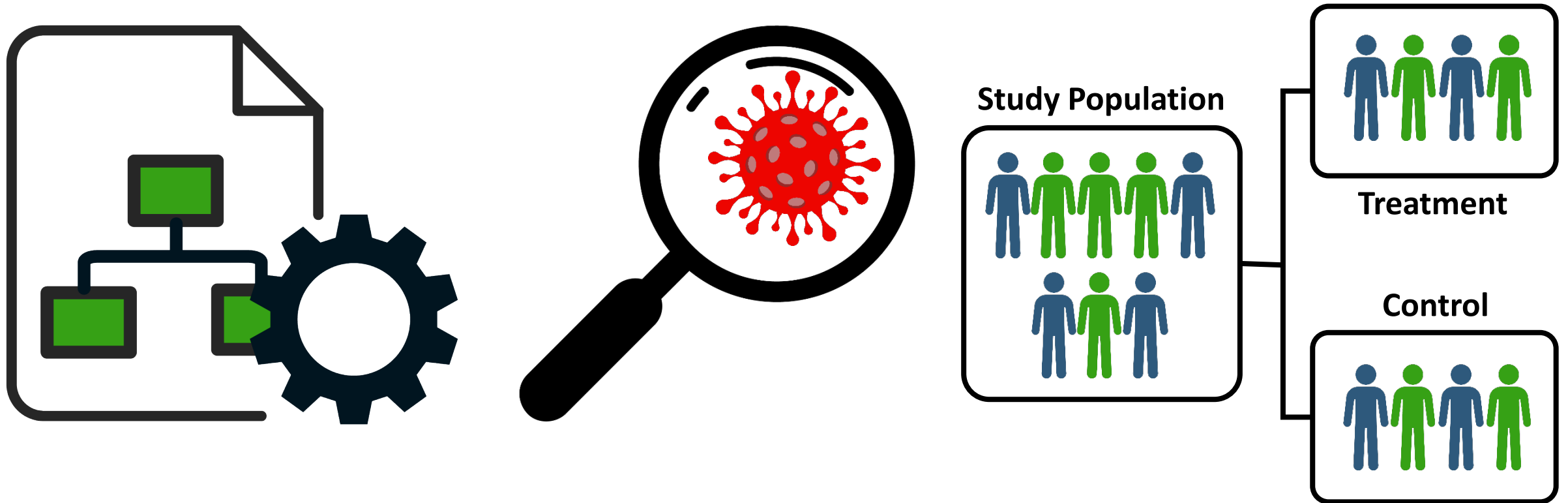# Recovering from COVID-19 in 2021

Changes to Implementation and Consequences for Measurement.

Barbara D. Goodson

EIR Evaluation Technical Assistance Team

Effects of COVID on EIR Implementation and Impact Evaluations

Study Population

Treatment

Control

# COVID Has Disrupted All Aspects of Learning for Students

Speed of Transition to Online Learning Has Raised Concerns about Quality of "Emergency Remote Learning"
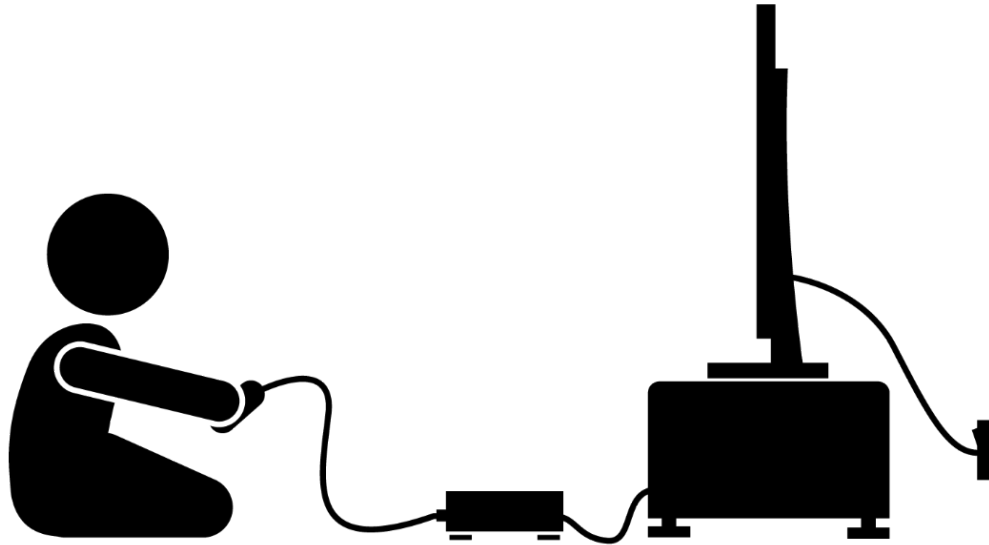
COVID Is Pushing New Teaching Approaches for Which Teachers have Limited Experience or Training

Only **1 out of 3** **teachers report having had recent training on using computers in instruction**

HOW TO USE
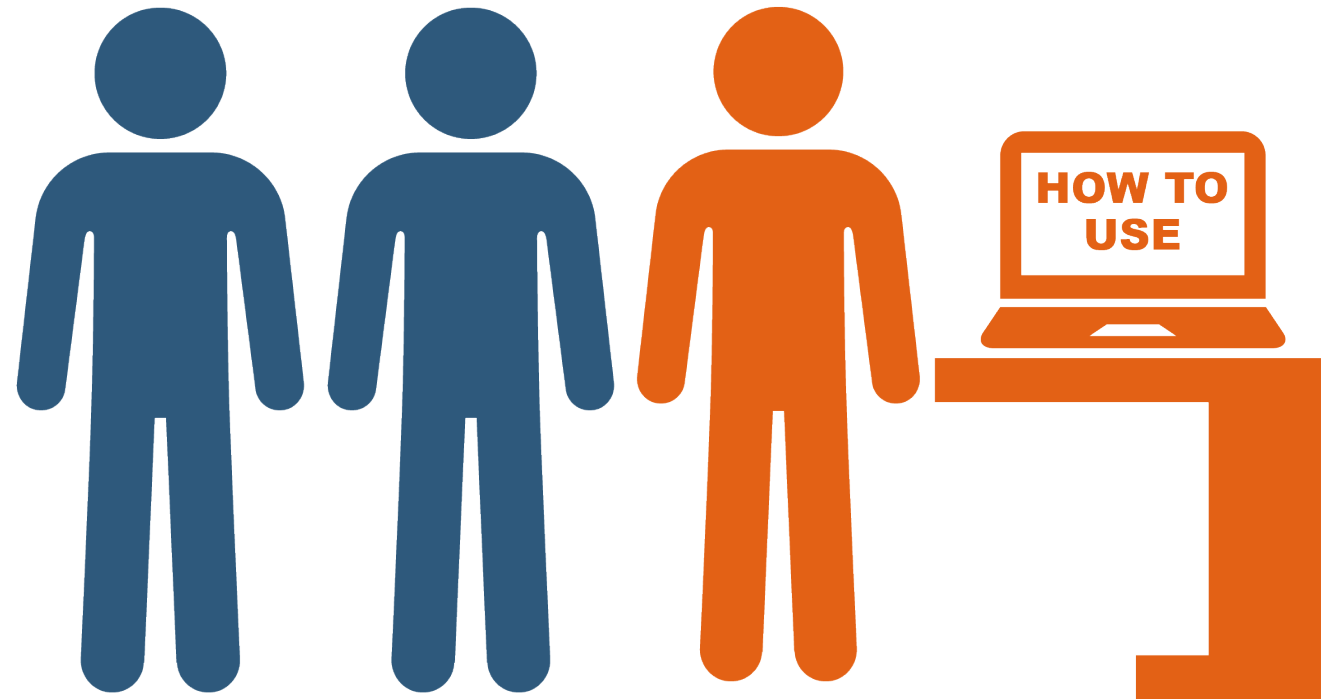
COVID Pushing Students and Families into New Ways of Learning for Which They Do Not Have Experience, Training, Tools

