) interviewed eight elementary school general and special education teachers to understand
how teachers view the RTI reform process. Results revealed strengths and weaknesses in teachers’ understanding of RTI. Teachers perceived themselves as having a strong understanding of progress monitoring and using assessment to guide instruction. However, teachers also felt they lacked overall knowledge about RTI, how to proceed with students who do not respond to intervention, and knowledge about the three tiers of intervention.

In an unpublished thesis, Swigart (2009) investigated teachers’ perceptions and knowledge of RTI. RTI knowledge was assessed on a survey with seven True/False items. A total of 100 teachers were surveyed in the study, and the average correct number of questions on the knowledge survey was 4.75 out of seven total questions. Teachers were divided into three groups by knowledge level: low knowledge (2-3 questions correct, \( n = 13 \)), average knowledge (4-5 questions correct, \( n = 51 \)), and high knowledge (6-7 questions correct, \( n = 22 \)). Surprisingly, teachers who were more knowledgeable about RTI had a less positive perception of the benefit of RTI for teachers and students. There was not a significant difference in perceived self-competence in understanding RTI between teachers with a low level of knowledge and teachers with a high level of knowledge. RTI knowledge was not correlated with perceived benefit of RTI to teachers and students, teachers’ perceived self-competence with RTI, or teachers’ perceived benefit of RTI to the special education identification process. In addition, teachers’ age and teaching experience were not correlated with RTI knowledge. There was no difference in knowledge between elementary and secondary level teachers or between teachers in schools where RTI was used and teachers in schools where RTI was
not used. This may indicate that factors other than knowledge about RTI impact perceptions of the value of RTI. The study featured various limitations: few knowledge questions (seven) were used in the survey, and the sample may not generalize to other populations, as it only consisted of teachers in the state of Kentucky.

Teachers’ training in RTI at the university level is important as the RTI approach has necessitated development of new knowledge and competencies. In a recent study, 73% of teacher educators surveyed reported familiarity with RTI (Schwartz, Blue, MacDonald, & Pace, 2009). However, instruction about RTI through university training alone is not enough to determine if teachers possess adequate knowledge about RTI or if these skills are being translated to practice in the school setting.

Tillery, Varjas, Meyers, and Collins (2010) explored general education teachers’ perceptions and understanding of RTI. Teachers attempted to describe what they thought was RTI, but failed to articulate a clear understanding with vague, rudimentary responses such as “how the child reacted to what you tried” (p. 96). This lack of knowledge is surprising given that the teachers received RTI training from their district at the time of the study. Thus, it appears that training was not effective in building the teachers’ RTI content knowledge. There seems to be a disconnection between the training content and the transfer of that knowledge to practice. As Tillery, Varajas, Meyers, and Collins (2010) note, teachers’ perspectives largely influence actions so investigation of perceptions is imperative so training can targeted to areas of need.

**Other school personnel.** The practice of RTI involves collaboration between all school personnel, including general and special education teachers, administration, school
psychologists, school counselors, academic aides, and many others service providers. Crucial to RTI implementation are the perceptions of those who implement its practice. Martinez and Young (2011) examined the knowledge, current practices, and opinions about the RTI process of education service providers in rural and urban schools. The sample was comprised of mostly general education teachers but also included school psychologists, intervention specialists, school counselors, and principal. The majority of school personnel stated that either teachers’ recommendations or low screening scores were used to identify students at risk for academic failure. Most indicated that children’s areas of weakness were operationally defined for future observation and progress monitoring. However, only 56% of respondents indicated that a plan for one or twice weekly progress monitoring was put into place, while 27% indicated that progress monitoring never or rarely was included in the intervention plan. For intervention, the majority of respondents indicated that a trained specialist worked with the students. Overall, the majority of school personnel felt that students were better served under the RTI model than the IQ-achievement discrepancy model. Despite the advantages of RTI for students’ success, teachers expressed frustration with the time consuming activities of meetings, data collection, and evaluation of intervention effectiveness. These opinions about RTI are important because it relates to the acceptability of implementing RTI.

School psychologists nationwide have reported that RTI has changed how they perform their job (Sullivan & Long, 2010). According to Sullivan and Long (2010), a majority of school psychologists reported allocating less than a quarter of their time to academic interventions, but most (63.6%) reported spending more time on interventions
since RTI has been implemented compared to before implementation. Slightly more than half found that their special education evaluation workload decreased as a result of RTI. Finally, 68.3% of school psychologists felt RTI improved student academic achievement. In terms of their training, most school psychologists indicated that they received training from workshops, conferences, and school in-services.

