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RESEARCH IN MATHEMATICS EDUCATION

External Review of STAIR Core Professional Development

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MATHEMATICS
EDUCATION

External Review of STAIR Core Professional Development

Tiffini Pruitt-Britton • Taylor Cox • Leanne R. Ketterlin-Geller • Erica Lembke • Sarah R. Powell

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Simmons School of Education & Human Development
PO Box 750114
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Contact information: rme@smu.edu

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Abstract

The purpose of this technical report is to provide an overview of the process and results of the Project STAIR 2019-2020 External Review of the Core Professional Development (PD). The Project STAIR team surveyed the Technical Advisory Board (TAB) assembled for the project on the clarity, accuracy, interactivity, and overall impressions of the Core PD sessions. The team assigned board members to one of three Core PD sessions based upon their expertise, then tabulated and synthesized their responses. A discussion on the findings and next steps are included.

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External Review of STAIR Core Professional Development

Introduction

Purpose of Project

Project STAIR (Supporting Teaching of Algebra with Individual Readiness) framework is a systematic process that integrates instructional design principles with assessment data to support the algebra-readiness of middle middle-school (MS) students at-risk or identified with specific learning disabilities in mathematics. The intent is to understand how to improve mathematics teaching practices of MS students who experience difficulty with mathematics.

Purpose of Project STAIR Core Professional Development

The purpose of the Project STAIR Core Professional Development (PD) is to educate and familiarize participating teachers on the background structure and usage of Data-Based Individualization (DBI), the structure of the Project STAIR project and teacher responsibilities, detailed information on the assessments used during the study, and essential instructional practices (i.e., explicit instruction, multiple representations).

Purpose of External Review

The purpose of the external review is to receive feedback from external experts to improve the quality, accuracy, and completeness of the Project STAIR Core PD. This review ensures the technical quality of the Core PD through the vetting of materials, which supports the sustainability of the project. Results from the external review directs and supports decision making into the next phase of the project.

Methods

Project STAIR Technical Advisory Board (TAB) members periodically provide feedback by reviewing project materials. For the external review, Project STAIR team members developed survey questions using Qualtrics and delivered the survey to the TAB members via e-mail. Participants were asked to complete the survey within a three-week deadline.

Technical Advisory Board Members' Biographies

TAB Member 1 is a member of the Board of Directors for an organization preventing educational risk and the Project Director for a mathematics and science institute for students with special needs. This TAB member holds a Professorship in Learning Disabilities and is the Co-Editor-in-Chief of a quarterly journal on learning disabilities. She contributes to her professional service by serving on several journal editorial boards. She is the Principal

Investigator a project focused on algebra-readiness concepts and skills for middle school students and funded by the Institute of Education Sciences. Her publications have focused on pedagogical strategies and assistive technology adaptations for students with learning disabilities. She has been published in numerous peer-reviewed journals, including the *Journal of Learning Disabilities*, *Learning Disability Quarterly*, *Remedial and Special Education*, and *Exceptional Children*. She has co-authored several textbooks and assessments.

TAB Member 2 is a Professor of Special Education and Director of Graduate Education. Her research is in the development and implementation of brief progress monitoring assessments in mathematics and most recently focusing on the secondary level, especially in Algebra. She has been the Principal Investigator and Project Director for three OSEP/IES research grants. She also directed an state sub-award for a mathematics assessment research project. These projects have resulted in progress monitoring measures in Algebra and an online professional development and data management system supporting teacher implementation of Algebra progress monitoring. She developed and investigated an early numeracy indicator as a part of the Research Institute on Progress Monitoring, an OSEP funded project. She has presented at national conferences and has been published in several journals including *The Journal of Special Education*, *Remedial and Special Education*, *Learning Disability Quarterly*, and *Assessment for Effective Intervention*.

TAB Member 3 is a Professor and Chair in Learning Disabilities in the Graduate School of Education. She is the recipient of the Special Education Research SIG's Distinguished Researcher Award from the American Education Research Association. She received the Distinguished Alumni Award from her university and the Excellence in Research award and the President's Distinguished Faculty Mentor Recognition. She is also a Research Fellow of the International Academy for Research in Learning Disabilities. She has numerous publications in several Journals including *Exceptional Children*, *Journal of Learning Disabilities*, *Remedial and Special Education*, *Elementary School Journal*, *Journal of Educational Psychology*, *Journal of School Psychology*, *Learning and Instruction*, *Journal of Research on Educational Effectiveness*. She is the publisher of two research-based curriculum the IES Practice Guide. Her research focus is in instructional design in mathematics problem solving and reading interventions for students with learning disabilities, assessment, and textbook analysis.