Students

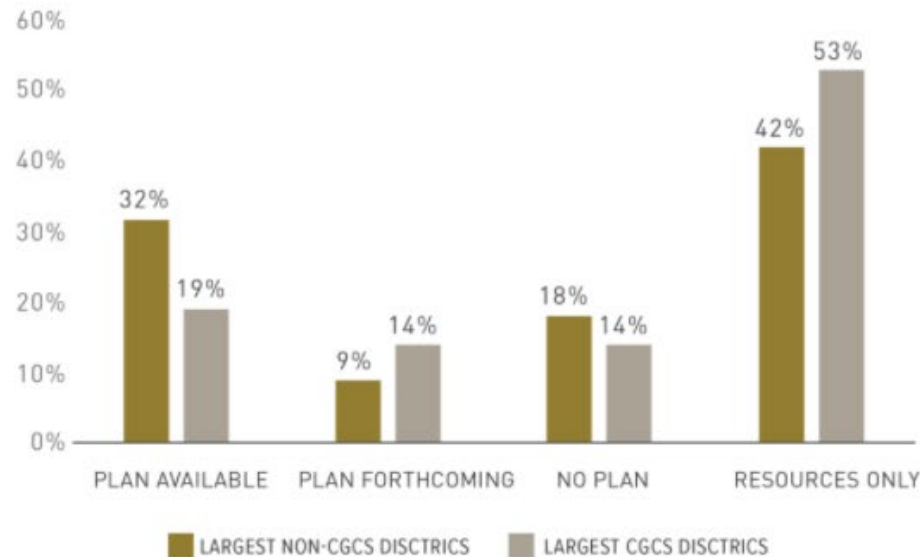- Little experience using computers for learning purposes

Families

- Expected to supervise learning at home when also trying to juggle jobs/child care and often without technology skills

Schools Like Those Serving EIR Students May Be Slower in Planning for Distance Learning

Prepared
DISTANCE LEARNING PLANS
by district

Districts serving students of color and students experiencing poverty were slower and less likely to provide concrete distance learning plans.

USC Center for Economic and Social Research's Understanding America Study: Understanding Coronavirus in America tracking survey, 2020

Note: Council of Great City Schools (CGCS): leaders of 67 *largest urban public school systems in US*

Students Prioritized by EIR Likely to Have Unequal Access to Internet
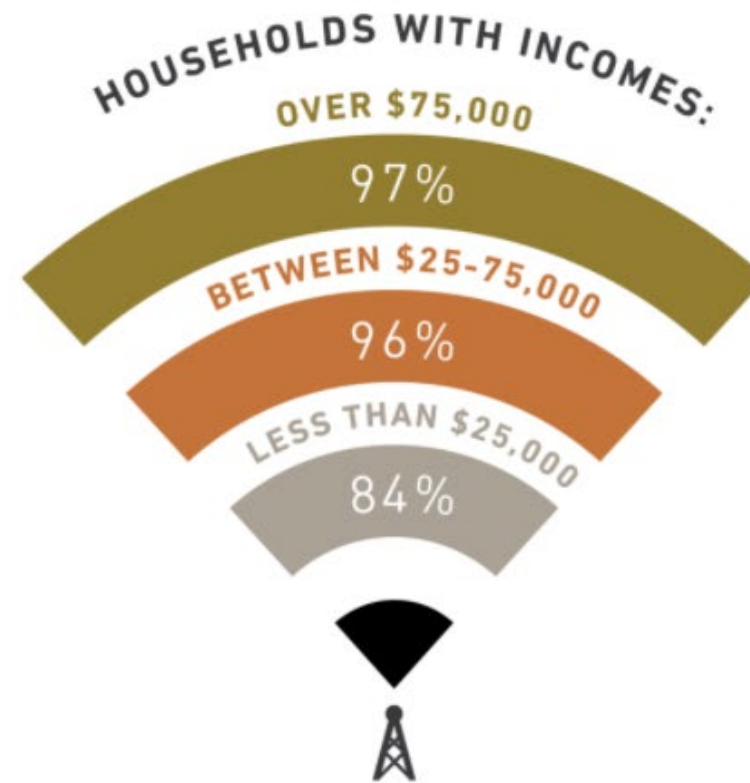
USC Center for Economic and Social Research's Understanding America Study: Understanding Coronavirus in America tracking survey, 2020

Spring 2020: COVID Challenges EIR Implementation

Goal 1: Implement innovative intervention models as planned	• Implementation abruptly and substantially diminished • Limited opportunity to support teachers
Goal 2: Deliver innovative interventions to high needs schools and students	• EIR programs serving more than 50,000 K – 12 students were interrupted
Goal 3: Conduct high quality implementation evaluation	• Logic models and fidelity measures no longer suited to modified programs • Not clear how to measure fidelity for different versions of program model
Goal 4: Conduct rigorous impact evaluation	• No state test scores from spring 2020

SY 2020-21: COVID Continues to Confound EIR Implementation

Goal 1: Implement innovative intervention models as planned
- Large investment to modify for online implementation
- No evidence on effectiveness of online vs. in-person instruction
- Challenges both for ongoing and new programs

Goal 2: Deliver innovative interventions to high needs schools and students
- Nearly 1/3 of grants delayed implementation
- More than 75,000 K – 12 students not served
- Barriers to access may mean partial exposure for high needs students