Sansosti, Goss, and Noltemeyer (2011) gathered special education directors’ perceptions about teachers and RTI. Special education directors’ perspective on RTI is highly valued because they understand the connection between general and special education teachers, which is essential to an RTI approach. The special education directors surveyed in this study felt that a change in roles and attitudes for all school personnel had occurred as a result of the implementation of RTI. Current mindsets were viewed as barriers to the RTI implementation process in a secondary education setting. Special education directors viewed secondary teachers as having a content-oriented focus that clashes with the student-oriented focus of RTI. The special education directors felt that teachers would have to become more involved with students struggling across multiple content areas. In addition, special education directors felt that increased collaboration was needed between general and special educators. They reported that school personnel needed increased professional development. There was a consensus that university-level teacher training programs need to adequately address RTI, and teachers need to provide quality tier 1 instruction.
Purpose of Present Study

The existing literature on RTI and school personnel supports the need for further investigation of general education teachers’ knowledge about RTI. Few studies have been published that demonstrate teachers’ strengths and weaknesses in specific areas of RTI. In addition, no published studies identified variables related to RTI knowledge of teachers in Ohio; Swigart (2009) researched the knowledge of RTI of teachers only in Kentucky, which may not generalize to other states. This highlights a need to gather data on teachers’ RTI knowledge in Ohio. Existing studies investigating RTI and teachers have been exploratory and qualitative in nature in determining teachers’ knowledge and perceptions (Greenfield, Rinaldi, Proctor, & Cardarelli, 2010; Tillery, Varjas, Meyers, & Collins, 2010). Additional quantitative research is necessary to determine specific strengths and weaknesses in regards to factual knowledge about RTI, the magnitude of those strengths and weaknesses, and the background factors that relate to RTI knowledge.

The purpose of the present study is to investigate K-12 general education teachers’ knowledge about RTI, their specific knowledge strengths and deficits in RTI principles, and the degree to which background factors such as RTI training, RTI implementation in teachers’ district of employment, and teachers’ years of experience relate to RTI knowledge. For this study, RTI knowledge is defined as an understanding of the ideology and principles of RTI, as identified in the literature review; these principles include multiple tiers of service delivery, problem-solving, data collection, data interpretation, and research-based intervention. Understanding what teachers know about RTI will help administrators structure RTI training to reinforce knowledge areas of
strength and build on areas of weakness. In addition, if training can better meet teachers’ needs, teachers may more effectively utilize skills that are essential to a RTI model, such as research-based instruction, collecting assessment data to guide instruction, and monitoring students’ progress.
CHAPTER III
METHOD

Research Questions

The following research questions were developed for the present study:

(1) What do general education teachers know about RTI?

(2) Is there a relationship between perceived quality of types of RTI training, perceived quality of training in areas of RTI, RTI district implementation, and teaching experience and RTI knowledge?

Based on past research (Swigart, 2009), two research hypotheses were generated:

(1) Teachers will be somewhat knowledgeable about RTI (answer between 50% - 75% of questions correctly).

(2) There will be a positive relationship between perceived quality of types of RTI training, perceived quality of training in areas of RTI, RTI district implementation, and teaching experience and RTI knowledge.

Participants

Participants included (n = 99) K-12 general education teachers in public schools in Ohio. Of the 162 teachers recruited, 99 completed the survey and were included in the data analysis. See Table 1 for information regarding participants’ demographics. The average teaching experience was 16 years. The average school district implementation of RTI was four years; however, there was a low response rate to this question from
participants. Additionally, participants’ perceived quality of types of training in RTI and perceived quality of one’s own training in areas of RTI were collected.

Table 1

Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>85%</td>
</tr>
<tr>
<td>Male</td>
<td>14%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>17%</td>
</tr>
<tr>
<td>Master’s</td>
<td>83%</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>55%</td>
</tr>
<tr>
<td>Middle</td>
<td>27%</td>
</tr>
<tr>
<td>High</td>
<td>18%</td>
</tr>
<tr>
<td>District SES</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>20%</td>
</tr>
<tr>
<td>Lower Middle</td>
<td>34%</td>
</tr>
<tr>
<td>Middle</td>
<td>42%</td>
</tr>
<tr>
<td>Upper Middle</td>
<td>3%</td>
</tr>
<tr>
<td>Upper</td>
<td>0%</td>
</tr>
</tbody>
</table>
Research Design

A survey design was utilized for this study. The survey was divided into two components: (1) demographics and background and (2) teachers’ knowledge of RTI. Descriptive data were collected to represent teachers’ overall knowledge about RTI and in specific areas of RTI identified in the literature: multiple tiers of service delivery, problem solving, data collection and interpretation, and research-based instruction/intervention. The variables included (1) perceived quality of types of training in RTI, (2) perceived quality of training in areas of RTI, (3) school districts’ duration of RTI implementation, measured in years, and (4) teaching experience, measured in years, and (5) RTI knowledge, as represented by the mean percent correct score on the RTI knowledge survey. Quantitative data were collected.

Materials

Measures. A quantitative RTI knowledge survey (see Appendix B) was created and hosted on www.qualtrics.com. The survey was based on a review of the current RTI research literature. A total of 24 multiple choice and true false questions were utilized to assess RTI knowledge in five domains: general ideology, problem-solving, multiple tiers of service delivery, data collection and interpretation, and research-based instruction/intervention. The instrument was reviewed by the thesis committee and pilot tested with a convenience sample of teachers, education students, and school psychology graduate students. Based on pilot testing, changes were made to the wording of various questions. Feedback provided in the pilot suggested shortening the length of the survey.
As a result, six items were removed based on feedback that certain items assessed nearly identical concepts.