TAB Member 4 is a professor of Mathematics and Associate Dean for Assessment and PreK – 12 Education. She is the National Science Foundation funded Information Technology in Science (ITS) Center's director and has been named to the Chancellor's Academy of Teacher Educators. She served as the Co-Director of the Center for Mathematics and Science Education (CMSE) at her university and has a joint professorial appointment in the Department of Teaching, Learning and Culture. Her present research focuses on pre-service and in-service teachers in mathematics content courses for interdisciplinary studies majors seeing elementary or middle school mathematics and science certification. She has been involved with state-level work with the Texas Education Agency assisting in the development and revisions of the state mandated curriculum in mathematics, creating presentations at state mathematics conferences for teachers as well as writing and presenting several professional development institutes for in-service teachers.

TAB Member 5 specializes in educational psychology and studies children's learning of mathematics in both middle and secondary schools, particularly Algebra. He is a professor in the Graduate School of Education. He is the faculty director of both the Ph.D. and Ed.D. programs. His current research focuses on the development of flexibility in mathematical problem solving and the ability to adaptively choose among known strategies on a particular problem. He also works on instructional and curricular interventions promoting the development of mathematical understanding. He is presently working on a National Science Foundation funded project. His research interests also include the pre-service preparation of middle and secondary mathematics teachers. He has been published in several distinguished journals and publications including *Journal for Research in Mathematics Education*, *Handbook of Educational Psychology*, *ZDM – International Journal on Mathematics Education*, *Contemporary Educational Psychology*, and *International Journal of STEM Education*.

Procedures

The Project STAIR team strategically assigned TAB members to review one of three Core PD sessions based upon their expertise. These assignments were:

- DBI: TAB member 1
- Assessment: TAB members 2 and 5
- Instruction: Tab members 3 and 4

Measures

The Project STAIR team members developed a survey entitled the STAIR Core PD External Review. The team prepared the survey in Qualtrics and delivered via e-mail to the TAB members along with a PDF of the PowerPoint presentation associated with their assigned Core PD session.

Description of Survey Sections

Each survey has four sections including Accuracy and Comprehensiveness of the Content, Clarity and Visual appeal of the Slides, Interactivity of the Professional Learning Experience, and Overall Perception of Professional Learning Experience. The purpose of the Accuracy and Comprehensiveness of the Content includes ensuring content reflects evidence-based practices for supporting students with disabilities, is easily understandable, the content is appropriately deep for the learner, and practices are appropriate for the needs of students. Additionally, this section ensures the content is thorough and all-inclusive. The purpose of the Clarity and Visual Appeal of the Slides section verifies that the content and graphics on the slides in the presentation are precise, connected to the content being conveyed, legible, unambiguous, and visually engaging. The purpose of the Interactivity of the Professional Learning Experience section verifies how well the slides in conjunction with the slide notes demonstrate a high level of engaging tasks for the participants of the PD. Lastly, the purpose behind the Overall Perception of Professional Learning Experiences is to capture the impression of the entire

presentation given the slide content, presentation notes, and intention of information to be conveyed.

Accuracy and Comprehensiveness of the Content and Clarity and Visual Appeal of the Slides sections have four items while Interactivity of the Professional Learning Experience section and Overall Perception of Professional Learning Experience both have three items. For each item on the survey, the respondents answered on a Likert scale including the options Strongly Agree, Somewhat Agree, Somewhat Disagree, or Strongly Disagree. Strongly Agree counted as a score of four, Somewhat Agree was a score of three, Somewhat Disagree was a score of two, and Strongly Disagree was a score of one. If the respondent answered either Somewhat Disagree or Strongly Disagree, they are prompted to provide additional information and suggestions for improvement for that topic.

Description of Survey Items

Accuracy and Comprehensiveness of the Content

- In this section, TAB members reviewed the Core PD materials and evaluated the accuracy of the content, whether the content was easy to understand, whether the content was sufficient for meeting the goals of the PD, and if the content appropriately emphasized the importance of the practices for supporting students with disabilities or difficulties in mathematics.

Clarity and Visual Appeal of the Slides

- In this section, TAB members evaluated the sequencing of the slides, the visual appeal of the layout, the relevance and effectiveness of the graphics, and the readability and comprehensibility of the text.

Interactivity of the Professional Learning Experience

- In this section, TAB members evaluated how well the presentation engaged the audience in the learning process, deepened the audiences' knowledge, and whether the activities helped the audience apply their knowledge.

Overall Perception Professional Learning Experience

- In this section, TAB members determined how well the content of the presentation slides supported the overall purpose of the Core PD session, how well the content supports the audience members' understanding of DBI, ability to implement DBI, and application of DBI knowledge.

Results

The Project STAIR team reviewed the surveys and tabulated the results. The team recorded a count for each line item under whether the reviewer response was Strongly Agree, Somewhat Agree, Somewhat Disagree, or Strongly Disagree. The Project STAIR team recorded the

percentages of the responses for each line item response as well. The tables are segmented by the four sections of the Core PD sessions. The tables are presented in the order of the Core PD sessions (i.e., DBI, Instruction, and Assessment). Table 1 show the DBI results, Table 2 shows the Instruction results, and Table 3 shows the Assessment results.

