

## P2 Evaluation Projects: Knowledge & Decision-Making (UGA)

### PURPOSE

The evaluation projects were designed to *add and extend* current understanding of the impact of IRIS open educational resources (OERs) on the training, professional development, and practice of teachers.

Each project builds upon one another and explores aspects of IRIS-related outcomes that go beyond prior research.

Projects align with short-, medium-, and long-term project outcomes.

### P1: Impact Survey

Identify which groups make use of IRIS OERs, what OERs are used, and under which conditions they are used. Conducting the survey at the beginning and end of the project will provide information on change in user profiles, OERs used, and type of use.

### P2: Knowledge & Decision-Making

Evaluate the impact of engagement with specific IRIS OERs on teachers' level of knowledge and ability to make instructional decisions.

### P3: Fidelity of Implementation

Explore the extent to which engagement with IRIS OERs increases teachers' ability to use evidence-based practices (EBPs) within their classrooms.

### Value-Added Focus

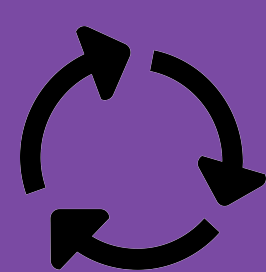
**P1:** Gather data that go beyond *who* uses IRIS OERs to generate a nuanced picture of the various conditions under which IRIS OERs support training and PD.

**P2:** Explore teachers' capacity to learn new content and apply that content within case-based questions, while exploring issues related to long-term retention of knowledge.

**P3:** Examine the extent to which users can implement IRIS-presented skills with fidelity within P12 classroom settings.

## Timeline

Project Types and Names	2019		2020		2021		2022	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
P1: Survey (Initial)	█							
P1: Survey (Final)								█
P2: Knowledge & Decision-Making (UGA)		█						
P2: Knowledge & Decision-Making (Replication)				█				
P3: Fidelity of Implementation (UGA)			█					
P3: Fidelity of Implementation (Replication #1)					█			
P3: Fidelity of Implementation (LEA)						█		
P3: Fidelity of Implementation (Replication #2)							█	



### Relationship Among Evaluation Projects

- OERs identified in P1 as high-use OERs will be used for P2.
- Specific applications of OERs identified in P1 will be replicated during P2. For example, if users identified using case studies in conjunction with *STAR Legacy* modules, this pairing of OERs will be used during P2.
- For P3, OERs identified by professional development (PD) providers and faculty who teach practicum-related or clinical courses will be used.

## IRIS EVALUATION PROJECT P2 (UGA) Fall 2019



### Project P2: Knowledge and Decision-Making

The second project was designed to evaluate the impact of engagement with specific IRIS OERs on teachers' level of knowledge and ability to make instructional decisions.

### Evaluation Design

- Design = Repeated Measures (pre-test, post-test, and delayed assessment)
- Random Assignment = Participants were randomly assigned to a condition (distributed practice or business as usual)
  - Participants were randomly assigned to Group A or Group B
  - Participants would remain in the same groups for Evaluations Applications #1 and #2
- Evaluation Application #1: Accommodations OERs
  - Participants in Group A received the distributed-practice treatment
  - Participants in Group B received the business-as-usual treatment
- Evaluation Application #2: Behavior OERs
  - Participants in Group A received the business-as-usual treatment
  - Participants in Group B received the distributed-practice treatment

### Context

- Large, public university located in the southeastern part of the United States
- Survey course on special education (n = 70)
- Participants included prospective teachers and speech-language pathologists
- First course on special education for all participants

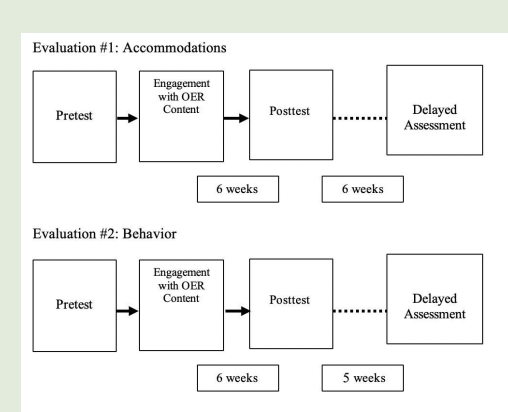
### Evaluation

#### Question #1

To what extent does engagement with IRIS OERs enhance participants' knowledge and decision-making related to the content?