**Procedures**

Approval for the research was obtained through the Institutional Review Board (IRB). From a list of school districts throughout the state of Ohio approved to host school psychology interns, the principal researcher emailed superintendents requesting to send the RTI knowledge survey to teachers in their district. An incentive was offered to the teachers who participated in the study to assist in recruitment. Participants’ informed consent was obtained through a statement at the beginning of the survey, in which they consented by completing the survey. After completing the survey, teachers were instructed to email the researcher with a completion code that was shown at the end of the survey for the opportunity to win one of two $50 gift cards to Amazon.com. Participants voluntarily responded to the survey at their convenience. At the conclusion of data collection, participants’ email addresses were entered into a raffle drawing, and two teachers were randomly selected as recipients of the gift cards. The raffle winners were contacted via email with an electronic gift card.
CHAPTER IV
RESULTS

Data Analysis

Interval data were collected for RTI knowledge (percent of correct items), and ratio data were collected for teaching experience (years) and RTI implementation in school district (years). Ordinal data were collected for the perceived quality of types of RTI training and training areas. Types of training included: school in-service training, undergraduate training, graduate training, conferences, and independent research. Training areas included: universal screening, progress monitoring, intervention planning, intervention implementation, differentiated instruction, problem-solving, and curriculum based measurements. Nominal data were collected for remaining background and demographic information. Mean scores were reported for age, teaching experience, RTI training, and RTI implementation in school district. Percentages were used to summarize remaining nominal background and demographic data (descriptive). Descriptive and correlational statistics were used to analyze the data.

Research question 1. Descriptive statistics were used to analyze the mean scores for RTI knowledge based on the percent of correct responses to questions on the RTI knowledge survey.

Research question 2. Descriptive statistics were used to determine participants’ perceptions of their training in RTI. A Pearson product-moment correlation coefficient
Descriptive statistics were gathered on participants’ perceptions about the quality of the types of training they had received on RTI and their perceptions about the quality of training in specific areas of RTI. Participants rated the quality of the types of training and training in areas of RTI that they had received in the past based on a likert scale ranging from zero to five: 0 = does not apply, 1 = poor, 2 = below average, 3 = average, 4 = above average, and 5 = excellent. Percentages are reported to indicate the participants’ perceptions.

Perceived quality of types of RTI training. Regarding teachers’ perceived quality of types of RTI training, in-service trainings were reported to be of the highest quality of the training they received in RTI; 22% of teachers surveyed rated in-service training as above average, and 5% rated in-service training as excellent. However, in-service trainings were also rated as the poorest of quality of training in RTI; 15% of teachers reported in-service training to be of poor quality. Undergraduate training was reported to be the highest area in which participants did not receive any training in RTI (See Table 2).
<table>
<thead>
<tr>
<th>Measure/Rating</th>
<th>In-Services</th>
<th>Undergrad. Training</th>
<th>Grad. Training</th>
<th>Conferences</th>
<th>Independent Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>5.1%</td>
<td>54.5%</td>
<td>50.5%</td>
<td>50.5%</td>
<td>38.4%</td>
</tr>
<tr>
<td>Poor</td>
<td>15.2%</td>
<td>14.1%</td>
<td>9.1%</td>
<td>8.1%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Below Average</td>
<td>8.1%</td>
<td>12.1%</td>
<td>6.1%</td>
<td>3.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Average</td>
<td>43.4%</td>
<td>11.1%</td>
<td>17.2%</td>
<td>22.2%</td>
<td>25.3%</td>
</tr>
<tr>
<td>Above Average</td>
<td>22.2%</td>
<td>3.0%</td>
<td>6.1%</td>
<td>6.1%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Excellent</td>
<td>5.1%</td>
<td>0%</td>
<td>4.0%</td>
<td>3.0%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

*Note.* N/A indicates no training received.
**Perceived quality of training in areas of RTI.** Regarding teachers’ perceived quality of training in specific areas of RTI, differentiated instruction was reported to be the highest quality of training in a specific area of RTI; 33% of teachers reported their training in differentiated instruction was above average, and 12% of teachers reported their training in this area was excellent. Universal screening was reported to be the area of training in RTI that was perceived to be of the poorest quality; 19% of teachers rated their training in universal screening as poor. In addition, universal screening was reported to be the highest area of RTI in which participants had not received training (See Table 3).

**Research Question 1**

General education teachers’ mean percent of questions correct on the RTI knowledge survey was 77%. Teachers were most knowledgeable about RTI in the area of problem solving, answering 85% of these questions correctly. Teachers were least knowledgeable about RTI in the area of tiers of instruction. Mean scores for each of the five areas of RTI knowledge can be found in Table 4.