DBI

Table 1 shows the reviewer responses for the DBI PD session. The Project STAIR team recorded the number of responses and calculated the percentage of the responses from the reviewers for each line item for each of the four sections (i.e., Accuracy and Comprehensiveness of the Content, Clarity and Visual Appeal of the Slides, Interactivity of the Professional Learning Experience, Overall Perception of Professional Learning Experience).

Table 1. DBI

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
Accuracy and Comprehensiveness of the Content				
The content accurately reflects evidence-based practices for supporting students with disabilities or difficulties in mathematics.	1	100%	0	0%
The content is easy to understand by the participants.	1	100%	0	0%
The depth of content is conducive to satisfying the purpose of the professional learning experience.	1	100%	0	0%
The content emphasizes the importance of the practices for meeting the needs of students with disabilities or difficulties in mathematics.	1	100%	0	0%
Totals	4	100%	0	0%
Clarity and Visual Appeal of the Slides				
The sequencing of the slides is well organized.	1	100%	0	0%

The layout of the slides clearly displays the content and is visually appealing.	1	100%	0	0%	0	0%	0	0%
The graphics are relevant and effectively convey the content.	1	100%	0	0%	0	0%	0	0%
The text is readable (appropriate font size and color) and comprehensible (easy and quick to read).	1	100%	0	0%	0	0%	0	0%

Totals	4	100%	0	0%	0	0%	0	0%
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Interactivity of the Professional Learning Experience

The activities actively engage the participants in the learning process.	0	0%	1	100%	0	0%	0	0%
The activities deepen the participants' knowledge in the content.	1	100%	0	0%	0	0%	0	0%
The activities help participants apply the concepts to build their knowledge and confidence.	1	100%	0	0%	0	0%	0	0%

Totals	2	66.7%	1	33.3%	0	0%	0	0%
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Overall Perception Professional Learning Experience

The professional learning experience builds participants' understanding of the key components of DBI.	1	100%	0	0%	0	0%	0	0%
The professional learning experience supports participants' implementation of the key components of DBI.	1	100%	0	0%	0	0%	0	0%
The activities help participants apply the concepts to build their knowledge and confidence.	1	100%	0	0%	0	0%	0	0%

Totals	3	100%	0	0%	0	0%	0	0%
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Suggestions for Revisions

The reviewers questioned whether the Project STAIR team provided any handouts to the participants. There were no other suggestions from the reviewers.

Instruction

Table 2 shows the reviewer responses for the Instruction PD session. The Project STAIR team recorded the number of responses and calculated the percentage of the responses from the reviewers for each line item for each of the four sections (i.e., Accuracy and Comprehensiveness of the Content, Clarity and Visual Appeal of the Slides, Interactivity of the Professional Learning Experience, Overall Perception of Professional Learning Experience)

Table 2. Instruction

	Strongly Agree	Agree	Disagree	Strongly Disagree
Accuracy and Comprehensiveness of the Content				
The content accurately reflects evidence-based practices for supporting students with disabilities or difficulties in mathematics.	2	100%	0	0%
The content is easy to understand by the participants.	1	50%	0	0%
The depth of content is conducive to satisfying the purpose of the professional learning experience.	1	50%	0	0%
The content emphasizes the importance of the practices for meeting the needs of students with disabilities or difficulties in mathematics.	1	50%	1	50%
Total	5	62.5%	1	12.5%
Clarity and Visual Appeal of the Slides				
The sequencing of the slides is well organized.	2	100%	0	0%

The layout of the slides clearly displays the content and is visually appealing.	1	50%	1	50%	0	0%	0	0%
The graphics are relevant and effectively convey the content.	1	50%	1	50%	0	0%	0	0%
The text is readable (appropriate font size and color), comprehensible (easy and quick to read).	2	100%	0	0%	0	0%	0	0%
Totals	6	75%	2	25%	0	0%	0	0%

Interactivity of the Professional Learning Experience

The activities actively engage the participants in the learning process.	0	0%	1	50%	1	50%	0	0%
The activities deepen the participants' knowledge in the content.	0	0%	1	50%	1	50%	0	0%
The activities help participants apply the concepts to build their knowledge and confidence.	0	0%	1	50%	1	50%	0	0%
Totals	0	0%	3	50%	3	50%	0	0%

Overall Perception Professional Learning Experience

The professional learning experience builds participants' understanding of the key components of DBI.	1	50%	0	0%	1	50%	0	0%
The professional learning experience supports participants' implementation of the key components of DBI.	0	0%	1	50%	1	50%	0	0%
The activities help participants apply the concepts to build their knowledge and confidence.	0	0%	1	50%	1	50%	0	0%
Totals	1	16.7%	2	33.3%	3	50%	0	0%

Suggestions for Revisions

Accuracy and Comprehensiveness of the Content

Suggestions included five grammatical changes and one phrase re-wording recommendation. TAB reviewers recommended three changes regarding the presentation of the mathematical examples. Reviewers suggested that more mathematical depth of described and displayed instructional practices were necessary. Additionally, researchers suggested that the Project STAIR team change the basic examples of practices shown in the PD to more detailed explanations. There were two suggestions regarding the low comprehensiveness of the content relating to the application of the strategies. Finally, reviewers mentioned how the presentation is read by presenters without the elaboration of application.

