

The Relationship Between Systematic Professional Development and Educators' Beliefs and Perceived RtI Skills: Preliminary Findings

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Policy Driving Problem Solving/Response to Intervention (PS/RtI) Implementation

National

- *No Child Left Behind (2002)*
 - Scientifically-based instruction
 - Adequately Yearly Progress
- *Individuals With Disabilities Education Improvement Act (2004)*
 - Scientifically-based intervention
 - Frequently administered assessments over time
 - Decision regarding student RtI
- *Blueprint for Reform 2010*
 - Multi-tiered systems of support
 - Data-based decision-making

State

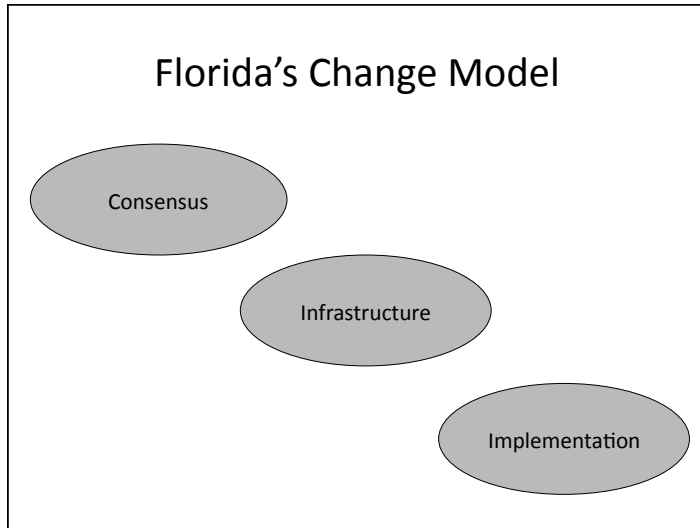
- *Florida Statewide Problem Solving/Response to Instruction/Intervention Plan*
 - PS/RtI = way of work
 - Established infrastructure to facilitate statewide implementation
- Differentiated Accountability Model
- State Rules
 - General Education Intervention
 - Specific Learning Disabilities
 - Emotional/Behavioral Disorders
 - Language Impaired

Research on PS/RtI Implementation

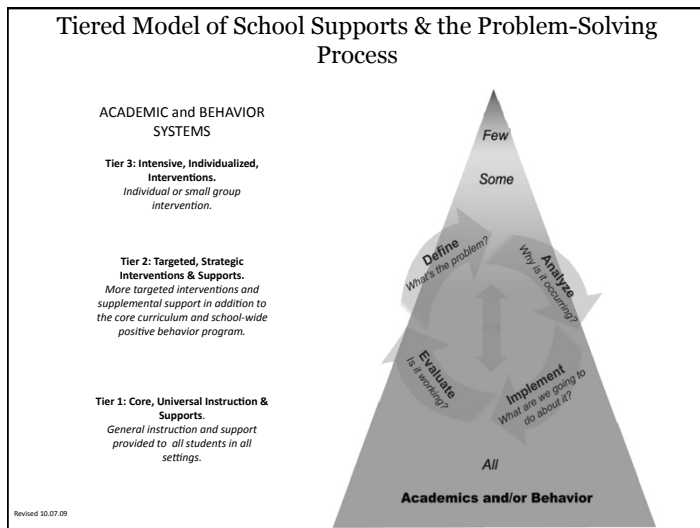
- PS/RtI linked to improvements in outcomes (e.g., Burns, Appleton, & Stehouwer, 2005)
 - Student (e.g., reading, math)
 - Systemic (e.g., office discipline referrals, special education referrals and placements)
- Studies in literature focused on:
 - Limited number of sites at different units of analysis
 - Limited number of variables related to implementation
- Systematic evaluation of scaling-up PS/RtI needed

Why have past initiatives failed?

- Purpose unclear
- Lack of ongoing communication
- Unrealistic expectations of initial success
- Failure to measure and analyze progress
- Participants not involved in planning...
- **School culture is ignored**
- **Failure to achieve CONSENSUS**



- ## Stages of Implementing Problem-Solving/RtI
- **Consensus**
 - Belief is shared
 - Vision is agreed upon
 - Implementation requirements understood
 - **Infrastructure Development**
 - Regulations
 - Training/Technical Assistance
 - Model (e.g., Standard Protocol)
 - Tier I and II intervention systems
 - E.g., K-3 Academic Support Plan
 - Data Management
 - Technology support
 - Decision-making criteria established
 - **Implementation**



- ## Relevant Change Research Examples
- Educator beliefs impact willingness to implement new practices (Fang, 1996)
 - Multi-stage professional development model including coaching results in most educators implementing new practices (Joyce & Showers, 2002)
 - Measuring fidelity at the intermediate level results in data sensitive enough to relate to outcomes (Noell & Gansle, 2006)
 - Change research applicable to scaling-up PS/RtI?
 - Empirical evidence supporting elements of change models often limited
 - Unclear how models examined for instructional practices relate to PS/RtI

Potential Influences on Implementation

Educators will embrace new ideas when two conditions exist:

- They understand the NEED for the idea
- They perceive that they either have the SKILLS to implement the idea OR they have the SUPPORT to develop the skills