**Research Question 2**

There was a significant positive correlation between perceived quality of in-service/training workshops and RTI knowledge ($r = .25, p = .01$). There was not a significant correlation between perceived quality of undergraduate training, graduate training, conferences, and independent research and RTI knowledge (see Table 5). There was a significant positive correlation between perceived quality of training in curriculum-based measurements and RTI knowledge ($r = .27, p = .006$). There was a
### Table 3

*Perceived Quality of Training in Areas of RTI*

<table>
<thead>
<tr>
<th>Measure/Rating</th>
<th>Universal Screening</th>
<th>Progress Monitoring</th>
<th>Intervention Planning</th>
<th>Intervention Implementation</th>
<th>Differentiated Instruction</th>
<th>Problem Solving</th>
<th>Curriculum Based Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N/A</strong></td>
<td>31.3%</td>
<td>8.1%</td>
<td>4.0%</td>
<td>7.1%</td>
<td>2.0%</td>
<td>10.1%</td>
<td>13.1%</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td>19.2%</td>
<td>10.1%</td>
<td>14.1%</td>
<td>16.2%</td>
<td>11.1%</td>
<td>14.1%</td>
<td>12.1%</td>
</tr>
<tr>
<td><strong>Below Average</strong></td>
<td>9.1%</td>
<td>13.1%</td>
<td>18.2%</td>
<td>15.2%</td>
<td>10.1%</td>
<td>16.2%</td>
<td>11.1%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>24.2%</td>
<td>29.3%</td>
<td>32.3%</td>
<td>33.3%</td>
<td>30.3%</td>
<td>30.3%</td>
<td>31.3%</td>
</tr>
<tr>
<td><strong>Above Average</strong></td>
<td>12.1%</td>
<td>29.3%</td>
<td>25.3%</td>
<td>22.2%</td>
<td>33.3%</td>
<td>24.2%</td>
<td>23.2%</td>
</tr>
<tr>
<td><strong>Excellent</strong></td>
<td>1.0%</td>
<td>10.1%</td>
<td>6.1%</td>
<td>6.1%</td>
<td>12.1%</td>
<td>5.1%</td>
<td>9.1%</td>
</tr>
</tbody>
</table>

*Note.* N/A indicates no training received
Table 4

*RTI Knowledge*

<table>
<thead>
<tr>
<th>Measure/Area</th>
<th>Total Items</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Ideology</td>
<td>6</td>
<td>76%</td>
</tr>
<tr>
<td>Problem Solving Process</td>
<td>5</td>
<td>85%</td>
</tr>
<tr>
<td>Data Collection, Interpretation Tiers</td>
<td>5</td>
<td>72%</td>
</tr>
<tr>
<td>Intervention</td>
<td>4</td>
<td>68%</td>
</tr>
<tr>
<td>Total Knowledge</td>
<td>24</td>
<td>77%</td>
</tr>
</tbody>
</table>

significant positive correlation between perceived quality of training in progress monitoring and RTI knowledge ($r = .34, p = .001$), perceived quality of training in intervention planning and RTI knowledge ($r = .23, p = .02$), perceived quality of training in intervention implementation and RTI knowledge ($r = .24, p = .02$) perceived quality of training in differentiated instruction and RTI knowledge ($r = .30, p = .002$), and perceived quality of training in the problem solving process and RTI knowledge ($r = .28, p = .005$).

There was not a significant correlation between universal screening and RTI knowledge (see Table 6) or between teaching experience and length of district implementation of RTI and RTI knowledge (see Table 7).
Table 5

**Correlations between Perceived Quality of Types of Training and RTI Knowledge**

<table>
<thead>
<tr>
<th>Measure</th>
<th>In-Services</th>
<th>Undergrad. Training</th>
<th>Grad. Training</th>
<th>Conferences</th>
<th>Independent Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTI Knowledge</td>
<td>.248*</td>
<td>-.074</td>
<td>.114</td>
<td>.132</td>
<td>.102</td>
</tr>
</tbody>
</table>

Note: *p < .05

Table 6

**Correlations between Perceived Quality of Training in Areas of RTI and RTI Knowledge**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Universal Screening</th>
<th>Progress Monitoring</th>
<th>Intervention Planning</th>
<th>Intervention Implementation</th>
<th>Differentiated Instruction</th>
<th>Problem Solving</th>
<th>Curriculum Based Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTI Knowledge</td>
<td>.161</td>
<td>.335**</td>
<td>.231*</td>
<td>.239*</td>
<td>.304**</td>
<td>.282**</td>
<td>.274**</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01
Table 7

*Correlations between Background Factors and RTI Knowledge*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Teaching Experience</th>
<th>Length of District Implementation of RTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTI Knowledge</td>
<td>.033</td>
<td>.150</td>
</tr>
</tbody>
</table>
CHAPTER V
DISCUSSION

Previous research has indicated that teachers perceive themselves as lacking in overall knowledge about RTI (Greenfield, Rinaldi, Proctor, & Cardarelli, 2010). Furthermore, some teachers have difficulty conceptualizing and defining RTI and its overall purpose in education (Tillery, Varjas, Meyers, & Collins, 2010). Efforts to quantify teachers’ knowledge of RTI have been limited. A previous study found teachers to have an average level of knowledge of RTI (Swigart, 2009); however, the measure to assess RTI in this study was not comprehensive. The purpose of the present study was to expand previous research by investigating general education teachers’ overall knowledge of RTI, specific strengths and weaknesses in areas of RTI, and background factors that relate to knowledge level.