Goal 3: Conduct high quality implementation evaluation
- Logic models & fidelity measures must be adapted to new program models
- How to measure fidelity for multiple, changing versions of program model

Goal 4: Conduct rigorous impact evaluation
- No 2020 testing may call for increased recruitment, additional implementation years, and/or grant extensions

As a Result of COVID, EIR Grants Have Had to Adapt Their Interventions to be Delivered Through Blended Instruction or Online

As a Result of COVID, EIR Grants Have Had to Adapt their Implementation Evaluations

- ✓ Develop alternate versions of their logic model for online vs in-person delivery

- ✓ Develop alternative versions of their fidelity measure to align with multiple logic models

- ✓ Determine how to analyze and report fidelity of different models

Evaluator Steps to Adapt Implementation Evaluation When Intervention Changes

PLANNING

STEP 1 Review logic model & modify, if needed

STEP 2 Review fidelity measure & modify, if needed

MEASUREMENT

STEP 3 Track versions of program model being implemented

STEP 4 Assess and report fidelity for all versions of program model to tell your story

Step 1. Review Logic Model for Hands-On Computer Science Program: **Original In-Person Model**

Key Components	Mediators	Student Outcomes
Teacher Supports & Coaching	Improved computer science instruction	Increased engagement in computer science
Coding Curriculum (Software & Equipment)	Increased student experience with coding	Improved computational thinking skills
Work-Based Internships	Increased student knowledge of CS industry	Increased interest in computer science career

Step 1a. Modify Logic Model When Intervention Becomes a Virtual Model and One of the Key Components Changes

Key Components	Mediators	Student Outcomes
Teacher Supports & Coaching	Improved computer science instruction	Increased engagement in computer science
Coding Curriculum (Software & Equipment)	Increased student experience with coding	Improved computational thinking skills
Work-Based Internships	Increased student knowledge of CS industry	Increased interest in computer science career

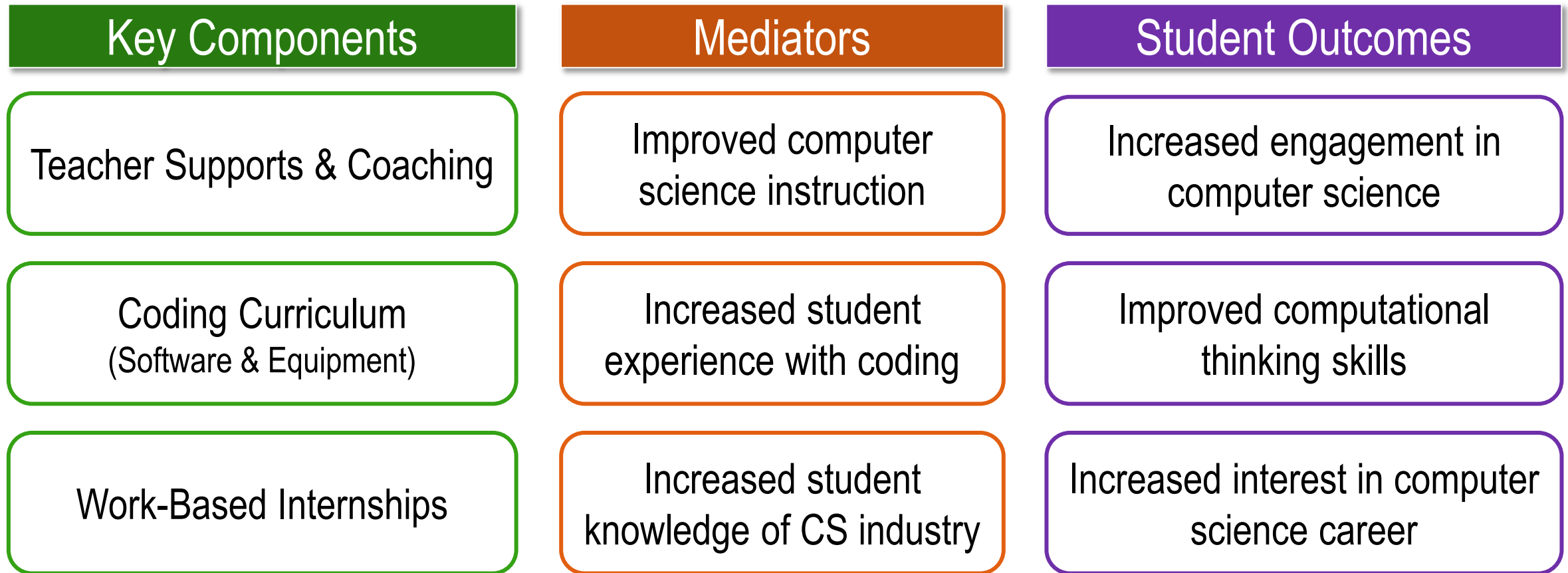# Step 1a. Modify Logic Model When Intervention Becomes a Virtual Model and One of the Key Components Changes

Key Components

Teacher Supports & Coaching

Coding Curriculum (Software & Equipment)