### Design

Evaluation Applications #1 & #2



### Overview: Evaluation Q1

- Participants = *Business-As-Usual Condition* Only (Eval. #1 = Group B; Eval. #2 = Group A)
- For both evaluations #1 and #2, participants in the business-as-usual condition engaged with IRIS OER content in two ways. First, they independently completed a *STAR Legacy* module. Second, they completed an in-class activity using IRIS OERs (e.g., case studies, fundamental skill sheets).
- Participants' knowledge and decision-making skills were assessed at six weeks after engaging with the material (post-test) and after a delayed period of time (i.e., 12 weeks for evaluation #1 and 11 weeks for evaluation #2). This allowed us to examine the instructional effects of one-time engagement, which is typical of most instruction in higher education and professional development.

### Highlights

- After engaging with IRIS OERs, participants made significant gains from pre-test to post-test, even though the post-test was conducted six weeks after engagement.
- Participants were able to retain and build upon that foundational knowledge as evidenced by their performance on a delayed assessment.
- Although other IRIS-focused projects have demonstrated gains in knowledge, this project examined participants' decision-making skills via a series of short-answer questions. Significant gains in decision-making skills were demonstrated from pre-test to post-test and from post-test to delayed assessment.

### Accommodations: Total Score

	Mean	SD	Sig.
Pre-test	30.11	5.33	
Post-test	38.74	3.42	p < .001
Delayed	41.48	4.23	p < .001

### Accommodations: Decision-Making

	Mean	SD	Sig.
Pre-test	1.59	1.16	
Post-test	3.96	1.47	p < .001
Delayed	6.65	1.96	p < .001

### Behavior: Total Score

	Mean	SD	Sig.
Pre-test	20.11	3.98	
Post-test	28.29	4.31	p < .001
Delayed	31.37	4.49	p < .001

### Behavior: Decision-Making

	Mean	SD	Sig.
Pre-test	5.51	1.88	
Post-test	10.37	2.66	p < .001
Delayed	12.00	3.11	p < .001

### Evaluation

#### Question #2

To what extent does the use of distributed practice with feedback enhance participants' learning outcomes?

### Findings

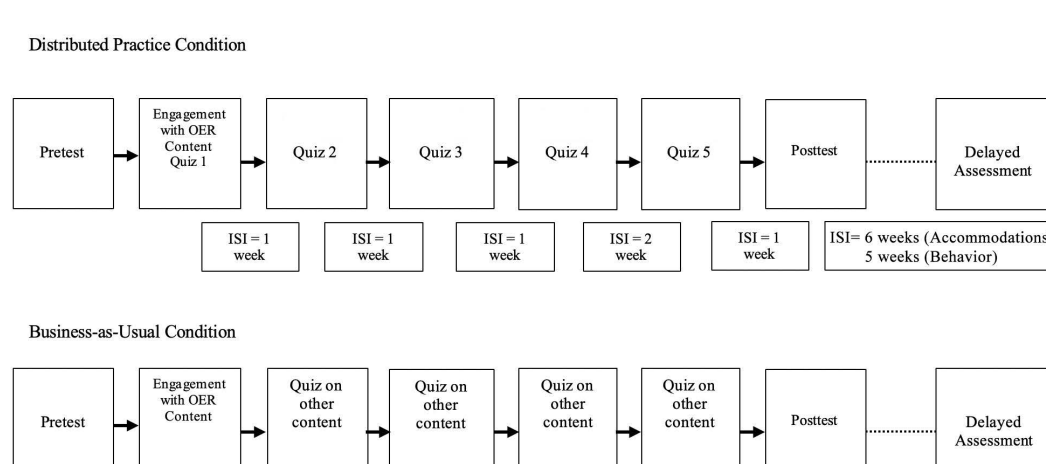
- Different conditions resulted in differences in performance over time to a statistically significant degree,  $F(2, 62) = 25.03, p < .0001$ .
- Pre-test to Post-test**
- On the pre-test for Exp. 1 and 2, there were no significant differences between the two groups,  $t(63) = -0.662, p = 0.510$  [Eval. 1] and  $t(66) = .651, p = 0.517$  [Eval. 2].
- Participants in both groups in both experiments made significant gains from pre-test to post-test, indicating that all participants learned from the IRIS OER content:
  - Eval. 1:  $F(1, 30) = 145.69, p < .0001$  [distributed practice] and  $F(1, 27) = 59.82, p < .0001$  [BAU].
  - Eval. 2:  $F(1, 30) = 311.19, p < .0001$  [distributed practice] and  $F(1, 34) = 137.24, p < .0001$  [BAU].
- When examining differences between groups on the post-test, however, results demonstrated statistically significant difference between the two sets of post-test scores,  $t(62) = 3.67, p = .001$  [Eval. 1] and  $t(66) = -6.95, p < .0001$  [Eval. 2], demonstrating the instructional boost distributed practice provided.
- Post-test to Delayed Assessment**
- For Eval. 1, when examining differences between groups on their delayed assessment scores, there no statistically significant differences between the groups,  $t(67) = 1.22, p = .226$ .
- For Eval. 2, however, there was a statistically significant difference between their scores,  $t(67) = -2.99, p = .004$ .