Effective Professional Development

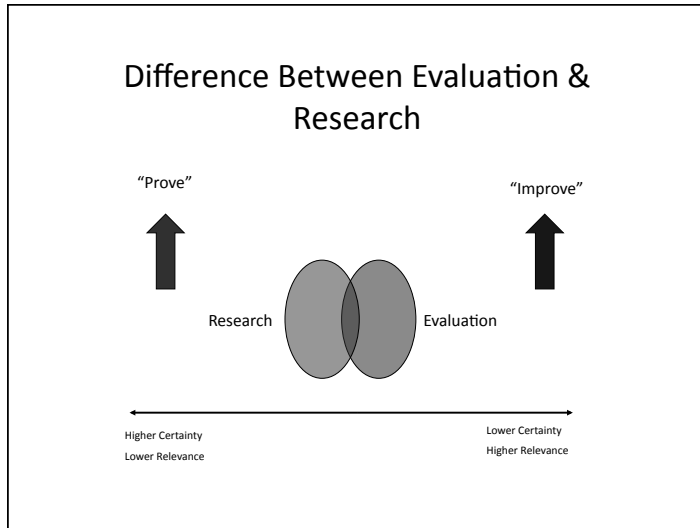
- Systematic and ongoing
- Includes 3-4 stages (Joyce & Showers, 2002)
 - Theory/Rationale
 - Demonstration/Modeling
 - Opportunities to practice
 - Collaborative feedback
- Should result in increased skills and capacity to implement
- To what extent does this professional development model generalize to training educators on PS/RtI?

Research Questions

What is the relationship between a systematic professional development model and

- 1) Educators' beliefs regarding:
 - a) Academic performance and capabilities of students with disabilities?
 - b) Data-based decision-making?
 - c) Functions of core and supplemental instruction?
- 2) Educators' perceptions regarding their:
 - a) RtI skills applied to academic content?
 - b) RtI skills applied to behavior content?
 - c) Data manipulation and technology use skills?

Methods



- ### FL PS/RtI Evaluation Model
- Input-Processes-Output (IPO) model used
 - Variables included
 - Levels
 - Inputs
 - Processes
 - Outcomes
 - Contextual factors
 - External factors
 - Goals & objectives

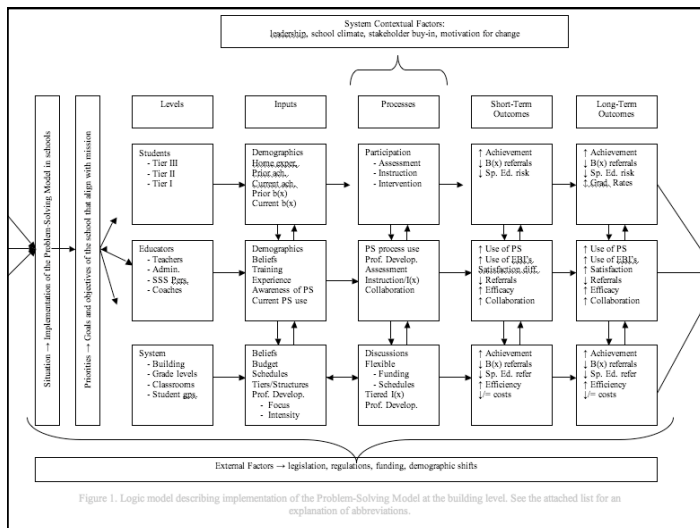


Figure 1. Logic model describing implementation of the Problem-Solving Model at the building level. See the attached list for an explanation of abbreviations.

- ### Participants
-
- 2000+ educators from 7 demonstration districts
 - 34 pilot schools
 - 27 comparison schools
 - Districts and schools vary in terms of
 - Geographic location
 - Student demographics
 - District size: 6,200 – 105,000 students

Florida PS/RtI Project

Two purposes of PS/RtI Project

1. Evaluate the impact of PS/RtI on educator, student, and systemic outcomes in pilot sites implementing the model
2. Statewide training in PS/RtI

Personnel

- Project Leader and Regional Coordinators
 - Provided training, technical assistance (TA), and support to pilot schools, districts, and PS/RtI Coaches
 - Collected data for program evaluation purposes
- PS/RtI Coaches
 - Employees of districts
 - Provided training, TA, and support to pilot schools and districts
 - Collected data for program evaluation purposes
- Project Evaluators
 - Provided training, TA, and support to Regional Coordinators and Coaches to facilitate data collection

PS/RtI Training Curriculum & Procedures Overview

- 13 six-hour sessions delivered over 3 years
 - Provided to School-Based Leadership Teams
 - 5-4-4 day sequence over 3 years
 - Topics included: rationale for implementing PS/RtI, systems change principles, 4 steps of problem solving, multi-tiered model of services
 - 4 stage professional development model employed
- Days of training staggered for TA and Coaching activities to occur between
 - Training and support provided to PS/RtI Coaches by Project
 - Initial 5-day coach training provided
 - Meetings with Coaches occurred 2 x per year
 - Coaching activities informed by multiple data sources

Measures

- *Beliefs Survey*
 - 27 items
 - 4 demographic questions
 - 22 items assessing beliefs
 - 3 domains of beliefs assessed:
 - Academic abilities and performance of students with disabilities
 - Data-based decision-making
 - Functions of core and supplemental instruction
 - 5-point Likert Scale Used (ranges from 1 = Strongly Disagree to 5 = Strongly Agree)
 - Validity evidence
 - Content reviewed by Expert Educator Validation Panel
 - Exploratory factor analysis resulted in 3 domains
 - Reliability evidence
 - Cronbach α 's for each domain ranged from .79 to .87

Measures cont.

- *Perceptions of RtI Skills Survey*
 - 20 items
 - 3 domains of perceived RtI skills assessed:
 - RtI Skills applied to academic content
 - RtI skills applied to behavior content
 - Data manipulation and technology use
 - 5-point Likert Scale Used (ranges from 1 = No skills to 5 = Very Highly Skilled)
 - Validity evidence
 - Content reviewed by Expert Educator Validation Panel
 - Exploratory factor analysis resulted in 3 domains
 - Reliability evidence
 - Cronbach α 's \geq .94 for each domain measured

Measures cont.

