Response to Intervention in a Middle School Setting

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Abstract

The purpose of this study was to analyze grades from two different school years. The grades were analyzed to determine if Response to Intervention has an impact on student grades when it comes to assessments. This research study answered the question if Response to Intervention has an immediate impact on student's scores when taking assessments. The research was conducted using a random group of test scores from a year when Response to Intervention was not in effect and compared to a school year when Response to Intervention had been implemented. The findings were analyzed through a Statistical Program (ASP) software. Findings indicate that there was no immediate effect on student test scores with the implementation of Response to Intervention. Further research is warranted in this area since a small sample was analyzed and due to the amount of success that Response to Intervention has garnered and the change in test scores when it comes to end of the year testing, such as Missouri's MAP testing.
Response to Intervention in a Middle School Setting

Introduction

Background, Issues and Concerns

This study looked at the implementation of Response to Intervention (RTI) at a local school to see if the teaching strategy would impact the grades of middle school students.

The school is located in the Northwest part of the State of Missouri and will be referred to as school C. The school has an enrollment of approximately 500 students in 5th through 8th grades. The school did not use RTI in the past during the 2010-2011 school year but implemented it during the 2011-2012 school year. The school has adopted the Positive Learning Community (PLC) approach and with that comes the implementation of RTI. The school is implementing these strategies to try to help student achievement in the classroom and keep students learning in the least restrictive environment possible.

The reason that the school is beginning this implementation process is that the schools AYP (Annual Yearly Progress on the MAP test) scores have not met the standards set forth by the federal government in the No Child Left Behind Act (NCLB). The building administrator is implementing RTI to help increase student achievement, which in turn, can result in better test scores.
**Practice under Investigation**

The practice under investigation is, will the implementation of Response to Intervention, in a middle school setting help increase student achievement.

**School Policy to be Informed by Study**

In the past, school C did not use Response to Intervention. The struggling students, if available, would be tutored before or after school. Some of the students were not available for any extra instruction; therefore they continued to struggle with the subject matter. During the 2011-2012 school year, school C has implemented Response to Intervention. This paper looked at the effects of Response to Intervention on a section of the student body and see if the implementation of this teaching strategy will have the intended benefits.

**Conceptual Underpinning**

With increased legislation impacting local schools, many of these schools are looking to different strategies to impact student achievement. There are many strategies throughout the United States that are being put into place to try to increase student achievement. School C will implement a model called Response to Intervention to try to help increase student achievement. School C has not used RTI in the past. This paper will examine is the implementation of Response to Intervention, during a one year period, will boost student achievement by examining the grades of students from one year to the next when this strategy was put into effect.
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Statement of the Problem

Students at school C are not getting the extra instructional opportunities needed to help increase their learning capabilities throughout all areas of the curriculum.

Purpose of the Study

The purpose of this study is to determine if the use of Response to Intervention in a middle school setting can help increase student grades on assessments.

Research Question

Is there a difference in student achievement on assessments as a result of the implementation of Response to Intervention (RTI)?

Null Hypothesis

The use of the Response to Intervention model will not have an impact on student’s grades when taking assessments.

Anticipated Benefits of this Study

The anticipated benefits of this study are to help students increase grades when taking assessments at the middle school level.

Definition of Terms

Accelerated Reader-a computerized program for many reading concepts that places the students in grade equivalency status as the test is administered.

CBM-these are standardized, reliable, valid and brief assessments that include a measurement tools, expected student growth rates and periodic
achievement benchmarks as they complete one-on-one assessments in the areas of reading, writing, and mathematics. (Accelerated Reader)

PLC—Positive Learning Community is a change in a focus in a school setting. This change incorporates all areas of instruction to benefit students’ needs.

Power School—website used to calculate grades and attendance of students in a school setting.

Progress monitoring—a scientifically based practice to assess students’ academic achievement and evaluate the effectiveness of instruction.

Response to Intervention (RTI)—the practice of providing high quality instruction and interventions matched to students’ needs, monitoring progress frequently to make changes in instruction or goals, and applying data to important educational decisions.

Tier—a level in a pyramid of interventions. This can include supports for a clearly defined group of students.