Clarity and Visual Appeal of the Slides

Reviewers had no suggestions for this area for this PD session.

Interactivity of the Professional Learning Experience

Researchers suggested examples from different grade levels may be necessary. There should be additional direct connections to applications for the participants within the Core PD since the participants appear to be reading most of the material and discussing the instructional strategies versus effectively grounding understanding through specific examples.

Overall Perception Professional Learning Experience

Researchers suggested the presentation include more simple and direct examples of mathematics instruction for more exposure to the strategies for the participants.

Assessment

Table 3 shows the reviewer responses for the Assessment PD session. The Project STAIR team recorded the number of responses and calculated the percentage of the responses from the reviewers for each line item for each of the four sections (i.e., Accuracy and Comprehensiveness of the Content, Clarity and Visual Appeal of the Slides, Interactivity of the Professional Learning Experience, Overall Perception of Professional Learning Experience)

Table 3. Assessment

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
Accuracy and Comprehensiveness of the Content				
The content accurately reflects evidence-based practices for	2 100%	0 0%	0 0%	0 0%

supporting students with disabilities or difficulties in mathematics.

The content is easy to understand by the participants. 0 0% 1 50% 1 50% 0 0%

The depth of content is conducive to satisfying the purpose of the professional learning experience. 0 0% 2 100% 0 0% 0 0%

The content emphasizes the importance of the practices for meeting the needs of students with disabilities or difficulties in mathematics. 0 0% 1 50% 1 50% 0 0%

Totals 2 25% 6 50% 2 25% 0 0%

Clarity and Visual Appeal of the Slides

The sequencing of the slides is well organized. 1 50% 1 50% 0 0% 0 0%

The layout of the slides clearly displays the content and is visually appealing. 0 0% 2 100% 0 0% 0 0%

The graphics are relevant and effectively convey the content. 0 0% 2 100% 0 0% 0 0%

The text is readable (appropriate font size, color), comprehensible (easy and quick to read). 0 0% 2 100% 0 0% 0 0%

Totals 1 12.5% 11 87.5% 0 0% 0 0%

Interactivity of the Professional Learning Experience

The activities actively engage the participants in the learning process. 1 50% 1 50% 0 0% 0 0%

The activities deepen the participants' knowledge in the content. 0 0% 1 50% 1 50% 0 0%

The activities help participants apply the concepts to build their knowledge and confidence.	0	0%	1	50%	1	50%	0	0%
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Totals	1	16.7%	3	50%	2	33.3%	0	0%
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Overall Perception Professional Learning Experience

The professional learning experience builds participants' understanding of the key components of DBI.	2	100%	0	0%	0	0%	0	0%
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The professional learning experience supports participants' implementation of the key components of DBI.	0	0%	2	100%	0	0%	0	0%
--	---	----	---	------	---	----	---	----

The activities help participants apply the concepts to build their knowledge and confidence.	0	0%	2	100%	0	0%	0	0%
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Totals	2	33.3%	8	66.7%	0	0%	0	0%
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Suggestions for Revisions

Accuracy and Comprehensiveness of the Content

Most of the responses from reviewers included the clarity of the graphics. There were four suggestions that the survey needed additional explanation of the graphics for complete comprehension. The reviewers referenced the use of the abbreviation “US” twice as it may be confused for “United States” while they made three suggestions for more explanation of the usage of “US” vs “PM” in the DBI process. Researchers also suggested re-wording of phrases four times throughout the presentation. Finally, TAB reviewers suggested the additions of two transitional slides.

Clarity and Visual Appeal of the Slides

Reviewers noted that two graphics were missing descriptive labeling while two additional graphics were unhelpful and misplaced. There was also a request to remove project labeling or areas of overlap that may lead to distraction from the slide information.

Interactivity of the Professional Learning Experience

The activities presented in the slides were well-organized and engaging for participants. Also, researchers acknowledged teachers having the opportunity to work with actual student data contributed greatly to the learning experience. There was a suggestion to require more

mathematics training for teachers, allowing them to have deeper understanding and use of the processes required of them as presented in the PD.

Overall Perception Professional Learning Experience

Researchers felt the slides were clear and appealing for the participating teachers overall. Some slides were difficult to read due to positioning or size and suggestions were made to have hard copies of slides available to teachers for closer examination.

Overall Summary of Responses

Table 4 summarizes the collective responses of the reviewers for the three PD sessions and the four sections included in each session.