Findings indicated that teachers were more knowledgeable about RTI than predicted from previous research. Swigart (2009) found that teachers correctly answered 68% of RTI knowledge questions; the present study found that teachers correctly answered 77% of the RTI knowledge questions. However, differences in the quantity of survey items between the two studies make inter-study comparisons difficult. Teachers demonstrated a strength in knowledge of the problem-solving process. Teachers’ area of weakness in RTI knowledge was in the tiers of service delivery. This area of weakness in RTI knowledge is consistent with previous findings about teachers’ perceptions of their
knowledge, in which teachers perceived themselves as lacking in knowledge of how to proceed with students who do not respond to intervention and the three tiers of intervention (Greenfield, Rinaldi, Proctor, & Cardarelli, 2010). These results suggest that teachers are both cognizant about their knowledge, strengths and deficits, and are accurate in their self-assessment.

Various teacher background factors were related to knowledge of RTI. Exposure to RTI alone does not appear to be related to knowledge, as teaching experience and length of school districts’ implementation of RTI were not related to RTI knowledge. This finding is consistent with Swigart (2009), who also found that teaching experience was not related to knowledge of RTI. However, perceived quality of types of training and perceived quality of training in various areas of RTI were related to knowledge. Perceived quality of in-service trainings and workshops was related to knowledge; thus, teachers who are more knowledgeable about RTI tend to have a higher perceived quality of in-service training. Teachers’ perceived quality of training in curriculum-based measurements, progress monitoring, intervention planning and implementation, differentiated instruction, and the problem solving process were all related to RTI knowledge.

Teachers’ perceived quality of their undergraduate training in RTI was not related to knowledge. It is troubling that more than half of teachers surveyed did not receive training in RTI during their undergraduate studies. For the majority of teachers who reported receiving undergraduate training in RTI, 26% indicated that the training was poor to below average. In contrast, only 14% of teachers reported average to above
average undergraduate training in RTI. Thus, the majority of teachers in the present study reported not receiving training or having received ineffective training in RTI.

**Interpretation of Findings Relative to Hypotheses**

Teachers were more knowledgeable about RTI than predicted. Hypothesis 1 stated that teachers would be somewhat knowledgeable of RTI (answer between 50% and 75% of questions correctly). Teachers answered 77% of questions correctly. Thus, hypothesis 1 was not supported.

There was a significant, positive relationship between perceived quality of types of RTI training and RTI knowledge and perceived quality of RTI training areas and RTI knowledge. There was not a significant relationship between RTI district implementation and RTI knowledge or teaching experience and RTI knowledge. It was predicted that each of these factors would be positively related to RTI knowledge. Half of these findings were supported. Thus, hypothesis 2 was only partially supported.

**Limitations**

The convenience sampling method is a limitation of this study. The possibility for a sampling bias exists in that the participants might have included only teachers who felt that they understood RTI, teachers with an interest in RTI, or teachers with RTI experience in their school. Likewise, teachers who have limited understanding may have chosen not to participate because they felt they would not know the answers to the survey questions. The survey instrument is a possible limitation. No published surveys to measure RTI knowledge were found in the literature. As a result, the survey was created based on a review of the RTI research literature. Although the survey was reviewed by
the thesis committee for content validity and pilot tested with graduate students and teachers, the survey was not extensively tested for reliability and validity. Teachers’ estimations of the extent of their RTI training and the duration of RTI implementation in their districts may not have been valid reflections of the actual values. The online component of the survey design of the study did not allow the researcher to control for the possibility of teachers searching for answers to the questions on the internet. The correlation statistic used is also a possible limitation because there may not be a way to determine the direction of the relationship between variables. Furthermore, the Bonferroni approach could be utilized to increase the rigor of the correlation results to reduce chances of a making a type 1 error. Finally, this study examined teachers’ foundational knowledge of RTI, but it did not measure their application of this knowledge in practice (i.e., the classroom). Measuring the application of knowledge and skills would more closely resemble the delivery of RTI services in schools. The combination of these factors may diminish the validity of the results.

**Implications for Future Research**

The current research has both theoretical and practical implications. Additional research should be conducted to develop and test the reliability and validity of an RTI knowledge instrument. Future research could also examine teachers’ skills related to the application of RTI knowledge. Although it is imperative that teachers are first knowledgeable of RTI, the generalizability of these skills to practice in a school-setting is the ultimate goal. Generalizability of skills related to RTI could be examined by providing teachers with case-based examples or through structured observations in a
school setting. Future studies could utilize a longitudinal approach in which different types of training are employed. Knowledge and skills could be measured over time to determine the most effective training methods and the duration of time to build a knowledge foundation and transfer the knowledge to practice. Future research could also investigate the current teacher education curriculum at the undergraduate and graduate level to determine the extent of training allocated to RTI for future educators. The teacher education program standards could be compared to other education programs, such as school psychology and special education, to verify a balanced distribution of instruction in RTI at the undergraduate and graduate training levels across training programs.