### Overview: Evaluation Q2

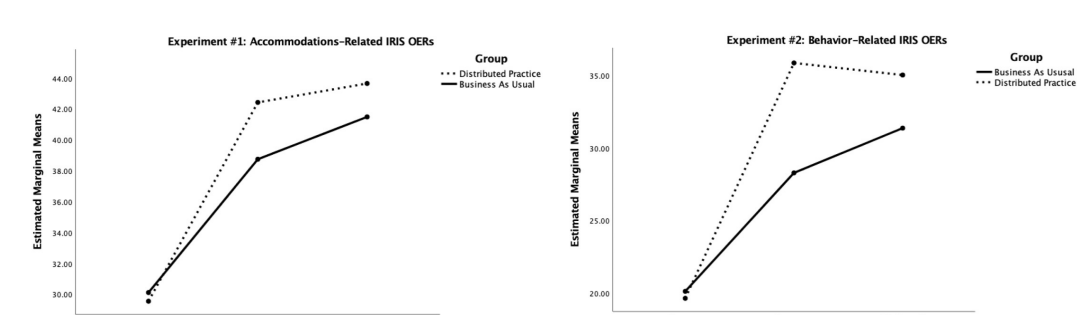
- Participants
  - Group A = 35
  - Group B = 35
- For Q2, we wanted to explore the effect of distributed practice (spaced retrieval) with immediate feedback on participant learning.
- The schedule (below) reflects the implementation schedule of Evaluations #1 and #2.
  - For Evaluation #1, Group A received weekly quizzes (quiz 1, quiz 2, etc.) on content related to the Accommodations IRIS OERs. Group B also participated in weekly quizzes, but the questions reflected other course content, not accommodations content. After each quiz question, participants received immediate feedback (correct/incorrect) and the correct answer was provided.
  - For Evaluation #2, Group B received weekly quizzes (quiz 1, quiz 2, etc.) on content related to IRIS OERs on classroom behavior management. Group A also participated in weekly quizzes, but the questions reflected other course content, not behavior content.
  - The only variation in schedule was that for Evaluation #2 (Behavior), the time between engagement with IRIS OERs and the delayed test was 11 weeks, in contrast to the 12 weeks for the Accommodations content.

A repeated-measures analysis of variance (RMANOVA) was conducted to examine differences in participant performance across time and condition.

### Schedule



### Results: Data Display



### Highlights

- Participants in both conditions in both Experiment #1 and Experiment #2 made statistically significant gains from pre-test to post-test after engaging with IRIS OERs.
- Distributed practice had a statistically significant effect on participants' learning outcomes.
  - Although all participants gained knowledge as a result of engaging with IRIS OERs, when the scores of participants who engaged in repeated recall with immediate feedback were compared to the scores of participants who did not engage in this distributed practice, there was a statistically significant effect for the distributed practice condition (see Data Display).
- Typically, without repeated exposure between the post-test and delayed assessment, a drop in scores would be expected. The higher or the non-statistically significant drop in scores on the delayed assessments in both experiments may be an indication that participants continued to make connections—retrieving and recalling content—as they moved through the course and learned other aspects of special education.
- IRIS OERs have been demonstrated to improve the learning outcomes of participants. Learning outcomes can be enhanced by engaging learners in repeated recall with immediate feedback.