Webinars on Computer Science Careers

Mediators

Improved computer science instruction

Increased student experience with coding

Increased student knowledge of CS industry

Student Outcomes

Increased engagement in computer science

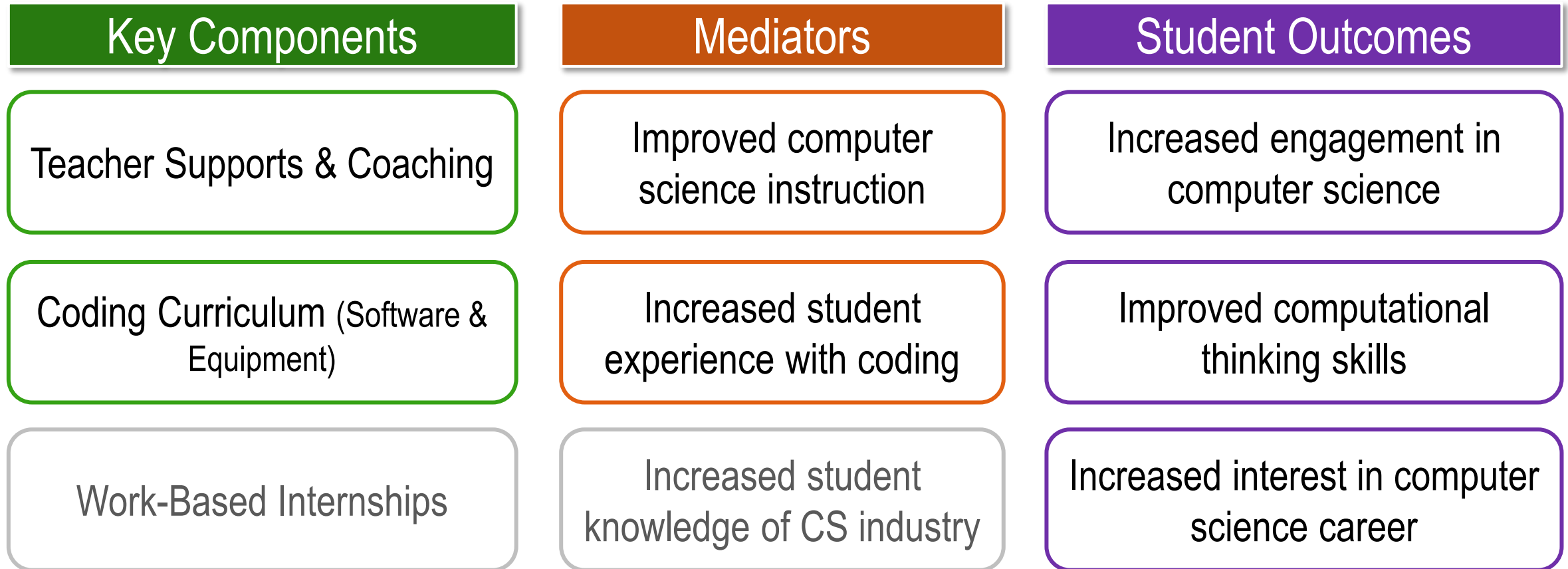Improved computational thinking skills

Increased interest in computer science career

Step 1b. Modify Logic Model When Intervention Becomes a Virtual Model and One of the Key Components Drop Out

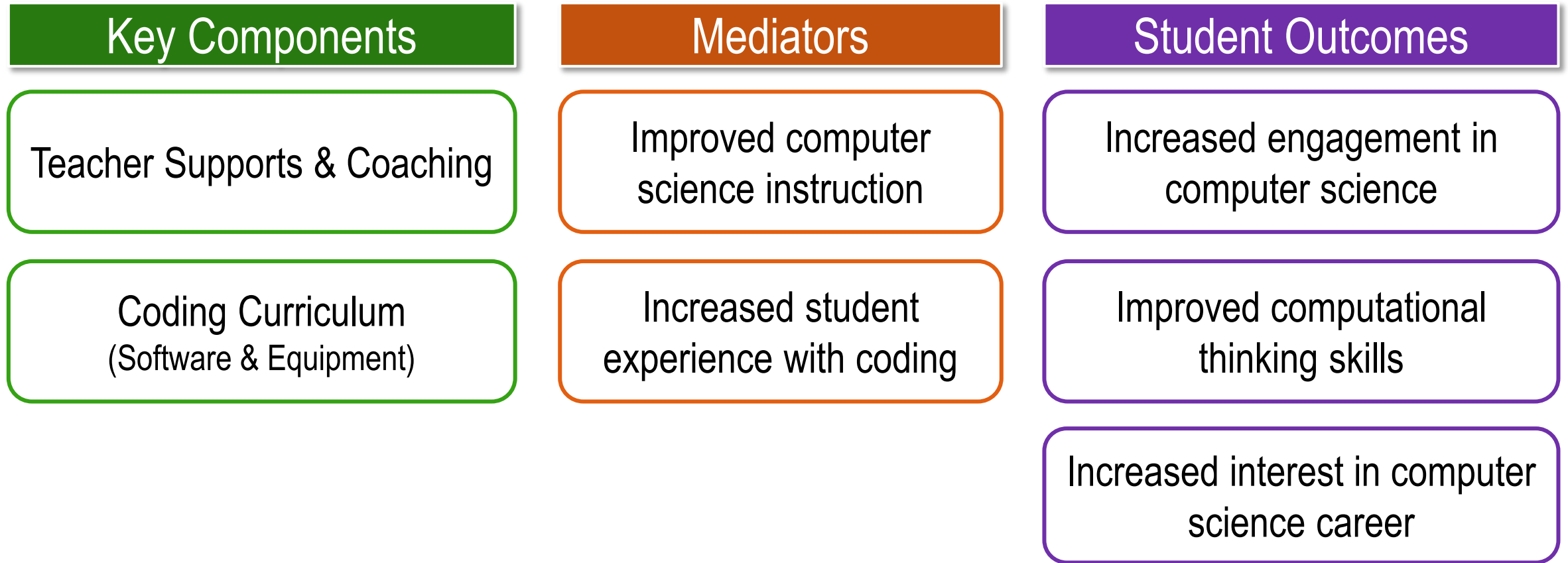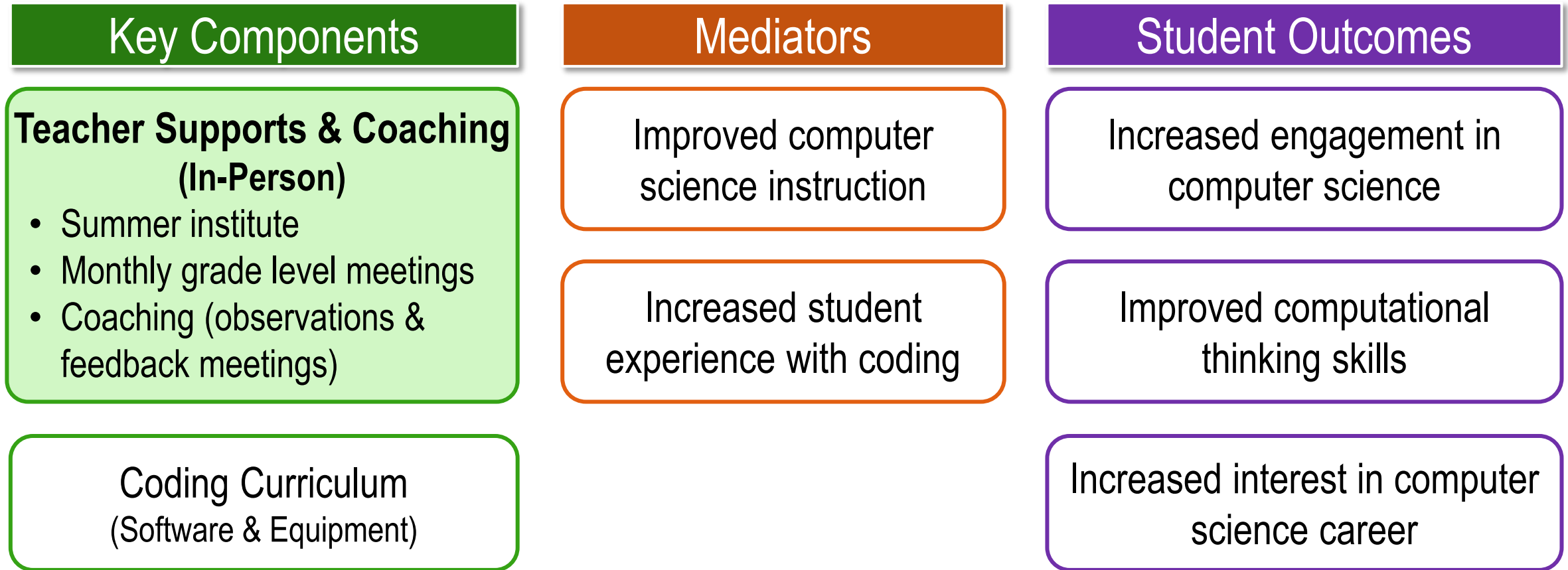| Key Components	Mediators	Student Outcomes
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Step 1b. Modify Logic Model When Intervention Becomes a Virtual Model and One of the Key Components Drop Out