Results of the current study have practical implications as well. Schools could use formative assessment of teachers’ knowledge of RTI to develop targeted training in specific skills, such as on tiers of instruction or data collection and interpretation. Targeting school-based in-service training to specific areas of RTI could be beneficial in developing teachers’ competencies in implementing components of RTI. Teachers may benefit from training that features a broad overview of the history behind RTI and its purpose to foster a global, holistic understanding and increase buy-in. These factors may increase implementation fidelity. Future research could examine the effectiveness of different in-service training methods on teachers’ knowledge of RTI.

**Conclusion**

Response to Intervention (RTI) is a general education initiative that utilizes assessment data to inform and provide tiered, research-based instruction to students.
General education teachers are the primary service delivery agent for many of the components of RTI. Despite their critical role in RTI, past research has shown that teachers do not feel comfortable with their knowledge of RTI or feel that they lack competency in all areas of implementation. The current study found that teachers are more knowledgeable about RTI than previous research indicated. Teachers demonstrated strength in their understanding of the problem solving process in RTI, while they were less competent in understanding the tiers of service delivery. Teachers’ backgrounds, including perceived quality of training in areas of RTI and perceived quality of types of training in RTI, were related to level of knowledge of RTI. These results suggest future research could examine the generalizability of knowledge in the classroom. Finally, schools should utilize assessment of teacher RTI competencies to develop targeted in-service trainings. Assessing, training, and developing teachers’ skills related to RTI implementation will ultimately provide research-based instruction that is matched to individualized student needs.
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APPENDIX A

IRB MATERIALS AND CONSENT/ASSENT LETTERS

UNIVERSITY OF DAYTON - CONSENT TO PARTICIPATE IN RESEARCH

**TITLE of STUDY**: General Education Teachers’ Knowledge of Response to Intervention

You are asked to participate in a research study conducted by Ryan Sheets, a school psychology intern from the University of Dayton. Your participation is voluntary. Read the information below and ask questions about anything you do not understand before deciding whether or not to participate.

**PURPOSE OF THE STUDY**

The present study will examine general education teachers’ knowledge of Response to Intervention (RTI). Results will inform the researcher of the overall extent of teachers’ knowledge of RTI as well as specific areas of strength and weakness to improve training.

**PROCEDURES**

If you volunteer to participate in this study, we would ask you to complete the online survey.

**POTENTIAL RISKS AND DISCOMFORTS**

The potential risk of participating in this study includes a potential discomfort with completing the survey or a perception of not doing as well as anticipated.

**ANTICIPATED BENEFITS TO PARTICIPANTS**

Teachers who choose participate in this study will have the chance to win a $50.00 gift card to Amazon.com via a drawing by emailing your email to RTI.UD2012@gmail.com. A total of four winners will be selected at random. In addition, the study may inform you of your perceived strengths and areas for improvement regarding RTI concepts.
ALTERNATIVES TO PARTICIPATION

Teachers have the option to decline participation in the proposed study.

PAYMENT FOR PARTICIPATION

Participants who choose to respond to the surveys will be given a code to e-mail to the researcher at the end of the survey. This code will allow the e-mail addresses of teachers to be entered in a drawing to win one of two $50.00 gift cards to Amazon.com.

IN CASE OF RESEARCH RELATED ADVERSE EFFECTS

If you are experiencing any kind of discomfort as a result of your participation in this study, you may contact Susan Davies at 937-229-3652.

CONFIDENTIALITY

No identifying information will be collected in connection with the submission of your completed survey. You will submit your e-mail address to the principal researcher, but it will not be tied to your submitted survey. Because you are completing this survey online, absolute confidentiality cannot be guaranteed due to the limited protections of Internet access. After the drawings of e-mail addresses have been completed, your e-mail address will be deleted.

PARTICIPATION AND WITHDRAWAL

Your participation in this research is voluntary. If you choose not to participate, that will not affect your relationship with the University of Dayton. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without prejudice or penalty.

IDENTIFICATION OF INVESTIGATORS

Ryan Sheets, M.S.  
Primary Investigator  
RTLUD2012@gmail.com  
(937) 344-0271

Susan C. Davies, Ed. D.  
Advisory Committee Chairman  
sdavies1@udayton.edu  
(937)-229-3652
RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at the University of Dayton: Dr. Mary Connolly, (937) 229-3493, Mary.Connolly@notes.udayton.edu.

SIGNATURE OF RESEARCH PARTICIPANT (or legal guardian)

I have read the information provided above. I have been given an opportunity to ask questions and all of my questions have been answered to my satisfaction. I have been given a copy of this form. I certify that I am at least 18 years of age.