Summary

School C is a school located in Northwest Missouri. School C is a middle school and the community has one high school and one elementary school. School C has an approximate enrollment of 500 students each year. School C has not met the state’s annual yearly progress (AYP) for the past four years on MAP testing. Due to the increase in legislation and the constant emphasis placed on student achievement, school C has adopted the Response to Intervention model to help increase student achievement. School C is made up
of four separate grade levels and each grade level came up with their own plan to implement Response to Intervention. Every grade is responsible for collecting data on their students and using this data to drive their respective instruction. With the collection of data on all struggling students this data is recorded and students are monitored throughout the school year. This data is used to drive the teacher’s instruction and to monitor student progress. Each student is monitored and placed, respectively, within the pyramid of Response to Intervention model. This intervention was put into place to help each student with their achievement of the curriculum. This research paper examined if the use of Response to Intervention has had an impact on a certain population of school C.
Response to intervention is not a one-dimensional approach to improving student outcomes. Rather, it provides an umbrella structure under which numerous evidence-based practices can be employed to improve student learning (Johnson & Smith, 2011). Education is constantly changing. Many legislators are looking towards assessments and end of the year testing to measure students learning and the success of school districts. Many strategies have been put in place and Response to Intervention (RTI) is one of them. In a typical RTI model, all students are screened in one or more academic areas, and those identified as at risk for learning or behavior difficulties are provided additional evidence-based interventions in that area (Hughes & Dexter, 2011). Two major axioms of RTI are (a) learning difficulties are not inherently due to child deficits and (b) most students will experience significant educational gains from targeted, empirically based, and closely monitored interventions (Powers & Mandal, 2011). These interventions along with the data that is collected in the classroom will drive the teacher’s instruction for increased student learning. Due to the changing nature of education school districts are looking towards new models to improve student achievement. Response to Intervention is a relatively new approach that was born out of another intervention called the cascade model.

According to Buffman, Matos and Weber (2009), the evolution of RTI dates from Stanley Deno’s cascade model, developed in 1970. Deno’s cascade
model was historic because it envisioned a continuum of environments in which students with special needs could be served. This model allowed students with special needs to receive instruction in the classroom and often receive interventions to assist with class work and assessments prior to being referred for special education. According to Buffman, Matos and Weber (2009), Deno’s cascade model used CBM’s to measure student learning growth frequently and then to change instruction or even raise student goals based on the results. This model is what spawned what we know today as Response to Intervention.

Intervention models such as RTI can lead to improved outcomes for all students through the provision of a multifaceted support system for students who struggle with the demands of the curriculum (Johnson & Smith, 2011). The constant monitoring of student growth throughout a school year is an important part of the Response to Intervention model. When you monitor a student you can check for growth or the lack thereof. When the student is not making proper gains interventions are put into place to improve the students achievement. RTI is made up of a three leveled “tier” system. This system places students in areas of their respective needs. Most students make adequate progress when provided high-quality classroom instruction (Tier I). Those who do not, receive increasingly intense and targeted interventions (Tier II) until they make adequate improvement or a referred for special education services (Tier III) (Powers & Mandall, 2011). The Tier III interventions are more individualized and the student is working in a one on one setting. The following diagram shows the tiered system. Each student is placed in the tier that best describes their academic
achievement. The students can move from tier to tier as needed but as you move up each tier the interventions become more intense to help ensure proper growth academically.

1.1 Diagram of an RTI Tiered model. (Google images)

The next facet of RTI is progress monitoring. As briefly described earlier, progress monitoring is used to access student progress or performance in at-risk areas identified by universal screening (Hughes & Dexter, 2011). According to Hughes and Dexter, progress monitoring is the method by which teachers or other school personnel determine if students are benefiting appropriately from the typical instruction, identify students who are not making adequate progress, and help guide the construction of effective intervention programs for students who are not profiting from typical instruction (Fuchs & Stecker, 2003). As soon as a student is identified as at-risk by the universal screening measure, that
students progress is monitored in relation to Tier I instruction. Progress should be monitored frequently, at least monthly, but ideally weekly or biweekly (Hughes & Dexter, 2011). The monitoring of the students growth is what will move them through the Tier’s as mentioned earlier. If the student does not make the proper growth in relation to interventions then they will move up to the next Tier to be examined further. The student will receive more intensive interventions as they move from one tier to another. This will allow them to learn the material in different ways. It is important that each student is given several different interventions. Each student is different when it comes to learning the material. The following diagrams further illustrate the three tiered system with percentages of students normally in each tier. Diagram 1.3 shows the percentage of students in each tier and further describes what can happen in each tier to increase student achievement.