Table 4. Summary of Responses Across Four Sections and PD Sessions (DBI, Instruction, Assessment)

	Strongly Agree		Somewhat Agree		Somewhat Disagree		Disagree		
Accuracy and Comprehensiveness of the Content									
The content accurately reflects evidence-based practices for supporting students with disabilities or difficulties in mathematics.	5	100%	0	0%	0	0%	0	0%	
The content is easy to understand by the participants.	2	40%	1	20%	2	40%	0	0%	
The depth of content is conducive to satisfying the purpose of the professional learning experience.	2	40%	2	40%	1	20%	0	0%	
The content emphasizes the importance of the practices for meeting the needs of students with disabilities or difficulties in mathematics.	2	40%	2	40%	1	20%	0	0%	
Totals	11	55%	5	25%	4	20%	0	0%	
Clarity and Visual Appeal of the Slides									
The sequencing of the slides is well organized.	4	80%	1	20%	0	0%	0	0%	

The layout of the slides clearly displays the content and is visually appealing.	2	40%	3	60%	0	0%	0	0%
The graphics are relevant and effectively convey the content.	2	40%	3	60%	0	0%	0	0%
The text is readable (appropriate font size, color), comprehensible (easy and quick to read).	3	60%	2	40%	0	0%	0	0%
Totals	11	55%	9	45%	0	0%	0	0%

Interactivity of the Professional Learning Experience

The activities actively engage the participants in the learning process.	1	20%	3	60%	1	20%	0	0%
The activities deepen the participants' knowledge in the content.	1	20%	2	40%	2	40%	0	0%
The activities help participants apply the concepts to build their knowledge and confidence.	1	20%	2	40%	2	40%	0	0%
Totals	3	20%	7	46.7%	5	33.3%	0	0%

Overall Perception Professional Learning Experience

The professional learning experience builds participants' understanding of the key components of DBI.	4	80%	0	0%	1	20%	0	0%
The professional learning experience supports participants' implementation of the key components of DBI.	1	20%	3	60%	1	20%	0	0%
The activities help participants apply the concepts to build their knowledge and confidence.	1	20%	3	60%	1	20%	0	0%
Totals	6	40%	6	40%	3	20%	0	0%

For the figures below, the Project STAIR team collected the responses for all three of the Core PD sessions (DBI, Instruction, and Assessment) by the four survey sections (Accuracy and Comprehensiveness of the Content, the Clarity and Visual Appeal of the Slides, Interactivity of the Professional Learning Experience, and Overall Perception of Professional Learning Experience) with responses Strongly Agree, Somewhat Agree, Somewhat Disagree and Strongly Disagree grouped by each question.

Figure 1 demonstrates the percentages of responses for the first four items (i.e., Question 1, Question 2, Question 3, and Question 4) in the Accuracy and Comprehensiveness of the Content sections of the surveys for the PD Sessions.

Figure 1.

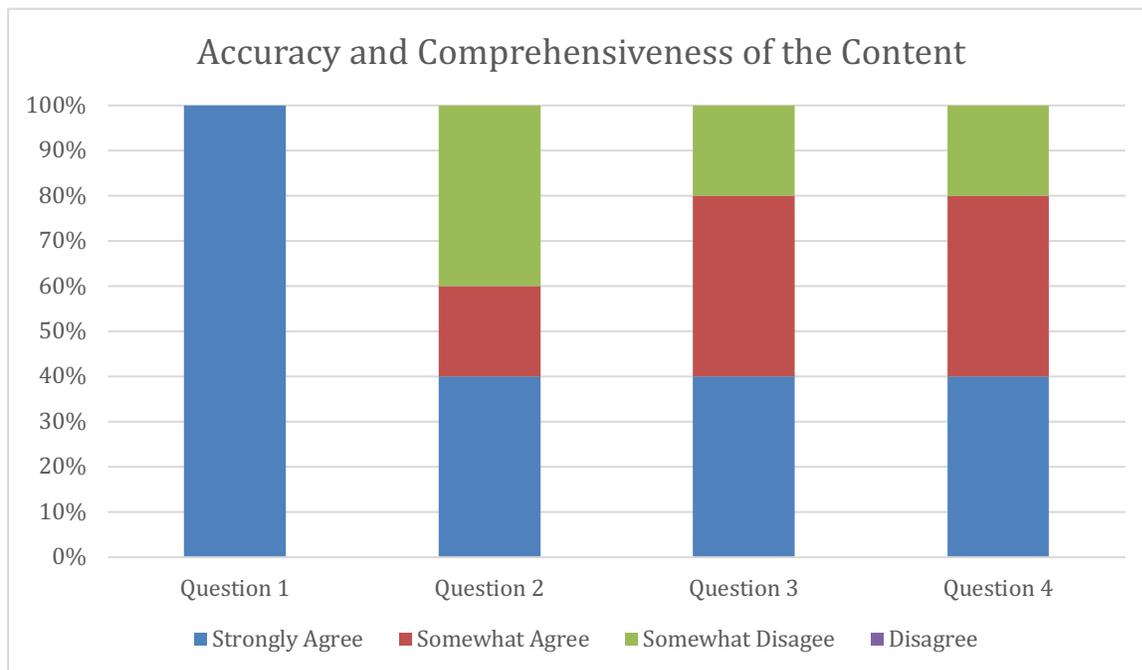


Figure 2 demonstrates the percentages of responses for the four items (i.e., Question 5, Question 6, Question 7, and Question 8) in the Clarity and Visual Appeal of the Slides sections of the surveys for the PD Sessions.