- *Perceptions of Practices Survey*
 - 17 items
 - 2 domains of perceived practices assessed:
 - Rtl practices applied to academic content
 - Rtl practices applied to behavior content
 - 5-Point Likert Scale (ranges from 1= Never Occurs to 5 = Always Occurs)
 - Validity evidence
 - Content reviewed by Expert Educator Validation Panel
 - Exploratory factor analysis resulted in 2 domains
 - Reliability evidence
 - Cronbach α 's \geq .96 for each domain measured

Measures cont.

- PS/Rtl Coach Activity Logs
 - Coaches inputted daily activities engaged in at demonstration sites into remote database
 - Activities grouped into 5 domains
 - Training
 - Technical Assistance
 - Project Data Collection
 - Meetings
 - Other
 - Reports generated with information on:
 - Frequency and duration of activities within each domain
 - Targets of activities (e.g., pilot school)

Measures cont.

- Demographic and achievement data from schools derived from FL DOE Data Warehouse
 - Example variables:
 - FCAT Scores
 - Free/reduced lunch status
 - ESE status
 - Final data files sent to Project from Warehouse approximately 1 year after completion of school year

Data Collection Procedures for Surveys

- Regional Coordinators and PS/Rtl Coaches received 1 hour training on administration procedures with periodic follow-up
- Administered to SBLTs and instructional staff at pilot and comparison schools
 - SBLTs administered surveys at SBLT trainings
 - School staff administered trainings via:
 - Staff meetings (preferred)
 - Grade-level meetings
 - Mailbox dissemination
- Administered at Beginning of Year 1, End of Year 1, End of Year 2 (except for *Perceptions of Practices Survey*), End of Year 3
- Data entered into databases by Graduate Assistants
 - Ongoing data entry checks occurred on 10% of randomly selected surveys
 - Vast majority of inter-rater agreement estimates exceeded 95%

Data Analysis

- Descriptive analyses
 - Mean and standard deviations of domain scores examined by time
 - Visual representation of data facilitates decision-making
- Inferential analyses
 - Critical to account for context in which professional development delivered
 - Multi-Level Modeling (MLM)
 - Accounts for nested data (e.g., educators influenced by similar school and district practices) by examining multiple levels of a system
 - Attributes variance in dependent variable to predictors at each level by finding “best fit” for the data
 - Models can be constructed using different rationales
 - Previous research
 - Exploration via contribution to the model

MLM Analyses

- 3-level models examined for each research question
 - Time
 - Educator
 - School
- Dependent variable = average domain score from *Beliefs and Perceptions of RtI Skills Surveys*
- Models constructed using combination of previous research and exploration
- Alpha set at .05

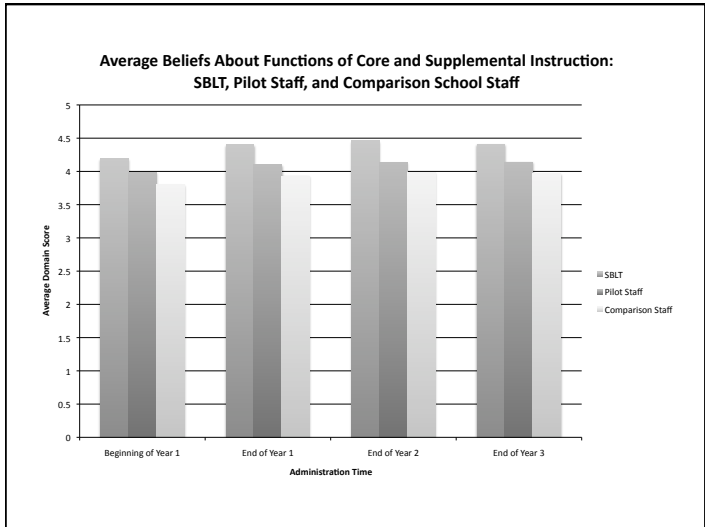
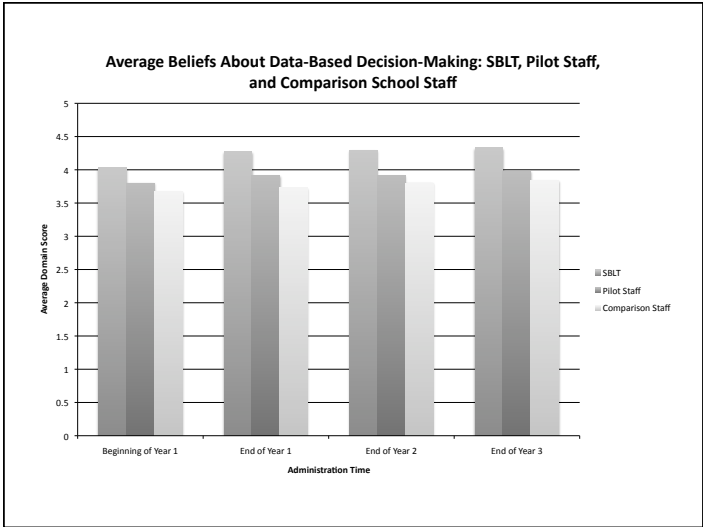
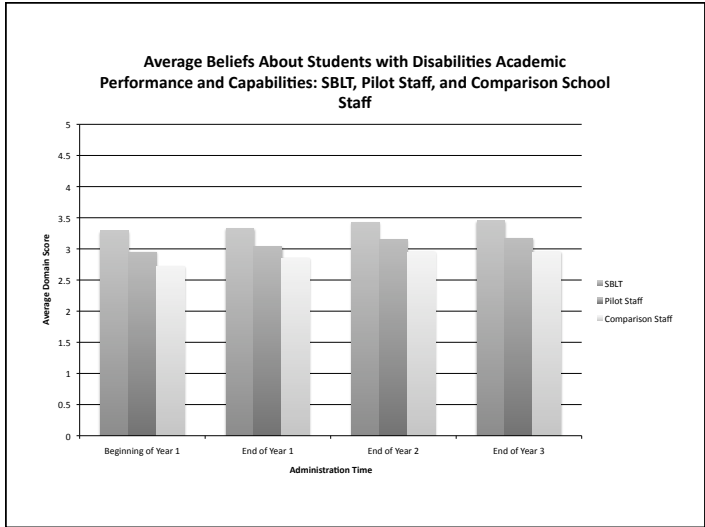
Predictors Entered at Each Level