Name of Participant (please print) _______________________________

Address ___________________________________________________________________

Signature of Participant __________________________________ Date _____________

SIGNATURE OF WITNESS

My signature as witness certifies that the Participant signed this consent form in my presence.

Name of Witness (please print) ____________________________________________

Signature of Witness ________________________________

Date ______________

(Must be same as participant signature date)
Dear Superintendent,

My name is Ryan Sheets, and I am an intern school psychologist in Germantown, Ohio from the University of Dayton. I am writing to request your permission to email a brief survey about Response to Intervention (RTI) to general education teachers in your school district. This information will be collected as part of my thesis research on teachers’ knowledge of RTI. No identifying information will be collected from participants in the survey. The survey contains 8 questions related to demographics and experiences with RTI and 24 multiple choice and true false questions related to knowledge of RTI. It takes approximately 10-15 minutes to complete the survey. The survey can be viewed here:


Teachers that participate in completing the survey will be compensated by having their email entered into a raffle to win a $50 gift card to Amazon.com. Please reply with notification of permission granted or denied to send the survey to teachers in the school district. If permission is granted, the survey will be emailed to the intern school psychologist to distribute to teachers in the district. Thank you for your time.

Sincerely,

Ryan Sheets
Intern School Psychologist
University of Dayton
Dear General Education Teacher,

My name is Ryan Sheets, and I am an intern school psychologist in Germantown, Ohio from the University of Dayton. I am conducting my thesis research on general education teachers’ knowledge of Response to Intervention (RTI). I am requesting that you complete my survey at the following link: https://qtrial.qualtrics.com/SE/?SID=SV_6orbVdyxdvqUVmd. It should take 10-15 minutes to complete the survey.

In compensation for completing the survey, you can enter your email address into a drawing to win one of two $50 gift cards to Amazon.com. To be included in the raffle, complete the survey and then email the completion code at the end to RTI.UD2012@gmail.com. After completion of the study, two winners will be randomly selected. Winners will be contacted in January 2013 via email to respond with their mailing address to receive their gift card. Following the completion of the study, your email address will be deleted to maintain confidentiality.

Your consent to participate in this study will be indicated by your submission of a completed survey. Participation is voluntary and can be terminated at any time without penalty. Only the primary investigator will have access to any participant email addresses. Because you are completing this survey online, absolute confidentiality cannot be guaranteed due to the limited protections of Internet access. There are no anticipated risks involved in participating in this research.

If you have any questions about the study, you can contact me directly at RTI.UD2012@gmail.com. If you choose not to participate, please disregard this e-mail. Thank you for your time and cooperation.

Sincerely,

Ryan Sheets, M.S.
Intern School Psychologist
University of Dayton
937-344-0271
RTI.UD2012@gmail.com

Questions about the rights of the participants should be addressed to:

Mary Connolly, Ph.D.
Chair, IRB
Kettering Labs Room 542
Dayton, OH 45469-0104
Fax: (937)-229-2291
Phone: (937)-229-3493
Mconnolly1@udayton.edu
APPENDIX B

RESPONSE TO INTERVENTION (RTI) KNOWLEDGE SURVEY

Demographic Information

1. Gender:
   a) Male
   b) Female

2. What is the highest education you’ve completed?
   a) Bachelor’s Degree
   b) Master’s Degree
   c) Doctoral degree

3. Which grade level do you teach?
   a) Pre-school
   b) Elementary
   c) Middle School/Junior High
   d) High School

4. How many years of teaching experience do you have? __

5. How would you characterize the socioeconomic status (SES) of the majority of the students in the school in which you work?
   a) Upper
   b) Upper Middle
c) Middle

d) Lower Middle

e) Lower

6. How many full years has your school implemented RTI? ___

7. Rate the quality of the types of training you have had on RTI using the following scale:

   0 = N/A; I haven’t had this type of training

   1 = poor

   2 = below average

   3 = average

   4 = above average

   5 = excellent

a) In-service training workshops

   0  1  2  3  4  5
   N/A Poor Average Excellent

b) Undergraduate training

   0  1  2  3  4  5
   N/A Poor Average Excellent

c) Graduate training

   0  1  2  3  4  5
   N/A Poor Average Excellent

d) Conferences
8. Rate the **quality** of the **training** you have received in **each of the specific areas** below using the following scale:

N/A; I haven’t had training in this area  
1 = poor  
2 = below average  
3 = average  
4 = above average  
5 = excellent  

a) Universal screening  

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Poor</td>
<td>Average</td>
<td>Excellent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) Curriculum-based measurement/DIBELS/AIMSweb  

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Poor</td>
<td>Average</td>
<td>Excellent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c) Progress monitoring  

<table>
<thead>
<tr>
<th>0</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Poor</td>
<td>Average</td>
<td>Excellent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
d) Intervention Planning