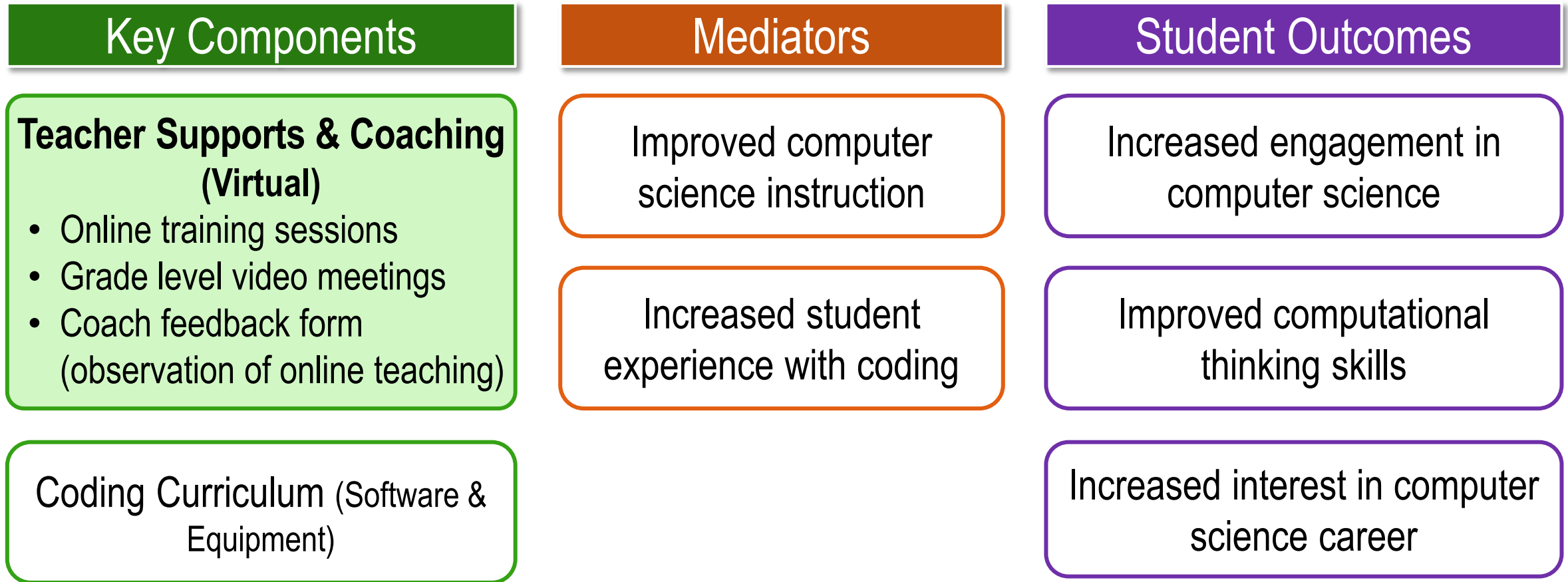| Key Components	Mediators	Student Outcomes
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Coding Curriculum (Software & Equipment)	Increased student experience with coding	Improved computational thinking skills
Work-Based Internships	Increased student knowledge of CS industry	Increased interest in computer science career

Step 1b. Modify Logic Model When Intervention Becomes a Virtual Model and One of the Key Components Drop Out

Key Components

Teacher Supports & Coaching

Coding Curriculum
(Software & Equipment)

Mediators

Improved computer science instruction

Increased student experience with coding

Student Outcomes

Increased engagement in computer science

Improved computational thinking skills

Increased interest in computer science career

Step 1c. Modify Logic Model When Intervention Becomes a Virtual Model and One of the Key Components Is Defined Differently

Key Components

Teacher Supports & Coaching (In-Person)
- Summer institute
- Monthly grade level meetings
- Coaching (observations & feedback meetings)

Coding Curriculum
(Software & Equipment)

Mediators

Improved computer science instruction

Increased student experience with coding

Student Outcomes

Increased engagement in computer science

Improved computational thinking skills

Increased interest in computer science career

Step 1c. Modify Logic Model When Intervention Becomes a Virtual Model and One of the Key Components Is Defined Differently

Key Components

Teacher Supports & Coaching (Virtual)
- Online training sessions
- Grade level video meetings
- Coach feedback form (observation of online teaching)

Coding Curriculum (Software & Equipment)

Mediators

Improved computer science instruction

Increased student experience with coding

Student Outcomes

Increased engagement in computer science

Improved computational thinking skills

Increased interest in computer science career

Creating an Aligned Fidelity Measure: Initial Steps in Defining How to Measure Implementation of Key Components

-1-
Define fidelity of implementation of key component

-2-
Restate definition into a set of _measureable_ indicators

-3-
For each indicator, determine level of implementation and scores for levels

Usually multi-part

e.g., Fidelity of implementation = teachers participate in all initial and follow-up training opportunities provided by program

Quantitative

e.g., "Teachers attend initial 5-day training, quarterly meetings, annual 1-day re-training in years 2-3., and monthly coaching"

Usually ordinal

e.g., 1 = low level of implementation; 2 = moderate level of implementation; 3 = high level of implementation

Step 2a. Modify Fidelity Measure to Align with Revised Logic Model Where One Key Component Changes for Virtual Model

Key Components	Mediators	Student Outcomes
Teacher Supports & Coaching	Improved computer science instruction	Increased engagement in computer science
Coding Curriculum (Software & Equipment)	Increased student experience with coding	Improved computational thinking skills
Webinars on Computer Science Careers	Increased student knowledge of CS industry	Increased interest in computer science career