- **Level 1 (Time)** Average domain score from surveys from each administration
- **Level 2 (Educator)** – Both levels and changes over time entered:

| | |
|--|--|
| <ul style="list-style-type: none"> SBLT membership (Y/N) <u>Position</u> •Admin (Y/N) •General Education Teacher (Y/N) •Special Education Teacher (Y/N) •Student Support Services (Y/N) •Other position (Y/N) | <ul style="list-style-type: none"> • Years of experience • Highest Degree (Bachelors/Advanced) • Average score from <i>Perceptions of RtI Practices Applied to Academic content domain</i> • Average score from <i>Perceptions of RtI Practices Applied to Behavior Content domain</i> |
|--|--|
- **Level 3 (School)** – Both levels and changes over time entered

| | |
|---|---|
| <ul style="list-style-type: none"> •Pilot school (Y/N) •Frequency of Coach training and TA activities •Duration of Coach training and TA activities •% of students on free or reduced lunch | <ul style="list-style-type: none"> •% of students with a disability •Average FCAT SSS Reading scale score •District membership - Each district entered separately (e.g., District A [Y/N]) |
|---|---|

Results



- ### Consistent Findings from Beliefs MLMs
- Educator beliefs within each domain significantly increased across time
 - Variables consistently related to beliefs
 - Levels
 - SBLT membership (+)
 - Position/role (+)
 - Particularly for administrators
 - Years of experience (-)
 - Students with Disabilities & Data-Based Decision-Making domains
 - Perceptions of RtI practices applied to academics (+)
 - Pilot school membership (+)
 - Changes across time
 - No consistent patterns

Beliefs Level 2 Predictors - Levels

| Predictor | Students with Disabilities | | Data-Based Decision-Making | | Functions of Instruction | |
|---------------------|----------------------------|------------------------|----------------------------|------------------------|--------------------------|-----------------------|
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| SBLT | .32 (.06) | 5.16 (<.01) | .22 (.04) | 5.29 (<.01) | .19 (.06) | 3.27 (<.01) |
| Admin | -.30 (.11) | 2.69 (<.01) | .26 (.07) | 3.53 (<.01) | -.32 (.11) | 2.97 (<.01) |
| Gen Ed Teacher | -.06 (.07) | -.90 (.37) | -.05 (.04) | -1.21 (.23) | -.04 (.06) | -.56 (.58) |
| SPED Teacher | -.03 (.08) | -.33 (.74) | .11 (.05) | 2.21 (.03) | -.02 (.08) | -.28 (.78) |
| Student Support | .03 (.11) | .25 (.80) | -.02 (.07) | -.27 (.79) | .05 (.11) | .48 (.63) |
| Other position | -.20 (.23) | .86 (.39) | .30 (.15) | 2.06 (.04) | .02 (.22) | .11 (.91) |
| Years of experience | -.03 (.01) | -2.93 (<.01) | -.02 (.01) | -2.69 (<.01) | -.01 (.01) | -1.49 (.14) |
| Highest degree | .04 (.04) | .97 (.33) | .04 (.03) | 1.49 (.14) | -.03 (.04) | -.82 (.41) |
| Academic Practices | .13 (.04) | 3.56 (<.01) | .08 (.02) | 3.39 (<.01) | .15 (.03) | 4.17 (<.01) |
| Behavior Practices | .04 (.03) | 1.70 (.09) | .04 (.02) | 2.37 (.02) | .02 (.02) | .95 (.34) |