0 1 2 3 4 5
N/A Poor Average Excellent

e) Intervention implementation

0 1 2 3 4 5
N/A Poor Average Excellent

f) Differentiated instruction

0 1 2 3 4 5
N/A Poor Average Excellent

g) Problem-solving process

0 1 2 3 4 5
N/A Poor Average Excellent

Response to Intervention (RTI)

1. RTI is a __________ initiative.
   a) special education
   b) general education
   c) reading education
   d) classroom

2. Interventions should be __________.
   a) Conducted three times per school year
   b) Based on teachers’ intuition
   c) Research-based
   d) Purchased programs

3. Tier 1 of an RTI framework consists of __________.
   a) research-based instruction for all students
b) research-based instruction for a small group of students  
c) intensive intervention support for a single student  
d) all of the above

4. Which of the following is not part of Tier 1?  
a) Universal screening  
b) Differentiated instruction  
c) Teachers  
d) Individualized intervention

5. Universal screening data are collected _____________.  
a) One time per year  
b) Two times per year  
c) Three times per year  
d) Four times per year

6. If a student fails to respond to differentiated, research-based instruction at Tier 1, the student should _______.  
a) Be evaluated for special education  
b) Be considered for small group interventions  
c) Be placed in alternative classroom setting  
d) Be retained for the next school year

7. RTI is designed for special education students only. T/F

8. Curriculum based measurements are _____________.  
a) Extensive, comprehensive assessment instruments  
b) Brief assessments of specific skills  
c) Limited to reading  
d) An intervention method

9. Within an RTI approach, data are collected to _____________.  
a) Establish local norms  
b) Monitor student progress  
c) Evaluate the effectiveness of interventions  
d) All of the above

10. In a RTI model, it is not necessary to evaluate a student for special education. T/F
11. Fidelity/following an intervention process as outlined is crucial to the success of an intervention.  T/F

12. RTI is an approach that is designed to be beneficial for ______________.
   a) All students
   b) Students with learning disabilities
   c) Students with emotional disturbances
   d) Students with cognitive disabilities

13. One of the problems with an RTI approach is that struggling students typically do not receive early help for their problems.  T/F

14. Students who score below the _____ percentile on benchmarks may be candidates for Tier 2 intervention.
   a) 10th
   b) 25th
   c) 40th
   d) 50th

15. One potential benefit of RTI is that it can result in the reduction of the number of students evaluated for special education.  T/F

16. Prior to intervention, on average, Sarah was solving addition and subtraction problems at a rate of 6 correct digits per minute. She began receiving a research-based intervention three times per week for 30 minutes per day. The following table shows the week on the left column and the progress monitoring data for Sarah’s math digits correct per minute for addition and subtraction on the right column. The grade level benchmark/expectation is 20 correct digits per minute.

<table>
<thead>
<tr>
<th>Week</th>
<th>Progress Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>6</td>
</tr>
<tr>
<td>Week 1</td>
<td>6</td>
</tr>
<tr>
<td>Week 2</td>
<td>7</td>
</tr>
<tr>
<td>Week 3</td>
<td>14</td>
</tr>
<tr>
<td>Week 4</td>
<td>8</td>
</tr>
<tr>
<td>Week 5</td>
<td>6</td>
</tr>
<tr>
<td>Week 6</td>
<td>5</td>
</tr>
<tr>
<td>Week 7</td>
<td>15</td>
</tr>
<tr>
<td>Week 8</td>
<td>7</td>
</tr>
</tbody>
</table>

Based on this data, the intervention __________.
a) Should be modified and progress should continue to be monitored  
b) Should continue in current implementation  
c) Should be discontinued and progress should no longer be monitored  
d) Should be regarded as successful  

17. Which of the following is critical to intervention fidelity?  
a) Following the intervention steps as specified for the frequency and duration as originally specified  
b) Modifying the intervention whenever the teacher sees as fit  
c) Student IQ  
d) High oral reading fluency  

18. How are local norms established?  
a) Grades  
b) Standardized state assessment scores  
c) Curriculum-based measurements  
d) Determined by the principal  

19. Interventions should be all of the following, except _____________.  
a) Research-based  
b) Evaluated for efficacy  
c) Designed only for an individual student  
d) Designed to develop specific skills  

20. Which of the following options correctly lists the problem solving steps in correct order?  
a) Problem analysis, problem identification, intervention, evaluation of intervention data  
b) Intervention, evaluation of intervention data, problem identification, problem analysis  
c) Problem identification, evaluation of intervention data, problem analysis, intervention  
d) Problem identification, problem analysis, intervention, evaluation of intervention data  

21. Why is it important to collect baseline data before implementing an intervention?  
a) For comparison to progress monitoring data  
b) To wait until a severe problem exists  
c) It is a state mandated law  

48
d) It is a nationally mandated law

22. RTI addresses academic skills problems but not performance problems.  T/F

23. Assessment data should be utilized to determine the area of need for intervention. T/F

24. What is a common reason why an intervention does not work?
   a) The actual problem was not targeted  
   b) The intervention was not implemented with enough intensity  
   c) The intervention was not implemented with integrity  
   d) All of the above