Work-Based Internships

Step 2a: New Definition of Virtual Version of Key Component

Original Key Component In-Person Model: Work-Based Internships

- Each industry mentor attends one-day training on responsibilities

- Each student assigned to trained industry mentor

- Student goes to industry site & shadows mentor 2 afternoons per month

- Program organizes career fair

- Each student-mentor pair co-presents about internship experience

Revised Key Component in Virtual Model: Webinars on STEM Career Opportunities

- Series of 5 webinars, each led by a representative in a different STEM industry

- Student attends 4 of 5 webinars

- Student actively participates in at least 3 webinars (active participation = types in at least 1 question/comment)

Step 2b. Modify Fidelity Measure to Align with Revised Logic Model Where **A Key Component Drops Out in Virtual Model**

Key Components	Mediators	Student Outcomes
Teacher Supports & Coaching	Improved computer science instruction	Increased engagement in computer science
Coding Curriculum (Software & Equipment)	Increased student experience with coding	Improved computational thinking skills
Work-Based Internships	Increased student knowledge of CS industry	Increased interest in computer science career

Dropped from fidelity

Step 2c. Modify Fidelity Measure to Align with Revised Logic Model Where **A Key Component Changes Definition in Virtual Model**

Key Components

Teacher Supports & Coaching (Virtual)
- Online training sessions
- Grade level video meetings
- Coach feedback form (observation of online teaching)

Coding Curriculum
(Software & Equipment)

Mediators

Improved computer science instruction

Increased student experience with coding

Student Outcomes

Increased engagement in computer science

Improved computational thinking skills

Increased interest in computer science career

Step 2c. Fidelity Measure Modified to Reflect Changes in How the Same Key Component is Implemented in Virtual Model

In-Person Training & Coaching Model

Teacher participates:

- 5-day summer institute

- 9 monthly grade-level teacher meetings

- Feedback meetings with coach on 4 observations of classroom instruction

Virtual Training & Coaching Model

Teacher participates:

- Three 4-hour online training sessions

- With video on for at least 76% of time

- 4 quarterly video grade-level teacher meetings

- Feedback from coach on 3 observations of teacher's online instruction

Step 3. Track Versions of the Program Being Implemented Across Sites and Over Time
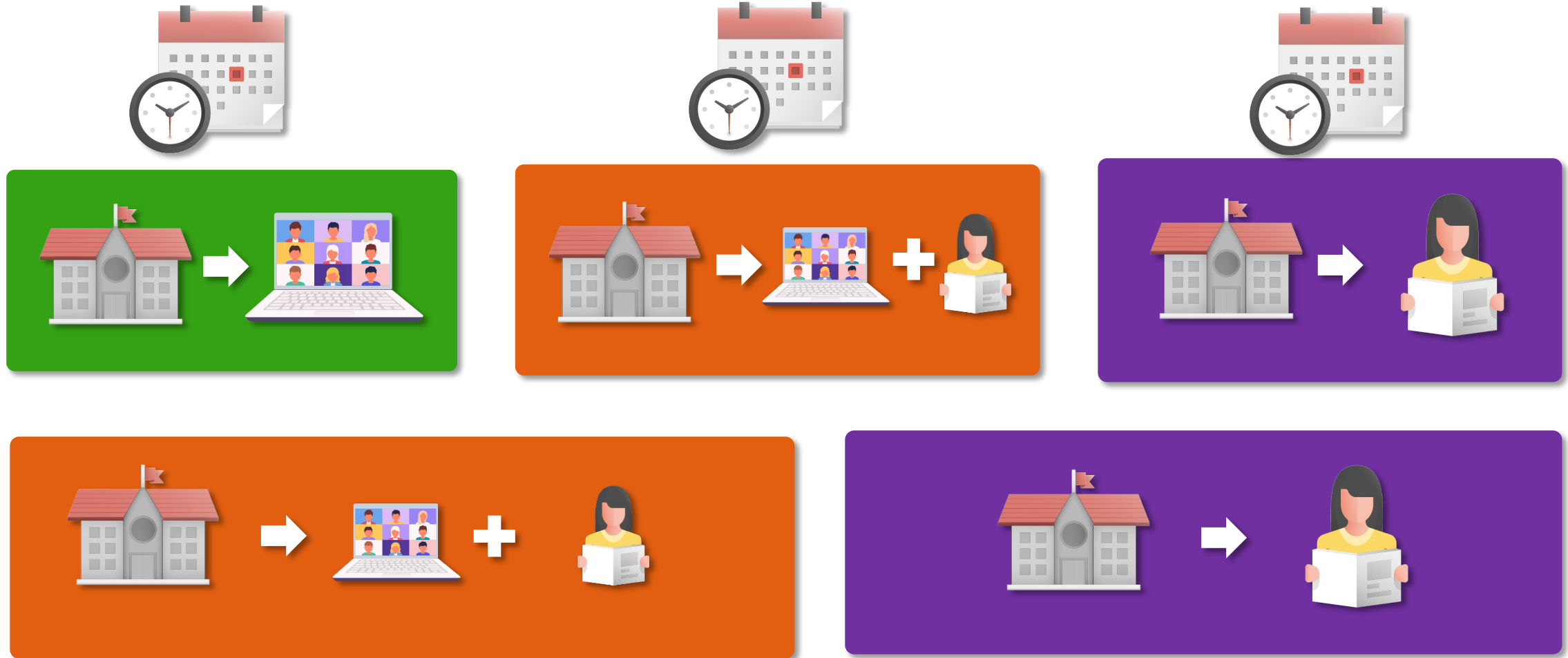
- Analysis of fidelity of implementation will need to take account of which versions of program model are being implemented, when and with whom
  - Which versions: Virtual, blended, in-person
  - Same or different versions in different schools
  - Same or different versions in each school over time
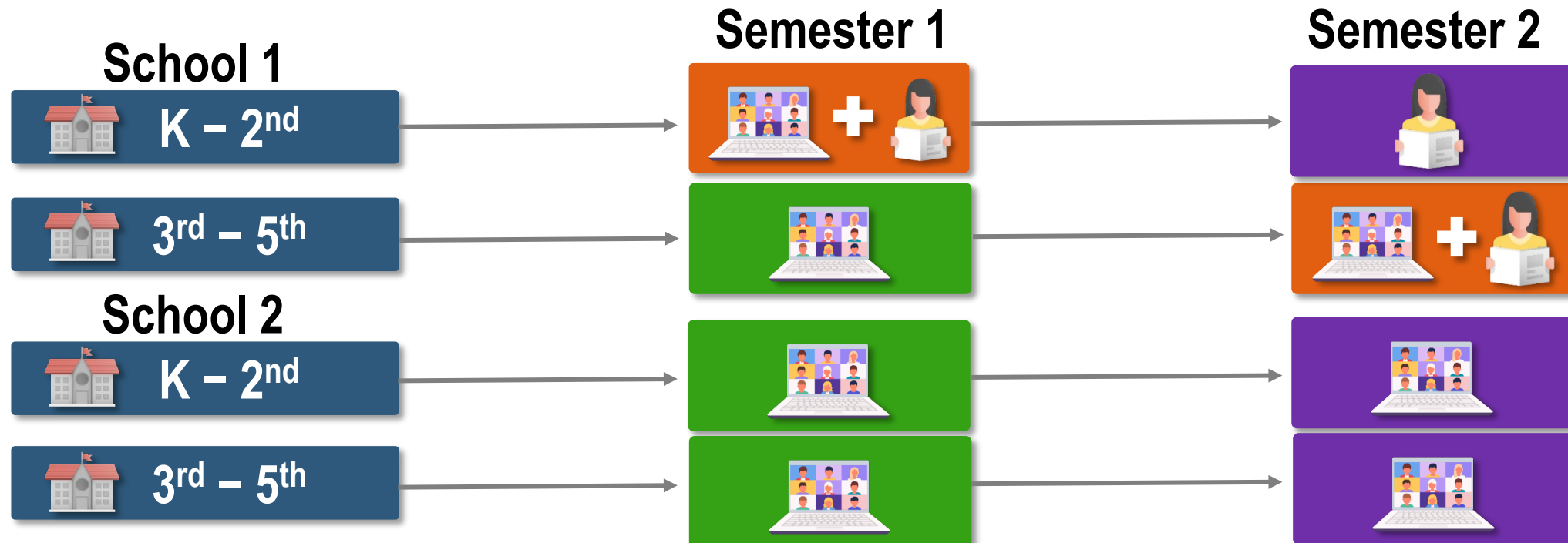
Step 4. Analysis and Reporting Fidelity of Implementation for Teacher Supports and Coaching Key Component