1.2 Three Tiered diagram with progress monitoring (Google images)
The next step in the RTI model is professional development for the teachers involved. If the students are going to succeed in this model then the teachers must be equipped with the latest teaching strategies and interventions.
to help them succeed. According to Dalhouse, Risko, Esworthy, (2009), professional development is essential when implementing any systematic change. For RTI, in particular, communication and shared decision making is essential. Classroom teachers need sustained support in their efforts to monitor student progress and determine effectiveness of instruction (Haager & Mahdavi, 2007). A problem solving model that emphasizes one-to-one professional specialist, is recommended to teach teachers effective classroom intervention strategies (Walker-Dalhouse, Risko, Esworthy, Grasley, Kaisler, McIlvain, Stephan, 2009). RTI requires a cyclical process of data-based instructional decisions, which requires specific professional development in progress monitoring, using data to make instructional decisions, and implementing evidence based interventions (Richards, Pavri, Golez, Canges, 2007). It is imperative that teachers are trained throughout a school year on how to collect the data, analyze the data and let this data drive their instruction. Additionally, using this data to place students and using interventions to help the student succeed. Professional development in all areas of the RTI process, including progress monitoring, data collection and interventions can be costly. This is a problem with many school districts across the United States. Though many school districts are committed to implementing the RTI model, they are continually faced with the challenge of having the time and funding to provide the additional professional development required to prepare educators for this method of supporting struggling learners (Richards, et. al, 2007).
To further review RTI, a case study will be examined. Cheyenne Mountain Junior High School (CMJH) is much like school C in this study. CMJH had much the same student demographic population as school C but has implemented RTI about six years ago. Much like school C, CMJH started the implementation of RTI primarily focusing on reading. The staff realized that many students did not have strong reading skills. Although, they also noted that math was an area of concern, they initially focused on reading because of its impact across the curriculum. The staff identified reading in all tiers as the priority and began with a simple screening process (Johnson & Smith, 2011). The staff at CMJH administered the test and the students one grade level below their text material were given interventions in the regular education setting. Students two or more grade levels below their respective reading text level received targeted support as in Tier II of the RTI model. Through the use of the PLC (Professional Learning Community) framework, the principal formed content teams and charged them with researching ways to improve instruction, paying particular attention to differentiation and the development of common assessments (Johnson & Smith, 2011).

In year three, the staff continued to revise and further develop the RTI model to fit student needs. The school began to expand the range of Tier II interventions and develop a more comprehensive system of screening (Johnson & Smith, 2011). The district continued with the improvement and development of the RTI model. CMJH is now on their sixth year of using this model. Student achievement in reading and writing increased and discipline referrals decreased.
significantly. Perhaps most important, the school recognized that continuous school improvements is always a work in progress, and it decided to continue to refine its RTI process (Johnson & Smith, 2011). The implementation of RTI for any school district will take multiple years. This study will examine the implementation after one year and look at the impact that it has had on student achievement based on letter grades on assessments.

School C is the school that will be examined. During the 2011-2012 school year, school C implemented the Response to Intervention model. The teachers decided to focus on reading when it came to collecting data throughout the school year. Much of the research on RTI has been conducted in the area of reading, most likely due to the number of students who have reading difficulties (Richards, et. al., 2007). Even though there is considerable literature describing RTI for reading, there is much less that focuses on writing, mathematics, and social studies (Hughes, Dexter, 2011). Due to the overwhelming literature on the Response to Intervention model and reading; a data table was set up and the students were tested each month. These students were given a small computer based assessment called Accelerated Reader that tested them on reading comprehension, vocabulary and word recognition. The computer based system ranked each student on their respective grade equivalency. The students that were not reading at grade level were given interventions within the regular education classroom. Students that were reading at least two grade levels below were placed in the tier 2 portion of the RTI model. These students were given instruction for 30 minutes three times a week to try to improve reading skills. The
thought was that the improvement in reading skills would impact all areas of the curriculum and help the students with their respective assessments and end of the year testing. These students were monitored throughout the year, tested monthly and given interventions as stated above.
Research Methods

Research Design

The independent variable in this research is the Response to Intervention model. The dependent variable is student’s grades. The research numbers were obtained through Power School randomly. The research consisted of looking at the grades on certain assessments of middle school students prior to implementing RTI. Then it looked at the middle school grades on those same/similar assessments after the implementation of RTI to see if there is a significant difference in achievement. It should be noted that not all of the students were given the intensive intervention as described above. Some of the students were given interventions in the regular education setting; others were given the interventions in a small group environment. This all depended on their data on the respective reading assessment as outlined above. The research for this project has been compiled after only after one year of implementation of Response to Intervention.