Beliefs Level 2 Predictors - Time

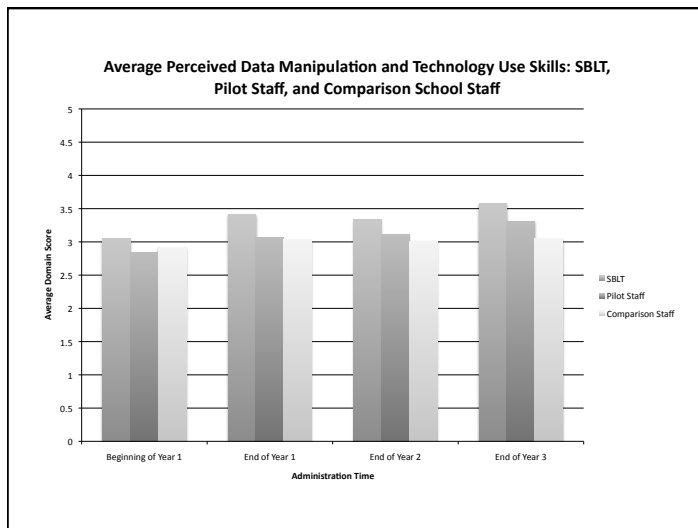
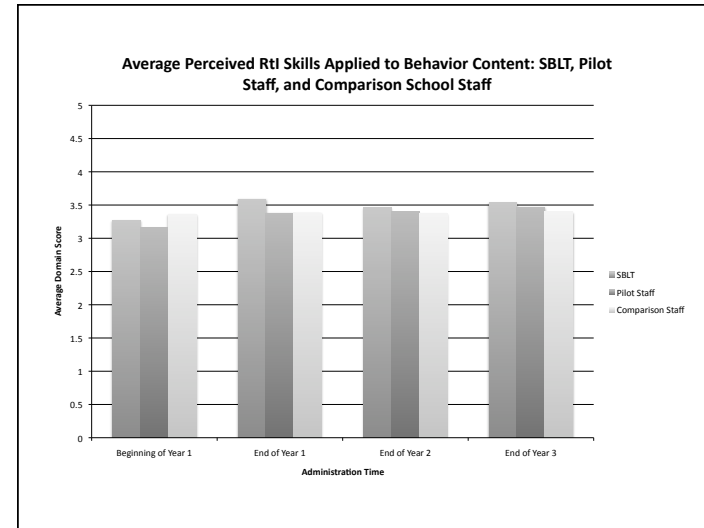
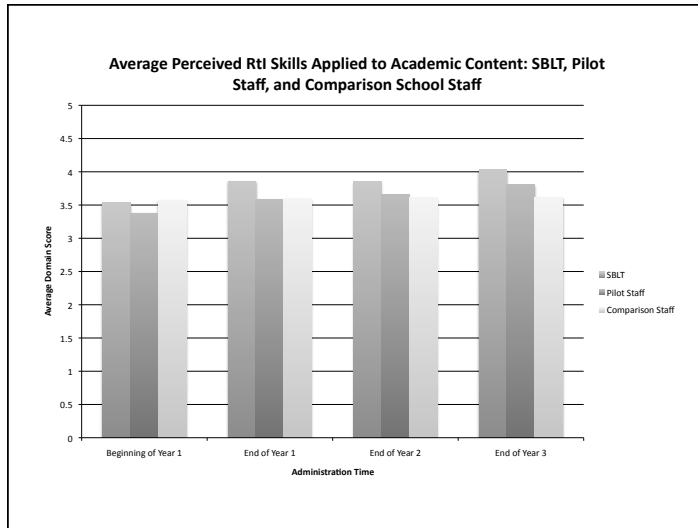
| Predictor | Students with Disabilities | | Data-Based Decision-Making | | Functions of Instruction | |
|---------------------|----------------------------|-------------|----------------------------|-------------|--------------------------|--------------------|
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| SBLT | -.09 (.09) | -1.10 (.27) | .08 (.05) | 1.40 (.16) | .02 (.08) | .26 (.80) |
| Admin | .20 (.17) | 1.14 (.25) | .04 (.11) | .34 (.73) | .07 (.16) | .40 (.69) |
| Gen Ed Teacher | -.05 (.11) | -.49 (.63) | -.11 (.07) | -1.61 (.11) | .02 (.10) | .23 (.82) |
| SPED Teacher | .04 (.12) | .34 (.74) | -.11 (.08) | -1.37 (.17) | .11 (.11) | .96 (.34) |
| Student Support | .02 (.16) | .13 (.90) | .07 (.10) | .66 (.51) | .10 (.15) | .65 (.52) |
| Other position | .45 (.53) | .84 (.40) | .01 (.35) | .02 (.98) | .47 (.50) | .94 (.35) |
| Years of experience | .02 (.01) | 1.28 (.20) | <.01 (.01) | <.01 (.99) | .03 (.01) | 1.93 (>.05) |
| Highest degree | -.09 (.06) | -1.57 (.12) | -.04 (.04) | -1.02 (.31) | .05 (.05) | .99 (.32) |
| Academic Practices | <.01 (.06) | .05 (.96) | <.00 (.04) | <.00 (.99) | -.10 (.05) | -1.99 (.05) |
| Behavior Practices | -.04 (.04) | -1.04 (.30) | -.03 (.02) | -1.44 (.15) | -.01 (.03) | -.23 (.82) |

Beliefs Level 3 Predictors - Levels

| Predictor | Students with Disabilities | | Data-Based Decision-Making | | Functions of Instruction | |
|--------------------|----------------------------|-----------------------|----------------------------|------------------------|--------------------------|-----------------------|
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| Pilot School | .30 (.07) | 3.85 (<.01) | .14 (.03) | 4.43 (<.01) | .20 (.05) | 4.36 (<.01) |
| Coaching Frequency | .01 (.01) | 1.58 (.11) | .02 (.01) | 2.65 (<.01) | -.01 (.01) | .05 (.96) |
| Coaching Duration | <.00 (<.01) | -1.22 (.22) | -.002 (<.01) | -1.56 (.12) | <.01 (<.01) | .04 (.97) |
| % Free/Red. Lunch | -.30 (.31) | -1.00 (.32) | -.20 (.13) | -1.55 (.12) | -.23 (.18) | -1.26 (.21) |
| % SWDs | -.35 (.89) | -.40 (.69) | .12 (.37) | .34 (.73) | -.36 (.53) | -.67 (.50) |
| Average FCAT Score | <.01 (<.01) | .91 (.36) | -.002 (<.01) | -1.11 (.27) | -.001 (<.01) | -.57 (.57) |
| District A | -.07 (.18) | -.42 (.68) | -.18 (.07) | -2.65 (<.01) | -.10 (.10) | -.97 (.33) |
| District B | -.22 (.15) | -1.47 (.14) | -.09 (.06) | -1.53 (.13) | -.14 (.09) | -1.59 (.11) |
| District C | .02 (.15) | .15 (.88) | -.18 (.06) | -2.82 (<.01) | -.06 (.09) | -.66 (.51) |
| District D | -.22 (.13) | -1.70 (.09) | .01 (.05) | .23 (.82) | -.11 (.08) | -1.45 (.15) |
| District E | -.06 (.14) | -.46 (.64) | .05 (.05) | .82 (.41) | -.06 (.08) | -.72 (.47) |
| District F | -.12 (.14) | -.84 (.40) | .03 (.06) | .53 (.60) | -.02 (.08) | -.25 (.81) |
| District G | 0 (---) | --- | 0 (---) | --- | 0 (---) | --- |