Virtual Delivery

- **Fidelity not met**
- 50% of teachers participated in:
  - 3 online training sessions
  - 4 video grade-level meetings
  - 3 online coaching sessions

In-Person Delivery

- **Fidelity met**
- 85% of teachers participated in:
  - 5-day summer institute
  - 9 monthly grade-level meetings
  - 4 in-person coaching sessions

Overall (Full Sample)

- **Fidelity not met**
- 77% of teachers met participation thresholds for training & coaching
- Fidelity threshold = 80% of teachers

Reporting on Fidelity Measured for Different Versions of the Program Model: What Story Are You Telling?

EIR Project Final Report
Fidelity of Implementation: Across Delivery Modes

EIR Project Final Report
Fidelity of Implementation: Differences for In-Person Versus Virtual Delivery
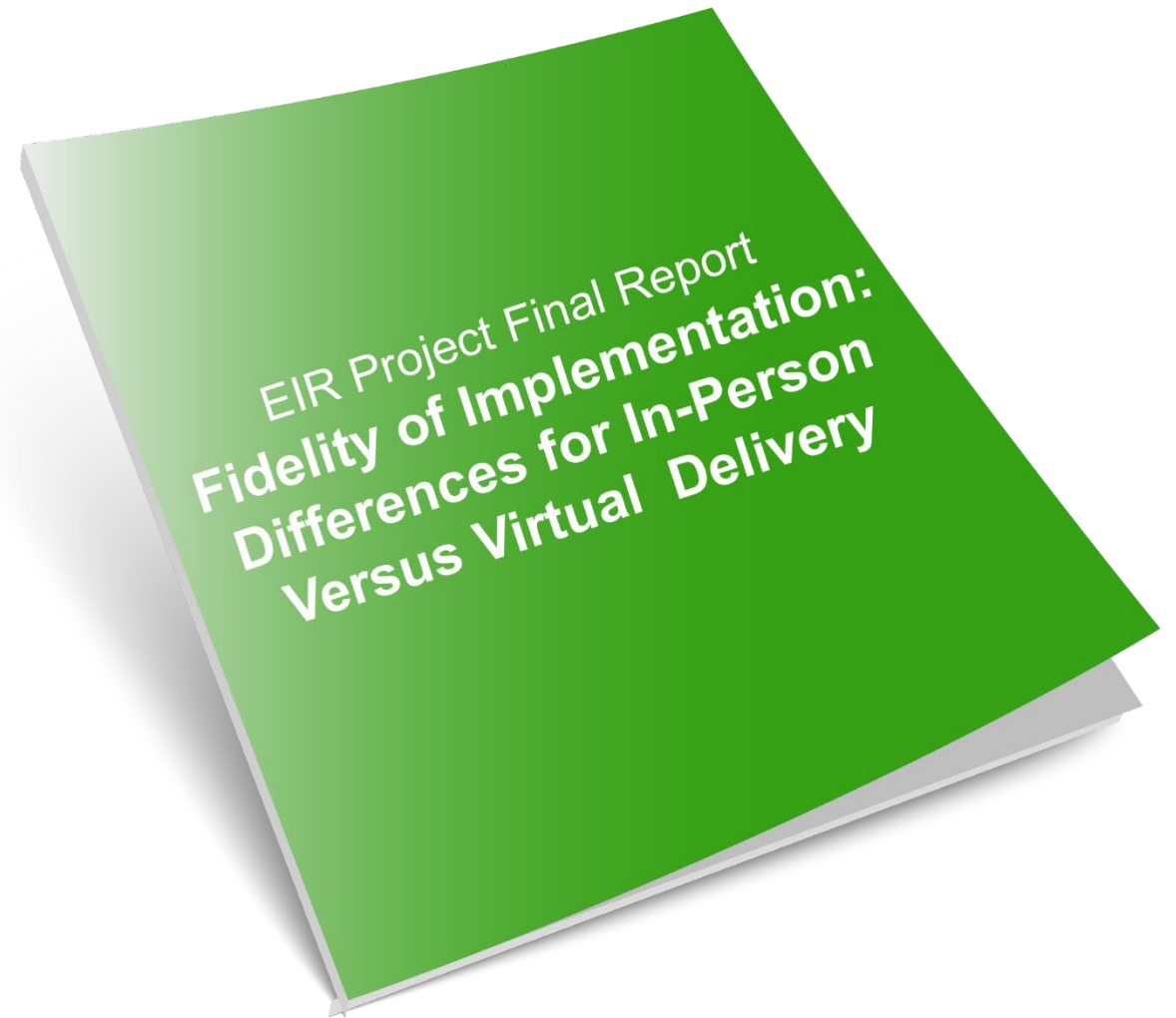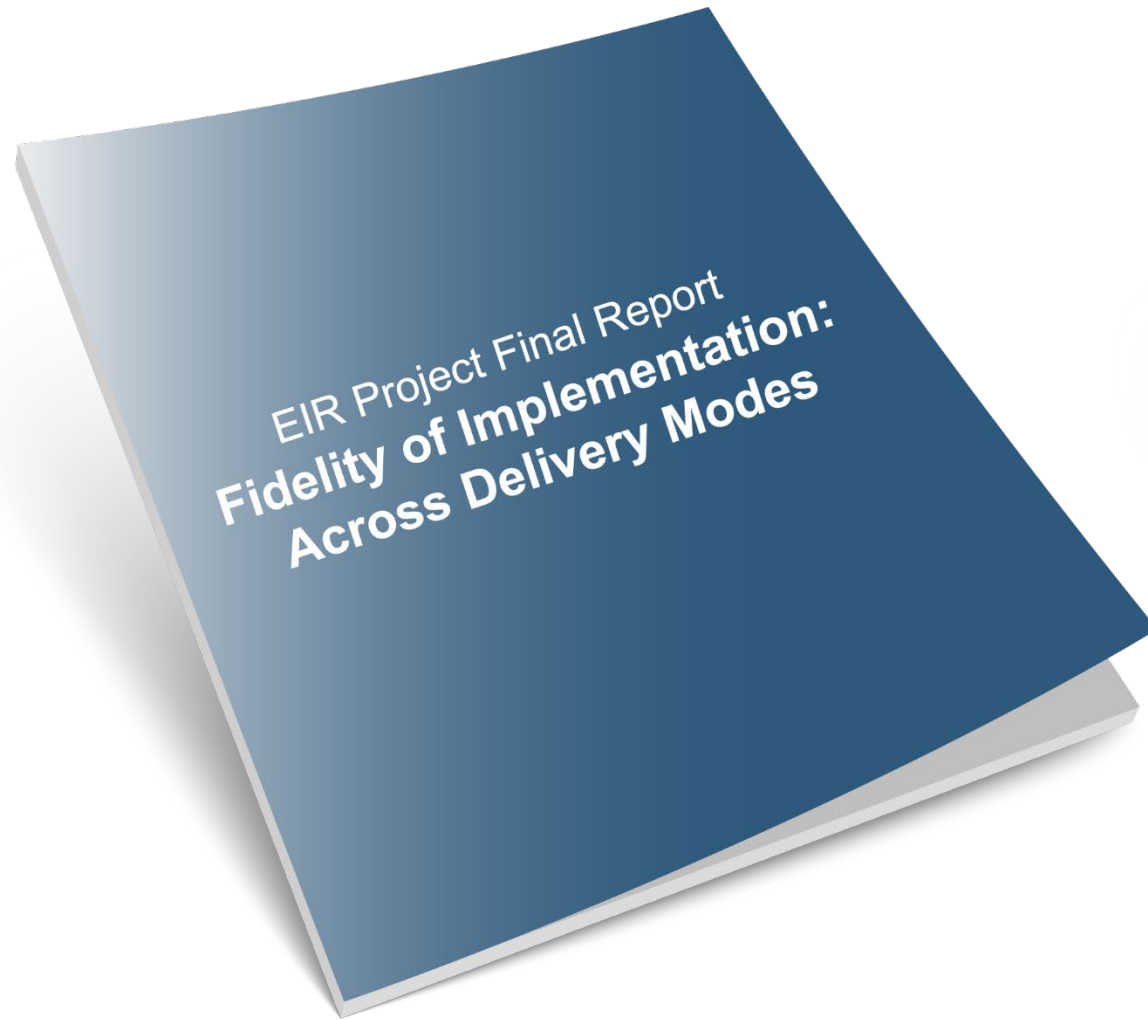
The EIR Balancing Act