Study Group Description

The group that was studied is a school located in the Northwest part of the state of Missouri. This school is a middle school that has enrollment from 5th grade to 8th grade. The total enrollment is approximately 500 students. The demographics of the middles school include the following: 1% Asian, .5% African-American, 3.3% Hispanic, .7% Indian and 92% white. The free or reduced lunch percentage, which is a socio-economic indicator, is 47%.
Data Collection and Instrumentation

The data used in this research study was grades given on assessments. The grades prior to implementation of RTI versus the grades given on the assessments after RTI were implemented. These grades were accessed randomly through the districts computer system called Power School. This system stores and archives all of the grades for every school year. This information was obtained through the building administrator and his access to the school wide grading system.

Statistical Analysis Methods

A t-test was used to determine if the implementation of Response to Intervention will have a positive impact on student achievement in a middle school setting.
Findings

A t-test was used to compare the grades on assessments of students from the 2010-2011 school year when the district did not use Response to Intervention. This data was examined against the grades on assessments from the 2011-2012 school year when Response to Intervention had been implemented. The scores were taken randomly from the following classes: math, reading, language arts and science.

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<tr>
<th>Source</th>
<th>Mean</th>
<th>Mean D</th>
<th>t-test</th>
<th>Df</th>
<th>p-value</th>
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<tr>
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<tr>
<td>Post RTI N=55</td>
<td>81.4</td>
<td>1.7</td>
<td>.54</td>
<td>104</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Note: Significant when p<=0.25

One hundred and nine assessments were randomly selected to observe differences in pre/post grades in relation to the implementation of the Response to Intervention model. The assessment scores of the middle school were evaluated and placed into two groups: the pre RTI (54) and the post-RTI (55) were placed in another. The mean of the pre RTI was 83.1 and the mean of the post RTI was 81.4. The mean D, of the difference between both groups was 1.7. The t-test result was .54 and the df was 104. The null hypothesis states that there is no difference in student achievement on assessments as a result of implementing the Response to Intervention model. Since the p-value was 0.59, and the alpha number was set at 0.25, the null hypothesis was not rejected.
Therefore, there is no significant difference in the implementation of the Response to Intervention model and its impact on student achievement on assessments.
Conclusions and Recommendations

The research study that was conducted just looked at the first year of implementation of the Response to Intervention model. The findings did not support the research question that Response to Intervention will have an immediate impact on student achievement. After reviewing much literature and looking at the case study from above it is clear that Response to Intervention is a work in progress and can and should be revised from year to year. The State MAP testing for school C showed much improvement in Communication Arts and that was an emphasis of Response to Intervention in this study. The findings in this study were two fold. The actual analysis did not show a tremendous gain but the gain was noticed in MAP testing. With increased pressure from governmental agencies to increase test scores, Response to Intervention had school C making tremendous gains.

To further this study you must look at it several years down the road and compare the assessment data and the data collected on the end of the year testing, such as the MAP test. There are many variables that are involved in this research study. One of the major variables involved is how each teacher grades assessments differently. There is not a uniform grading system at school C, nor is there a uniform grading system throughout the majority of schools. With teachers giving certain grades there can always be room for error. A
computerized testing system, such as might be the case, when it comes to Common Core Standards could yield much better results.

Next, every student test differently on any given day. With this research study you could not take into account everyday activities that can have an adverse impact on student testing. There are many factors in a middle school student’s daily activities that can impact them both positively and negatively.

Finally, every teacher teaches differently, as much like our students, have outside activities that may affect the instruction given on a particular day. All of these aspects must be taken into account when dealing with test scores and student achievement.

Prior to compiling all of the data and running the statistical analysis it was decided to look into MAP testing scores for the percentage of students that were involved in this study. It was determined that the students that took both the math and science portion of the MAP test scored about the same between to the two years in question. The students who took the communication arts portion of the MAP test and were also used in this study increased their proficiency rate by 10% between the 2010-2011 school year and the 2011-2012 school year when Response to Intervention had been put into place. These students were the same students that were tested monthly on communication arts, reading and writing, throughout the school year. These were also the same students that received intervention in the regular education classroom and with intensive interventions during RTI periods. This increase is an enormous increase from one year to another according to MAP data. According to MAP data, a 3%
increase is considered a great increase from year to year. These students, after receiving many interventions in communication arts, increased their respective score by 10%. This is another example that human error can play a major role when looking at assessments that are graded by teachers from the classroom versus assessments that are graded in another location and some of the assessment is graded by a computer.

Finally, to conclude this research project it is imperative that the data is looked at after three years of implementation of Response to Intervention. As stated earlier, this system is an on-going system that will need to be changed and revamped throughout every school year to be able to show its maximum impact on student achievement.
References