Beliefs Level 3 Predictors - Time

| Predictor | Students with Disabilities | | Data-Based Decision-Making | | Functions of Instruction | |
|--------------------|----------------------------|-------------|----------------------------|-------------------|--------------------------|-------------|
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| Pilot School | -.02 (.10) | -.21 (.83) | -.05 (.06) | -.90 (.37) | -.06 (.08) | -.72 (.47) |
| Coaching Frequency | -.01 (.01) | -1.09 (.28) | -.01 (<.01) | -1.94 (>.05) | <.01 (.01) | .03 (.97) |
| Coaching Duration | 0 (---) | --- | 0 (---) | --- | 0 (---) | --- |
| % Free/Red. Lunch | .19 (.25) | .78 (.43) | .19 (.16) | 1.21 (.23) | .07 (.23) | .30 (.76) |
| % SWDs | .20 (.83) | .25 (.80) | -.96 (.52) | -1.85 (.06) | -.38 (.78) | -.49 (.62) |
| Average FCAT Score | <.01 (<.01) | 1.21 (.23) | <.00 (<.01) | -.06 (.95) | <.01 (<.01) | .52 (.60) |
| District A | .10 (.14) | .70 (.48) | .18 (.09) | 1.97 (.05) | .12 (.14) | .90 (.37) |
| District B | .04 (.13) | .29 (.77) | .05 (.08) | .60 (.55) | .02 (.12) | .14 (.89) |
| District C | -.11 (.14) | -.83 (.40) | .03 (.08) | .31 (.76) | .05 (.13) | .43 (.67) |
| District D | .06 (.10) | .55 (.58) | -.04 (.06) | -.55 (.58) | -.04 (.10) | -.40 (.69) |
| District E | .01 (.11) | .12 (.90) | -.09 (.07) | -1.30 (.19) | .02 (.11) | .15 (.88) |
| District F | <.01 (.11) | .01 (.99) | <.01 (.07) | .04 (.97) | -.09 (.11) | -.84 (.40) |
| District G | 0 (---) | --- | 0 (---) | --- | 0 (---) | --- |



- ### Consistent Findings from Perceived Skill MLMs
- Educator perceived skills within each domain significantly increased across time
 - Variables consistently related to perceived skills
 - Levels
 - Position/role (+)
 - Particularly for administrators and other personnel
 - Degree earned (+)
 - Perceptions of RtI practices applied to academics (+)
 - Membership in one of the seven districts (+)
 - Changes across time
 - **SBLT membership across time (+)**
 - Perceptions of RtI practices applied to academics (-)

| Skills Level 2 Predictors - Levels | | | | | | |
|------------------------------------|-----------------------|-------------|-----------------------|-------------|-----------------------|-------------|
| Predictor | RtI Skills – Academic | | RtI Skills – Behavior | | Data & Technology Use | |
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| SBLT | .21 (.06) | 3.20 (<.01) | .02 (.07) | .24 (.81) | .04 (.08) | .56 (.58) |
| Admin | .47 (.12) | 3.98 (<.01) | .65 (.13) | 5.01 (<.01) | .66 (.14) | 4.62 (<.01) |
| Gen Ed Teacher | .14 (.07) | 2.02 (.04) | .23 (.08) | 3.00 (<.01) | -.04 (.09) | -.50 (.62) |
| SPED Teacher | -.15 (.08) | 1.86 (.06) | .38 (.09) | 4.23 (<.01) | -.01 (.10) | -.05 (.96) |
| Student Support | -.14 (.11) | -1.24 (.21) | .57 (.12) | 4.57 (<.01) | .17 (.14) | 1.25 (.21) |
| Other position | .76 (.24) | 3.20 (<.01) | .70 (.26) | 2.68 (<.01) | .78 (.29) | 2.73 (<.01) |
| Years of experience | .01 (.01) | 1.39 (.17) | .01 (.01) | 1.23 (.22) | -.02 (.01) | -2.04 (.04) |
| Highest degree | .16 (.04) | 4.05 (<.01) | .10 (.04) | 2.19 (.03) | .16 (.05) | 3.36 (<.01) |
| Academic Practices | .31 (.04) | 8.30 (<.01) | .19 (.04) | 4.61 (<.01) | .22 (.05) | 4.82 (<.01) |
| Behavior Practices | -.05 (.03) | -2.07 (.04) | .10 (.03) | 3.61 (<.01) | .01 (.03) | .34 (.74) |