Innovative program model

High quality implementation evaluation

Serving high needs students

Supporting needs of teachers & schools

Rigorous Impact Evaluation
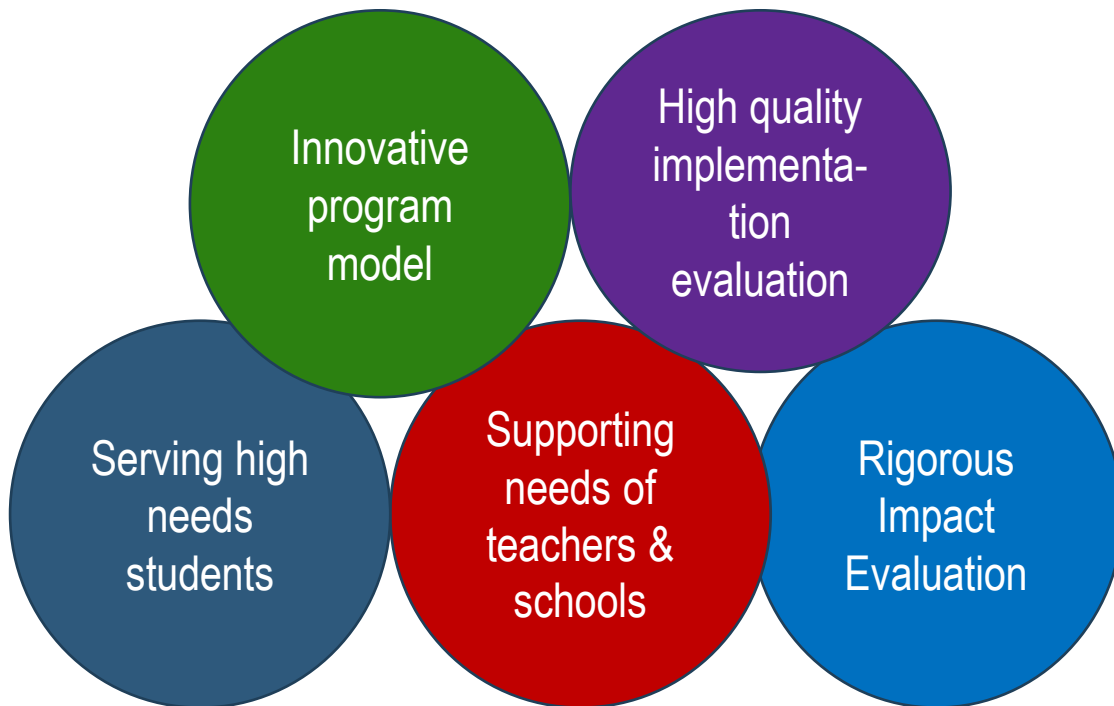
Opportunities for Learning in the Midst of Change and Uncertainty

Opportunities to understand learning and instruction in a virtual environment vs in-person

Opportunities to learn where virtual delivery of intervention components can add value

Opportunities to learn how online instruction can be enhanced with individual and small group interactions