Figure 2.

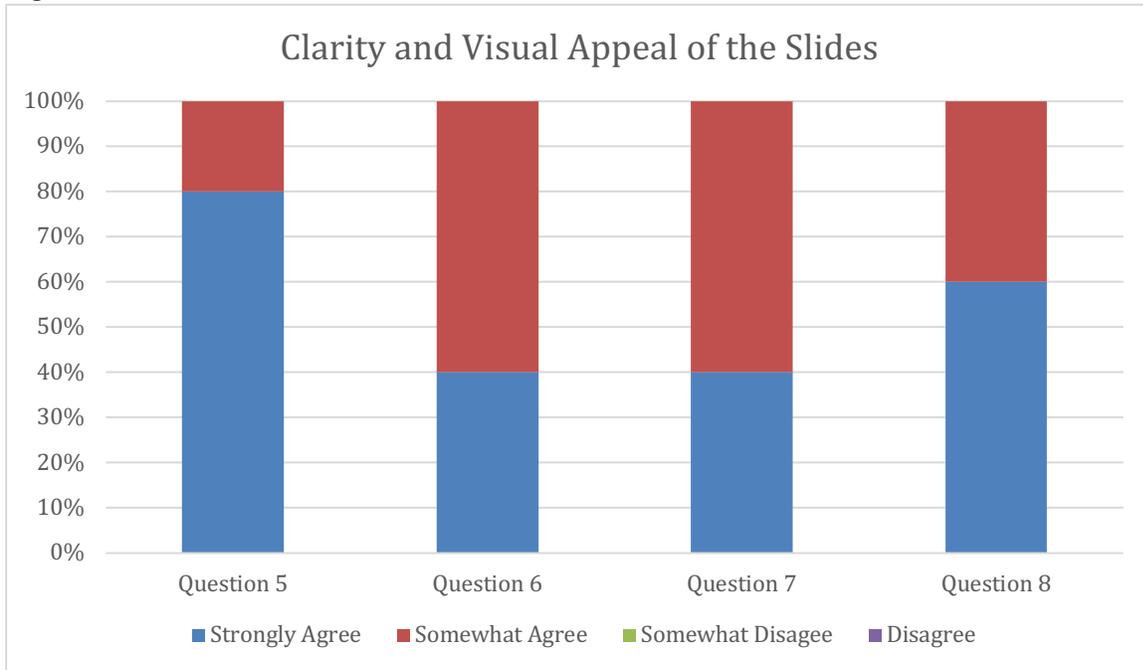


Figure 3 demonstrates the percentages of responses for the three items (i.e., Question 9, Question 10, and Question 11) in the Interactivity of the Professional Learning Experience sections of the surveys for the PD Sessions.

Figure 3.