| Skills Level 2 Predictors - Time | | | | | | |
|----------------------------------|-----------------------|-------------|-----------------------|-------------|-----------------------|-------------|
| Predictor | RtI Skills – Academic | | RtI Skills – Behavior | | Data & Technology Use | |
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| SBLT | .21 (.09) | 2.38 (.02) | .23 (.10) | 2.34 (.02) | .37 (.11) | 3.44 (<.01) |
| Admin | .01 (.17) | .07 (.95) | -.02 (.19) | -.10 (.92) | -.02 (.21) | -.08 (.93) |
| Gen Ed Teacher | .15 (.11) | 1.39 (.16) | .11 (.12) | .93 (.35) | .34 (.13) | 2.63 (<.01) |
| SPED Teacher | -.10 (.12) | .84 (.40) | .08 (.13) | .63 (.53) | .24 (.15) | 1.65 (.10) |
| Student Support | .20 (.16) | 1.31 (.19) | -.04 (.17) | -.26 (.80) | .18 (.19) | .98 (.33) |
| Other position | .25 (.72) | .35 (.73) | .46 (.78) | .58 (.56) | .82 (.87) | .94 (.35) |
| Years of experience | -.02 (.01) | -1.17 (.24) | -.02 (.02) | -1.25 (.21) | -.02 (.02) | -1.21 (.22) |
| Highest degree | -.14 (.06) | -2.47 (.01) | -.08 (.06) | -1.26 (.21) | -.07 (.07) | -1.01 (.31) |
| Academic Practices | -.12 (.06) | -2.10 (.04) | -.13 (.06) | -2.07 (.04) | -.17 (.07) | -2.42 (.02) |
| Behavior Practices | .05 (.04) | 1.23 (.22) | -.02 (.04) | -.52 (.60) | .04 (.04) | .91 (.36) |

| Skills Level 3 Predictors - Levels | | | | | | |
|------------------------------------|-----------------------|--------------|-----------------------|--------------|-----------------------|-------------|
| Predictor | RtI Skills – Academic | | RtI Skills – Behavior | | Data & Technology Use | |
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| Pilot School | -.04 (.05) | -.75 (.45) | -.04 (.07) | -.66 (.51) | .02 (.08) | .28 (.78) |
| Coaching Frequency | .01 (.01) | .80 (.43) | .01 (.01) | 1.42 (.15) | <.01 (.01) | .43 (.67) |
| Coaching Duration | -.004 (.002) | -1.94 (>.05) | -.01 (<.01) | -2.80 (<.01) | -.01 (<.01) | -2.37 (.02) |
| % Free/Red. Lunch | .04 (.22) | .18 (.86) | .18 (.27) | .69 (.49) | -.13 (.32) | -.41 (.68) |
| % SWDs | -.48 (.63) | -.76 (.45) | .21 (.78) | .27 (.79) | -.84 (.92) | -.92 (.36) |
| Average FCAT Score | <.01 (<.01) | .29 (.78) | <.01 (<.01) | 1.00 (.32) | <.00 (<.01) | -.96 (.34) |
| District A | .07 (.12) | .54 (.59) | -.10 (.15) | -.69 (.49) | <.01 (.18) | .02 (.98) |
| District B | .20 (.10) | 1.89 (.06) | .02 (.13) | .15 (.88) | .22 (.15) | 1.47 (.14) |
| District C | -.12 (.11) | -1.07 (.28) | -.07 (.13) | -.52 (.60) | -.21 (.16) | -1.31 (.19) |
| District D | -.04 (.09) | -.39 (.70) | -.16 (.11) | -1.42 (.16) | -.02 (.13) | -.13 (.90) |
| District E | .34 (.09) | 3.63 (<.01) | .29 (.12) | 2.51 (.01) | .39 (.14) | 2.83 (<.01) |
| District F | .25 (.10) | 2.56 (.01) | .12 (.12) | .98 (.32) | .08 (.14) | .55 (.58) |
| District G | 0 (-) | --- | 0 (-) | --- | 0 (-) | --- |

| Skills Level 3 Predictors - Time | | | | | | |
|----------------------------------|-----------------------|------------|-----------------------|-------------|-----------------------|-------------|
| Predictor | RtI Skills – Academic | | RtI Skills – Behavior | | Data & Technology Use | |
| | β (SE) | t (p) | β (SE) | t (p) | β (SE) | t (p) |
| Pilot School | .11 (.09) | 1.28 (.20) | .17 (.10) | 1.68 (.09) | .06 (.11) | .51 (.61) |
| Coaching Frequency | -.002 (.008) | -.30 (.77) | <.00 (.01) | -.39 (.70) | .01 (.01) | .69 (.49) |
| Coaching Duration | 0 (-) | --- | 0 (-) | --- | 0 (-) | --- |
| % Free/Red. Lunch | .47 (.24) | 1.95 (.05) | .32 (.27) | 1.20 (.23) | .82 (.29) | 2.79 (.01) |
| % SWDs | -.40 (.82) | -.49 (.63) | -.65 (.91) | -.71 (.48) | -.79 (.99) | -.80 (.42) |
| Average FCAT Score | .01 (<.01) | 1.65 (.10) | <.01 (<.01) | .60 (.55) | .01 (<.01) | 2.27 (.02) |
| District A | .11 (.14) | .76 (.45) | .10 (.16) | .63 (.53) | .22 (.17) | 1.26 (.21) |
| District B | .16 (.13) | 1.25 (.21) | .09 (.14) | .63 (.53) | .05 (.15) | .30 (.76) |
| District C | .22 (.13) | 1.68 (.09) | .06 (.15) | .42 (.67) | .27 (.16) | 1.64 (.10) |
| District D | .04 (.10) | .40 (.69) | .08 (.11) | .76 (.45) | -.02 (.12) | -.17 (.87) |
| District E | -.11 (.11) | -.99 (.32) | -.19 (.12) | -1.52 (.13) | -.25 (.13) | -1.87 (.06) |
| District F | .10 (.11) | .91 (.36) | .09 (.12) | .78 (.44) | .21 (.13) | 1.63 (.10) |
| District G | 0 (-) | --- | 0 (-) | --- | 0 (-) | --- |

Discussion

Consistent Findings from Beliefs MLMs

- Educator beliefs within each domain significantly increased across time
- Variables consistently related to beliefs
 - Levels
 - SBLT membership (+)
 - Position/role (+)
 - Particularly for administrators
 - Years of experience (-)
 - Students with Disabilities & Data-Based Decision-Making domains
 - Perceptions of RtI practices applied to academics (+)
 - Pilot school membership (+)
 - Changes across time
 - No consistent patterns

Consistent Findings from Skill MLMs

- Educator perceived skills within each domain significantly increased across time
- Variables consistently related to perceived skills
 - Levels
 - Position/role (+)
 - Particularly for administrators and other personnel
 - Degree earned (+)
 - Perceptions of RtI practices applied to academics (+)
 - Membership in one of the seven districts (+)
 - Changes across time
 - **SBLT membership across time (+)**
 - Perceptions of RtI practices applied to academics (-)

SBLT Membership Across Time

- Indicator of systematic professional development delivered
 - Received 13 days of training from Project across 3-year period
 - Received ongoing coaching
- Significant increases across time = evidence supporting systematic training model
- Significant increases occurred for perceived skills but not beliefs
 - Researchers suggest beliefs very difficult to change once established (Pajares, 1992)
 - Less emphasis on targeting beliefs after Year 1
 - Other factors associated with SBLT membership may also play a role (e.g., background knowledge, other experiences) in skill development

Other Professional Development Indicators

- Pilot School Membership Across Time
 - Working in a pilot school did not significantly predict belief or perceived skill changes over time
 - Working in a pilot school predicted higher belief levels
 - Less known about what professional development occurred between trainings with SBLT members and other school staff
 - More systematic examination of follow-up coaching and support needed
- Coach Provided Training and Technical Assistance Across Time
 - Number and duration of coaching sessions did not significantly predict belief or perceived skill changes over time
 - Number and duration of coaching predicted some belief and skill levels
 - Log systems rely on accurate entry of activities
 - Quality indicators of coaching may be necessary

Position

- Educators' positions often significantly predicted belief and perceived skill levels
 - Being an administrators predicted beliefs and perceived skills for all domains
 - Fitting into the other personnel category predicted perceived skill levels across all 3 domains as well as beliefs about data-based decision-making
 - Being a General Education Teacher (Academics as well), Special Education Teacher, and Student Support Services personnel member predicted perceived skill levels for behavior content
- Training and experiences of educators gained through their roles/responsibilities may influence belief and skill levels

Years of Experience

- Having more years of experience predicted lower belief levels regarding
 - Academic abilities and performance of students with disabilities
 - Data-based decision-making
- Researchers suggest (Parajes, 1992)
 - Beliefs formed early in teachers' careers
 - Beliefs difficult to change once formed

Highest Degree

- Holding an advanced degree significantly predicted higher levels of perceived Rtl skills across domains
- Additional training received during graduate studies may increase capacity to implement PS/Rtl practices
- Implications for pre-service teacher education?

Perceptions of RtI Practices

- Higher levels of Perceived RtI Practices Applied to Academic content related to higher levels of
 - Beliefs
 - Perceived skills
- Increases in Perceived RtI Practices Applied to Academic content predicted decreases in perceived skills over time as well as decreases in beliefs about the functions of core and supplemental instruction
- Some experience with implementing PS/RtI may:
 - Lead to higher initial levels of perceived skills
 - Be associated with higher levels of beliefs consistent with PS/RtI
- Decreases in perceived skills may occur as educators gain more experience and a greater understanding of what the model entails

District Membership

- Membership in one district significantly predicted higher levels of perceived skills across domains
- District infrastructure (e.g., data systems, previous experience with data meetings) may influence initial skill levels of educators
- More precise measures of district policies, practices, or other variables may be needed to determine district influence on perceived skills

Implications for Research and Practice

- Systematic professional development
 - Adaptation of systematic professional development model:
 - Scaling-up within and across districts to SBLTs?
 - Providing systematic professional development to instructional staff not on SBLT?
 - Addressing frustrations/difficulties?
 - How to address frustrations with difficult practices?
 - How to provide support when implementation challenges arise?
- Pre-service education
 - Infusing RtI instruction into preparation programs?
 - Cross disciplinary training?
 - Addressing beliefs of educators prior to entering the field?
- Roles/responsibilities
 - What do principals need to know and do? Teachers? Other personnel?
- How do beliefs and perceived skills relate to PS/RtI implementation?
 - Levels?
 - Changes over time?
- Perceived vs. Actual skills – future research needed to pursue understanding of the relationship between differences in what is perceived and what skills can actually be demonstrated.

Potential Limitations

- Quasi-experimental design makes direct causal statements difficult to make
- Attrition of one district occurred
- Staff turnover and variable return rates of surveys
- Demographic and achievement data from Year 3 to be collected

References

Burns, M., Appleton, J.J., & Stehouwer, J.D. (2005). Meta-analytic review of responsiveness-to-intervention research: Examining field-based and research-implemented models. *Journal of Psychoeducational Assessment, 23*, 381-394.

Fang, Z. (1996). A review of research on teacher beliefs and practices. *Educational Research, 38*(1), 47-65.

Joyce, B., & Showers, B. (2002). *Student achievement through staff development (3rd Ed)*. Association for Staff and Curriculum Development.

Noell, G.H., & Gansle, K.A. (2006). Assuring the form has substance: Treatment plan implementation as the foundation of assessing response to intervention. *Assessment for Effective Intervention, 32*(1), 32-39.

Pajares, M.F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*(3), 307-332.

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