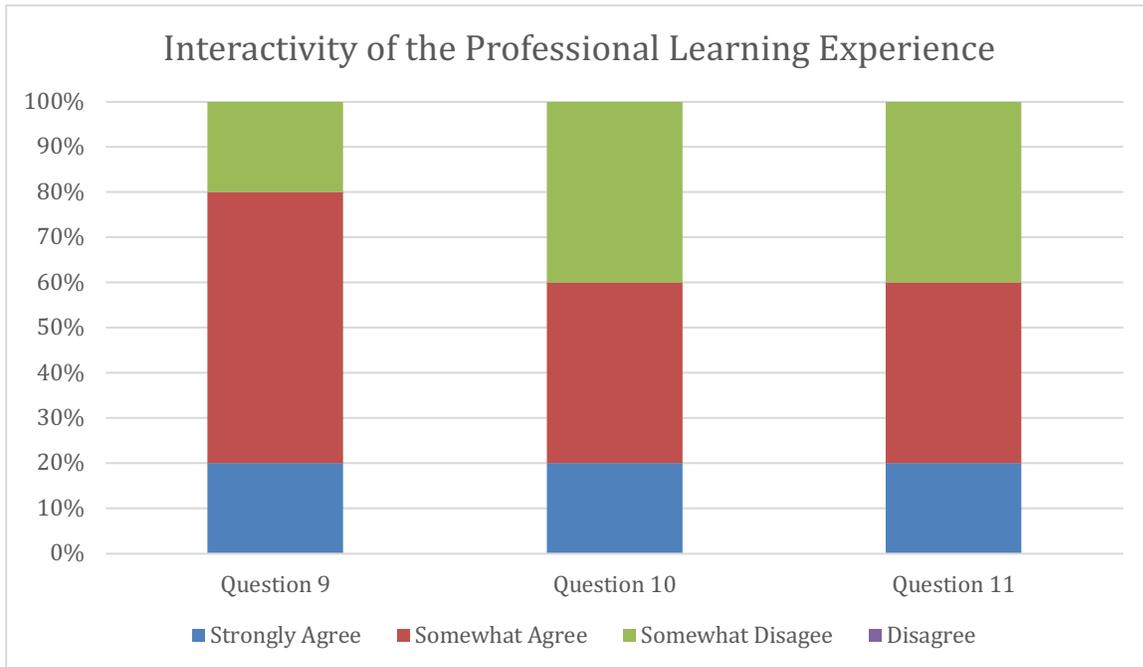
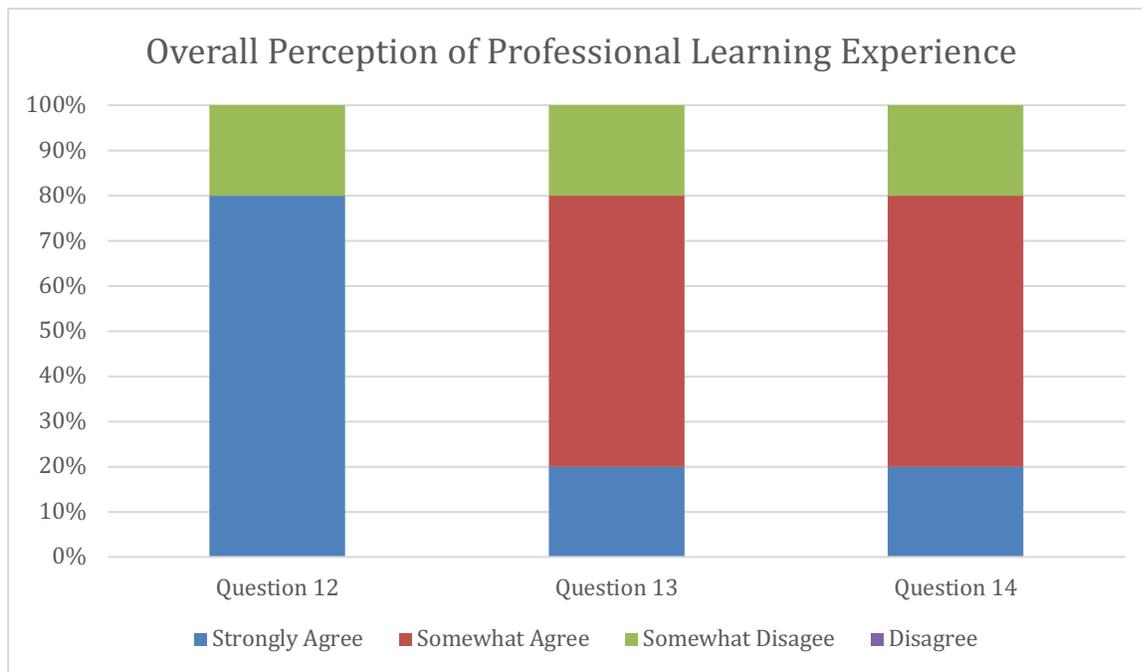


Figure 4 demonstrates the percentages of responses for the three items (i.e., Question 12, Question 13, and Question 14) in the Overall Perception of Professional Learning Experience sections of the surveys for the PD Sessions.

Figure 4.



Discussion

DBI

Accuracy and Comprehensiveness of the Content

The DBI presentation was overall sufficient in the PD. The reviewer expressed that the presentation of the DBI model was clear and accurately displayed the steps and processes involved in the usage of DBI in Project STAIR.

Clarity and Visual Appeal of the Slides

The reviewer expressed how displaying and explaining the entire DBI chart is helpful for the participants' understanding of the model. The reviewer noted that the speaker notes were adequate and completely described the components of the DBI model.

Interactivity of the Professional Learning Experience

Both the PD slides and speaker notes included clear explanations of expectations of the participants.

Overall Perception Professional Learning Experience

The reviewer noted that the length of time of the professional development juxtaposed with the number of slides was reasonable for participants to gain overall knowledge of Project STAIR activities.

Instruction

Accuracy and Comprehensiveness of the Content

Reviewers noted the clear presentation of evidence-based practices and their key components (i.e., explicit instruction, multiple representations, precise math language, etc.). Reviewers appreciated the links to videos being embedded in the presentation. However, there is concern that participants will not take time to view videos on their own, not remember information presented via the video versus having an in person demonstration, and miss specific mathematical instruction applications that are being presented in the videos. While overall theoretical points are made, they are not supported by actual mathematical examples.

Clarity and Visual Appeal of the Slides

The reviewers wanted to see more comprehensiveness among the instruction slides. Reviewers noted that the PD did not describe and discuss all of the instructional practices in the same amount of depth or did not connect to actual math content. The reviewers suggested several mathematically substantive corrections as well as editorial corrections including suggested grammatical changes.

Interactivity of the Professional Learning Experience

Reviewers determined that the examples presented may not be mathematically appropriate for the grade levels taught by the participants. More active learning opportunities are suggested by the reviewers to get participants more engaged in the PD learning. The slides are very information and content heavy without much grounding for the participants.

Overall Perception Professional Learning Experience

Overall, reviewers felt as if the presentation contained very good explanation of the components of instructional practices.

Assessment

Accuracy and Comprehensiveness of the Content

Overall, the assessment presentation is clear and progresses well. The level of appropriateness seems fitting for the audience of general education teachers. Researchers expressed concern that the presentation used terms like “steeper,” “flatter,” and “even” when comparing trendlines and that may seem inappropriate or confusing to the audience. Reviewers suggest increasing the amount of rigor in the mathematical explanation of the DBI process as it is heavy in mathematical content.

Clarity and Visual Appeal of the Slides

The presentation was well-paced, well-organized, and engaging. Reviewers expressed concern that although the overall presentation was cohesive, some of the slides were either difficult to read or confusing. Reviewers also expressed concern about the use of the abbreviation “US” in reference to “Universal Screener” or “United States” and its inconsistent use (i.e., “US” to “STAIR screening data”). Reviewers would have liked to have seen additional explanation for the use of the universal screener (US) and progress monitoring (PM) and how they are used in decision-making for teachers. The reviewers found that several slides had content covering the STAIR graphic and suggested the graphic being removed as this was distracting.

Interactivity of the Professional Learning Experience

Reviewers found the activities to be beneficial for teachers, including having teachers complete measures and logging into I-Station during the PD. Reviewers were concerned about participating teachers having knowledge of the definition and use of a trendline.

Overall Perception Professional Learning Experience

Reviewers praised the presentation’s emphasis on response to inadequate progress. The fact that teachers are working with real data was invaluable for the assessment presentation.

Overall

Reviewers were pleased about the presentations. Due to the nature of the presentations being divided into sessions which the Project STAIR team did not share with all of the reviewers, gaps in the delivery and comprehensiveness of the content may be present. Reviewers expressed most concern about the level of math comprehension needed for participants of the PD to be successful in the understanding and application of the practices shown. Additional slides and opportunities should be created for presenter elaboration on math concepts and participant application of working with sample student data. Graphics contributed to the clarity and flow of the entire presentation, however, should be resized and more strategically placed in some areas. The three-session PD seems well put together and sufficient in meeting the goal of instructing participants on the DBI process.

Next steps include the development of a corrective action plan including the suggestions for amending presentation slides and slide notes. The suggestions will be considered as to whether or not changes will be made with justifications. The project members will address all suggested changes to ensure any and all concerns by the TAB are addressed.

References

American Educational Research Association (AERA), American Psychological Association (APA), & National Council on Measurement in Education (NCME). (2014). *Standards for educational and psychological testing*. Washington, DC: American Psychological Association.

Appendix – STAIR Core PD External Review

Accuracy and Comprehensiveness of the Content

The content **accurately** reflects evidence-based practices for supporting students with disabilities or difficulties in mathematics.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The content is **easy to understand** by the participants.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The **depth of content** is conducive to satisfying the purpose of the professional learning experience.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The content emphasizes the **importance** of the practices for meeting the needs of students with disabilities or difficulties in mathematics.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

Overall strengths about the accuracy and comprehensiveness of the content:

Areas for improvement related to the accuracy and comprehensiveness of the content:

Clarity and Visual Appeal of the Slides

The **sequencing** of the slides is well organized.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The **layout** of the slides clearly displays the content and is visually appealing.

Strongly agree Somewhat agree Somewhat disagree Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The **graphics** are relevant and effectively convey the content.

Strongly agree Somewhat agree Somewhat disagree Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The **text** is readable (appropriate font size and color) and comprehensible (easy and quick to read).

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

Overall strengths about the clarity and visual appeal of the slides:

Areas for improvement related to the clarity and visual appeal of the slides:

Interactivity of the Professional Learning Experience

The activities **actively engage** the participants in the learning process.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The activities **deepen** the participants’ knowledge in the content.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The activities help participants **apply the concepts** to build their knowledge and confidence.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

Overall strengths about the interactivity of the professional learning experience:

Areas for improvement related to the interactivity of the professional learning experience:

Overall Perception Professional Learning Experience

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The professional learning experience supports participants’ **implementation** of the key components of DBI.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

The activities help participants **apply the concepts** to build their knowledge and confidence.

Strongly agree

Somewhat agree

Somewhat disagree

Strongly disagree

You selected “somewhat disagree” or “disagree”, please provide suggestions for improvement.

Overall strengths about the overall perception of the professional learning experience:

Areas for improvement related to overall perception of the professional learning experience: