



Implementation Science: Building the Bridge Between Science and Practice

Institute of
Education Sciences

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UNC

FPG CHILD DEVELOPMENT INSTITUTE

Implementation Science

**“In theory there is no difference
between theory and practice;
in practice, there is.”**

*variously attributed to
Jan La Van De Snepscheut
or Albert Einstein
or Yogi Berra*

The Challenge

🚩 Science to Service Gap

🚩 What is known is not what is adopted to help children, families, and individuals

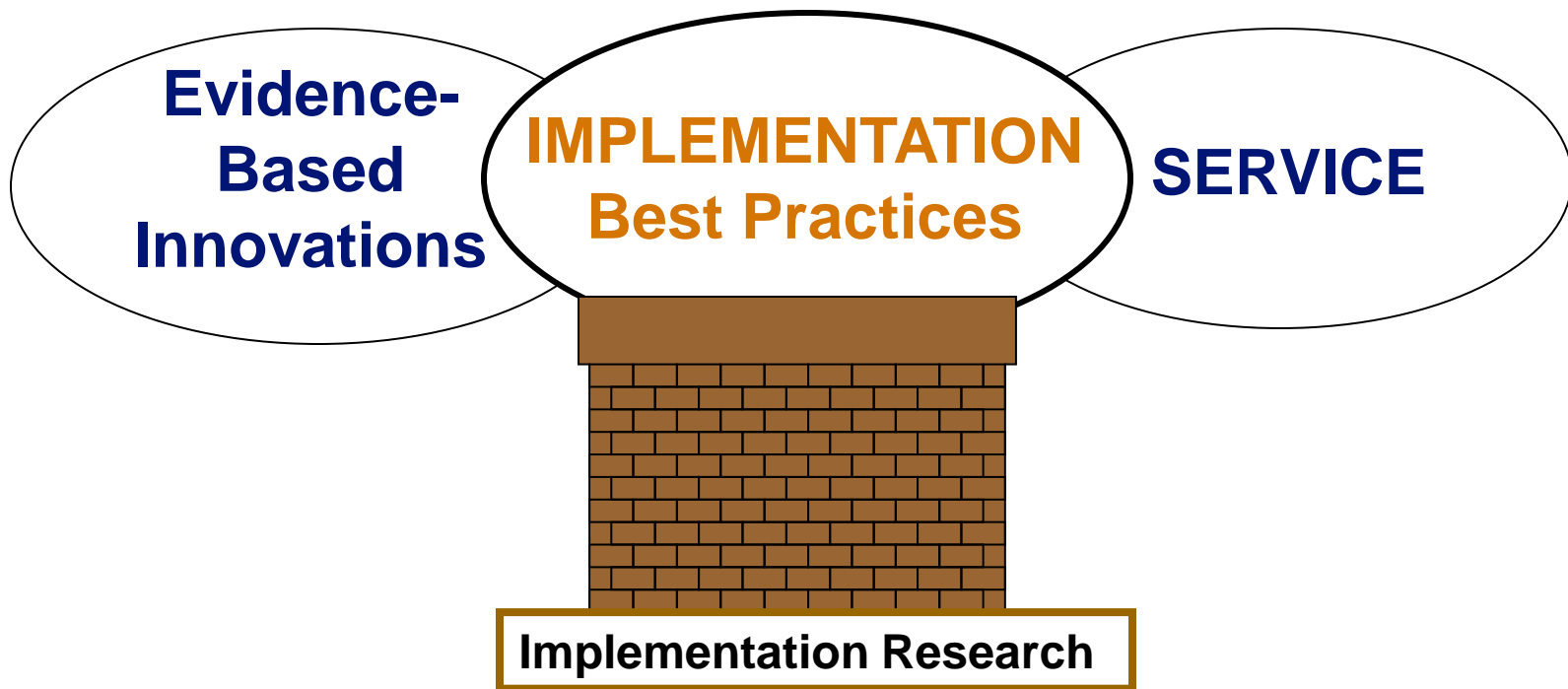
🚩 Implementation Gap

🚩 What is adopted is not used with fidelity and good outcomes for consumers.

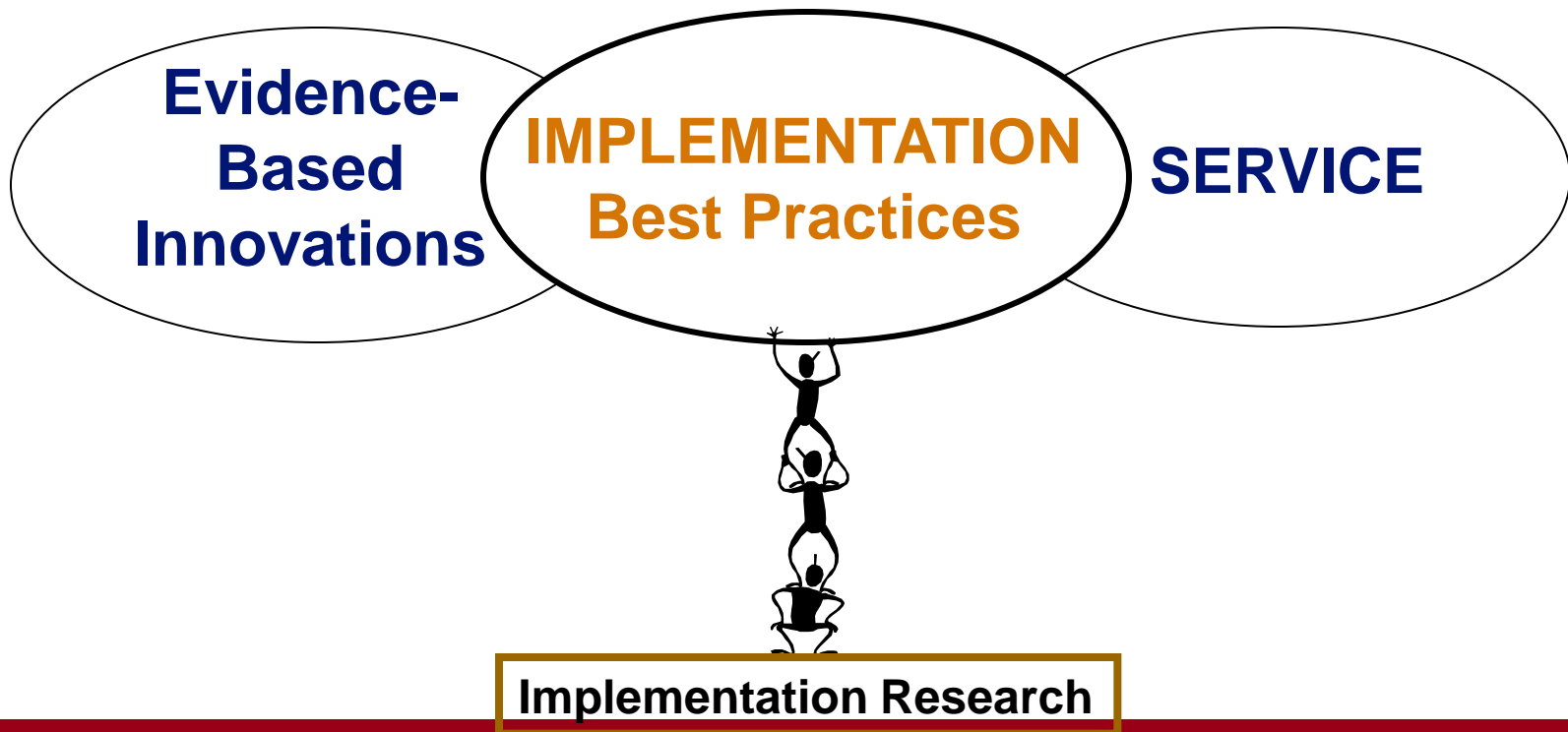
🚩 What is used with fidelity is not sustained for a useful period of time.

🚩 What is used with fidelity is not used on a scale sufficient to impact social problems.


Science “to” Service



Science “to” Service




Implementation Research

 Implementation research is the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care.

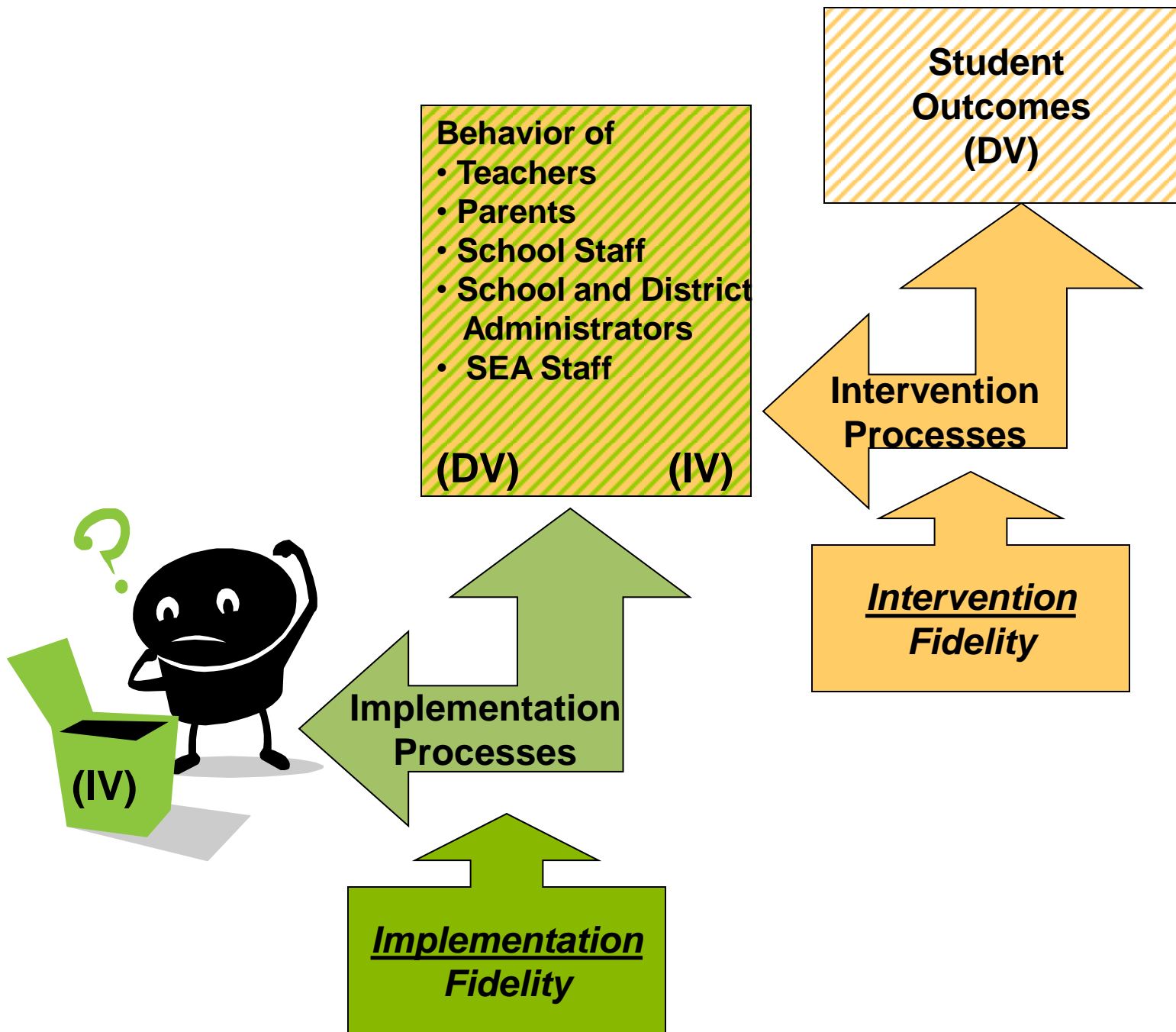
....the study of influences on healthcare professional and organisational behaviour

~Eccles and Mittman, 2006

Implementation Science

 **Implementation science** is the scientific study of variables and conditions that impact changes at practice, organization, and systems levels; changes that are required to promote the systematic uptake, sustainability and effective use of evidence-based programs and practices in typical service and social settings.

~Blase and Fixsen, 2010
National Implementation Research Network



Implementation Science

Implementation Research: A Synthesis of the Literature







Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M. & Wallace, F. (2005). *Implementation Research: A Synthesis of the Literature*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231).

Download all or part of the monograph at:

<http://www.fpg.unc.edu/~nirn/resources/detail.cfm?resourceID=31>







Effective Implementation



- 
Changing the behavior of educators and administrators
- 
Creating the setting conditions to facilitate these changes
- 
Creating the processes to maintain and improve these changes in both setting conditions and behavior of well-intentioned adults
- 
So that students benefit





HOW: Effective Implementation



- 
Practice, program and systems change through...
- 
Multi-dimensional, fully integrated use of implementation frameworks:
 - 
Implementation Drivers
 - 
Implementation Stages
 - 
Implementation Teams
 - 
Improvement Cycles

HOW: Effective Implementation



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Implementation Drivers



 **Common features of successful supports to help make full and effective uses of a wide variety of innovations**

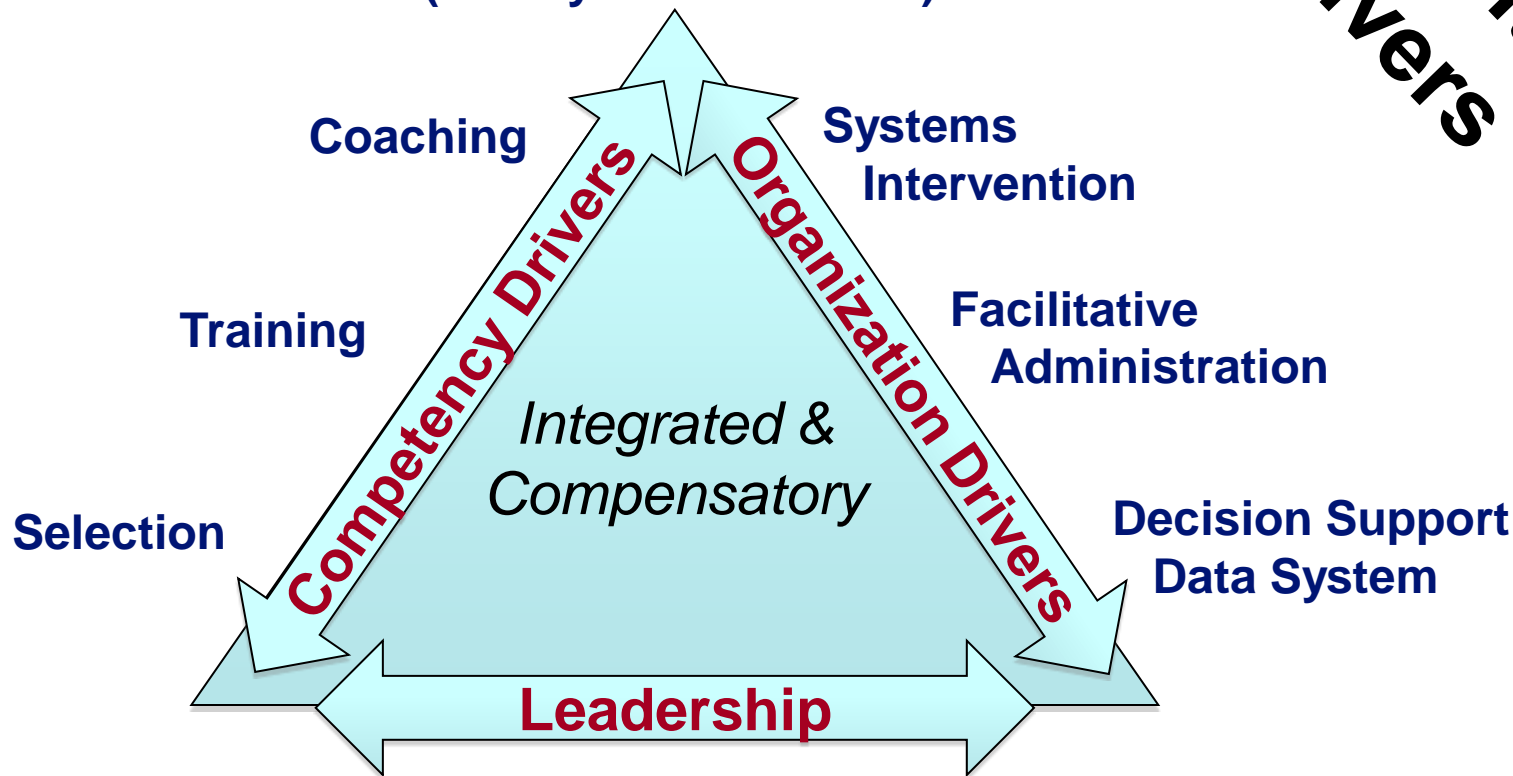
-  **Staff Competency**
-  **Organizational Supports**
-  **Leadership**



Improved outcomes for Students

↑
Performance Assessment
(fidelity measurement)

Implementation
Drivers





**Improved outcomes
for Students**



**Performance Assessment
(fidelity measurement)**

Coaching

Training

Selection

Competency Drivers

Implementation Lens



**Implementation
Drivers**

Organizational Change

"All organizations [and systems] are designed, intentionally or unwittingly, to achieve precisely the results they get."

**R. Spencer Darling
Business Expert**

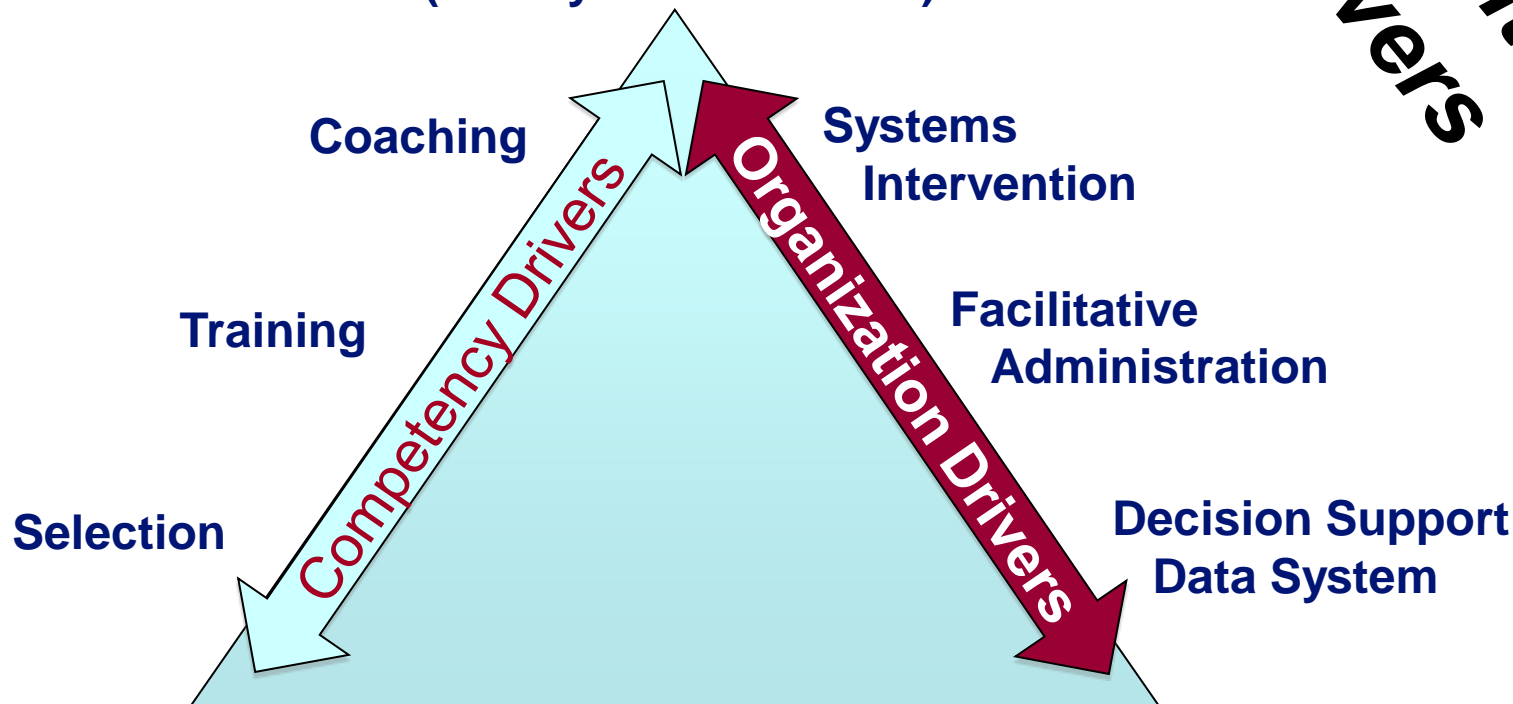


Improved outcomes for Students



Performance Assessment
(fidelity measurement)

Implementation
Drivers



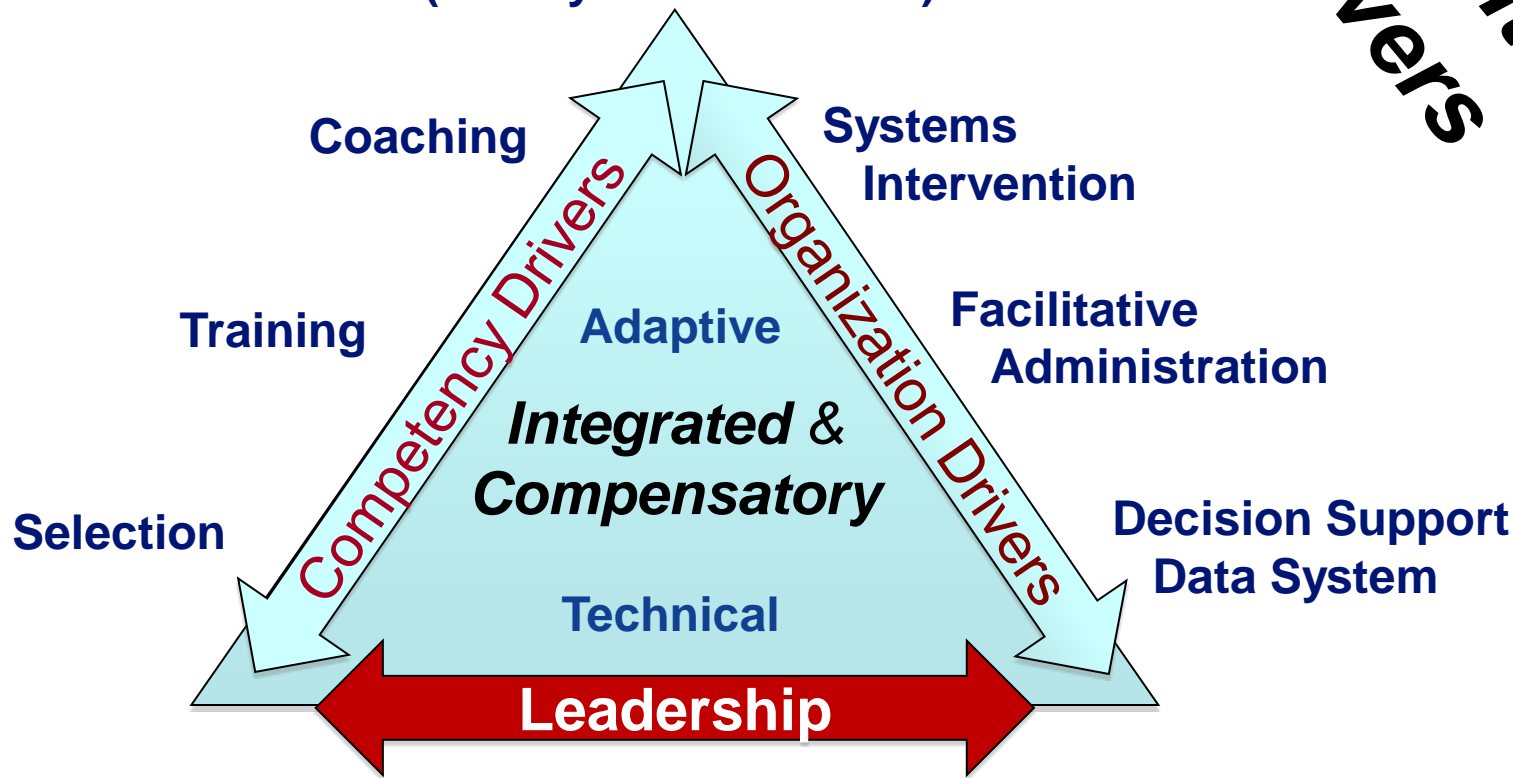


Improved outcomes for Students





Performance Assessment
(fidelity measurement)

Implementation
Drivers



HOW: Effective Implementation



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Implementation Takes Time

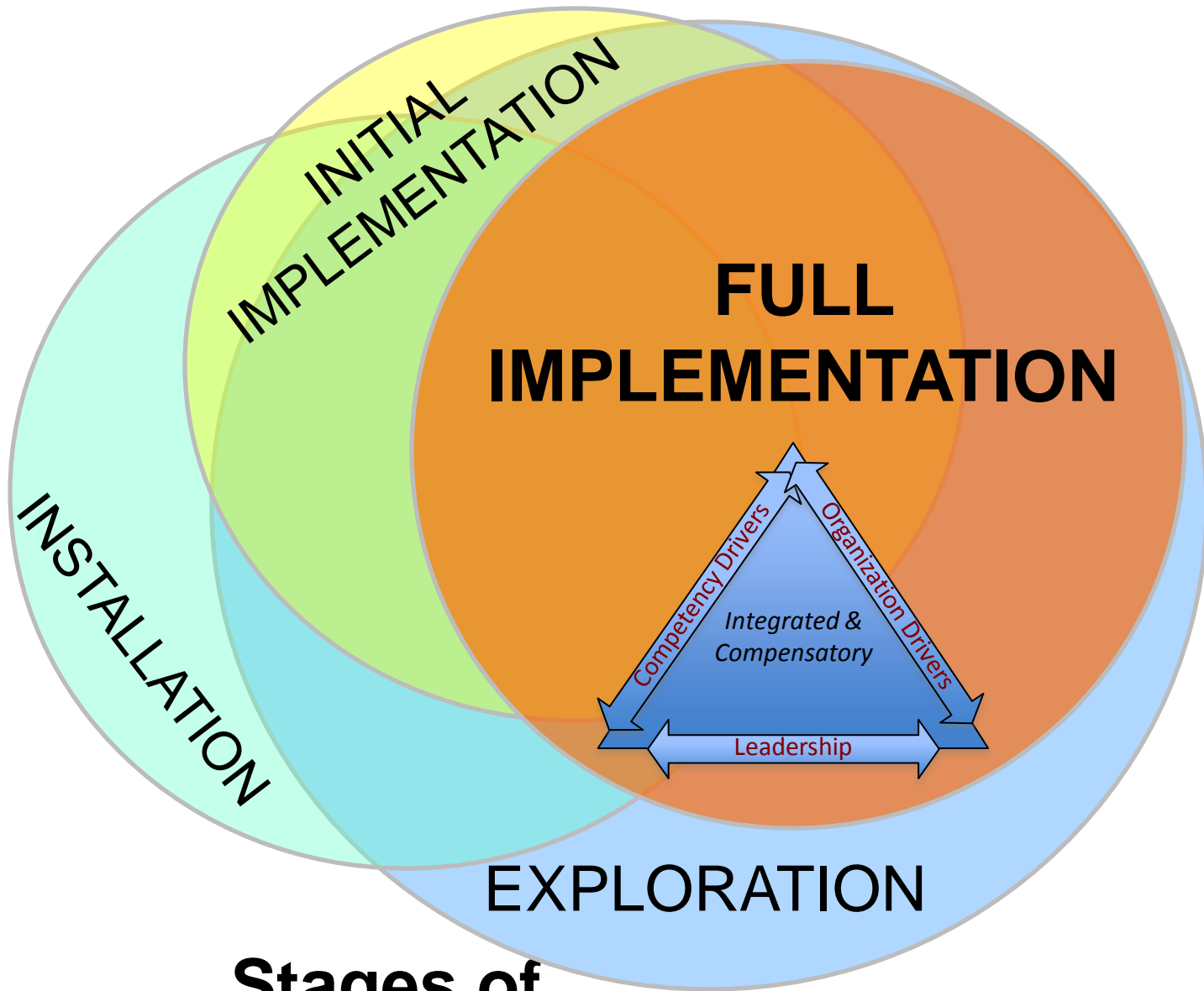


Major Implementation Initiatives occur in stages:

- Exploration (Sustainability)
- Installation (Sustainability)
- Initial Implementation (Sustainability)
- Full Implementation (Sustainability & Effectiveness)

2 - 4
Years







Fixsen, Naoom, Blase, Friedman, & Wallace, 2005




2 - 4
Years

Stages of Implementation



- 
Practice, program and systems change through...
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Multi-dimensional, fully integrated use of implementation frameworks:
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 Improvement Cycles

Implementation Team

 **Who is accountable for assuring that the Independent Variables are fully in place?**

Capacity Building

Letting it happen

 Recipients are accountable

Helping it happen

 Recipients are accountable

Making it happen

 Purposeful use of implementation practices and science

 Implementation teams are accountable

Based on Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004

Capacity Building

 Letting it happen

 Recipients are accountable

 Helping it happen

 Recipients are accountable

 **Making it happen**

 **Implementation Teams are accountable: THEY DO THE WORK (Heart of Scaling)**

Based on Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004

Implementation Science

IMPLEMENTATION

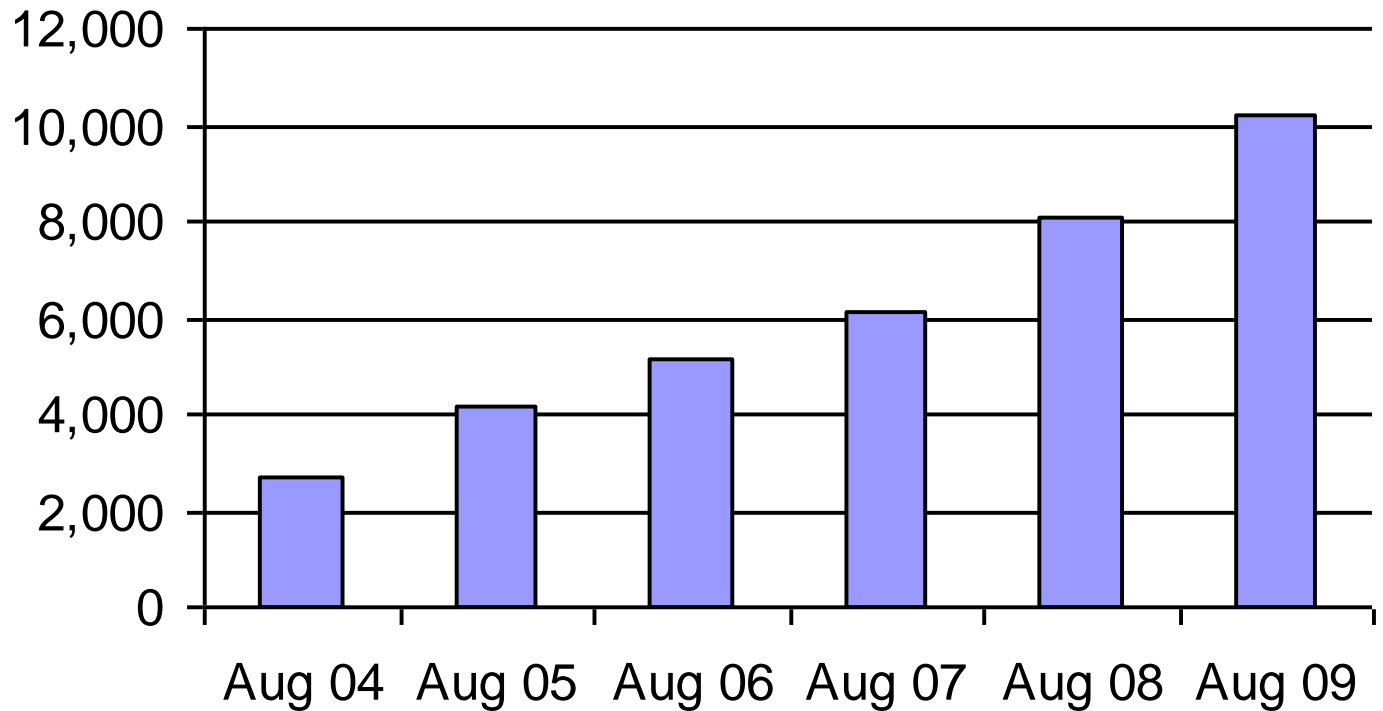
		IMPLEMENTATION	
		Impl. Team	NO Impl. Team
INTERVENTION	Effective	80%, 3 Yrs	14%, 17 Yrs
		Effective use of Implementation Science & Practice	Letting it Happen Helping it Happen

Fixsen, Blase,
Timbers, & Wolf, 2001

Balas & Boren, 2000

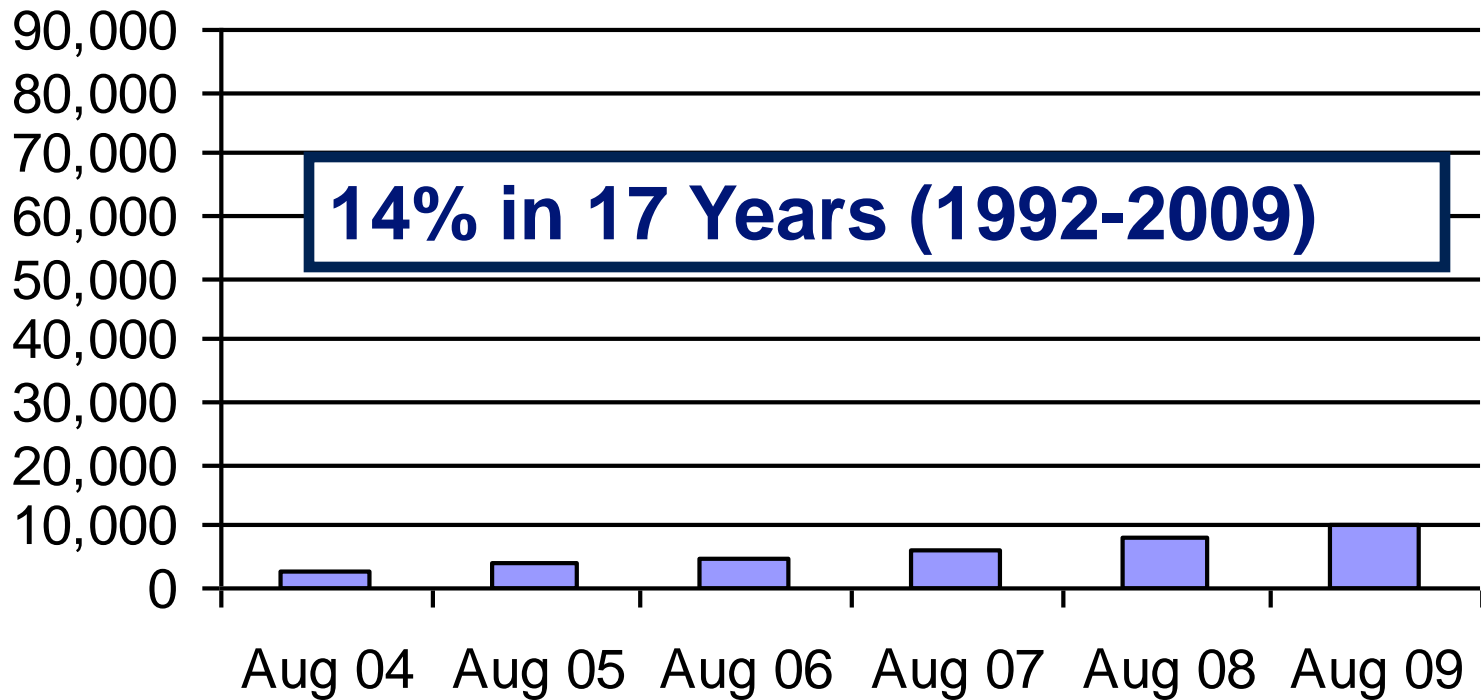
School Wide PBS

SWPBS # of Schools



School Wide PBS

SWPBS % of Schools





Organized, Implementation Support

Simultaneous, Multi-Level Interventions

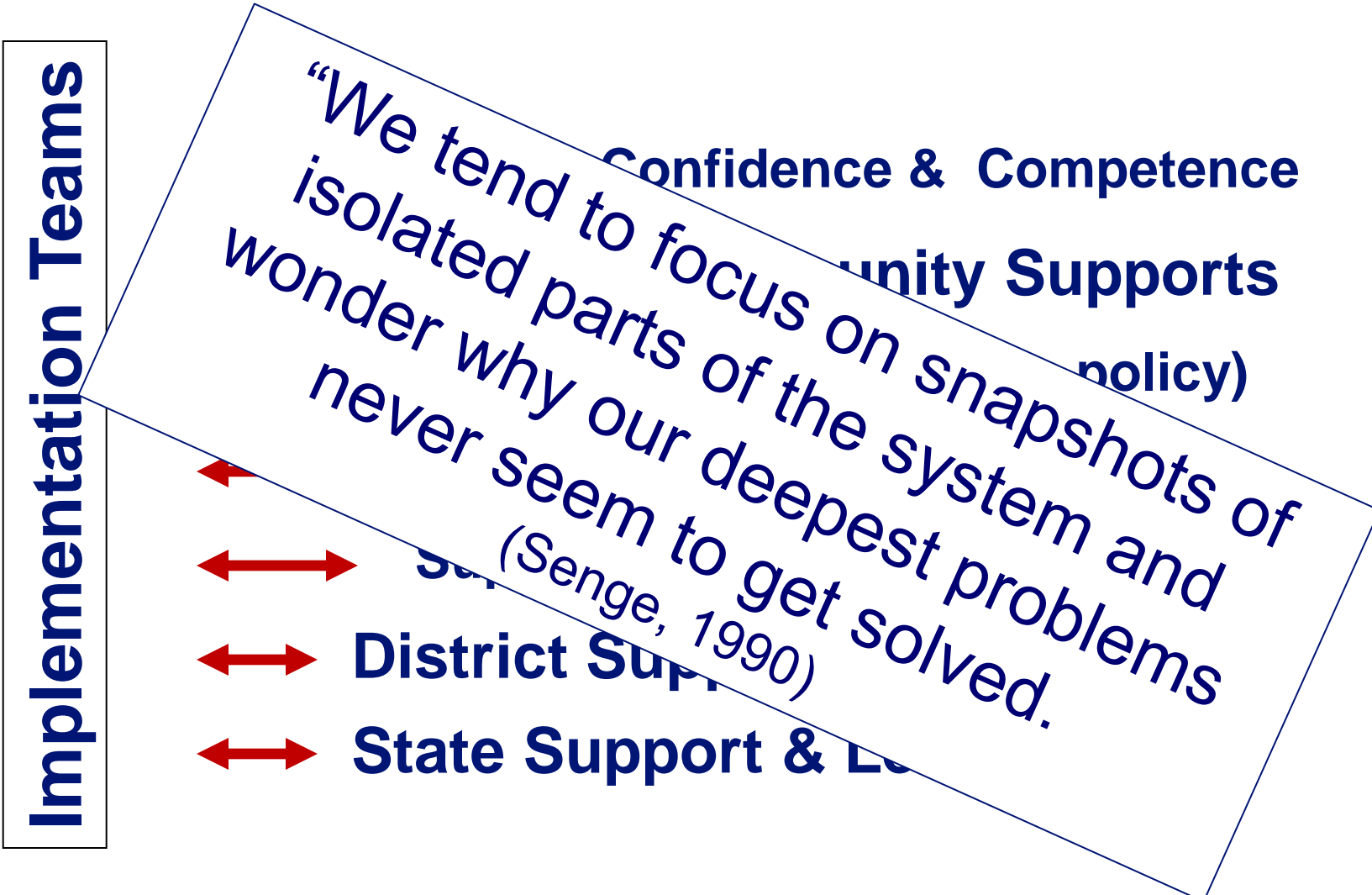
Implementation Teams

- ↔ Educator Confidence & Competence
- ↔ School & Community Supports
- ↔ Management (leadership, policy)
- ↔ Administration (HR, structure)
- ↔ Supervision (nature, content)
- ↔ District Supports
- ↔ State Support & Leadership



Organized, Implementation Support

Simultaneous, Multi-Level Interventions



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Improvement Cycles

PDSA Cycles: Trial & Learning

Shewhart (1924); Deming & Juran (1948); Six-Sigma (1990)

➤ Plan – Decide what to do

➤ Do – Do it (be sure)

➤ Study – Look at the results

➤ Act – Make adjustments

➤ Cycle – Do over and over again until the intended benefits are realized

Learning Organizations

Trial and Learning:

Rapid Cycle Teams

 Problem Solving

 Practice Improvement

Usability Testing

Transformation Zones

Policy – Practice – Policy Feedback Loops

Learning Organizations

Trial and Learning:

Rapid Cycle Teams

 Problem Solving

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Policy – Practice – Policy Feedback Loops

Practice-Policy Feedback Loops

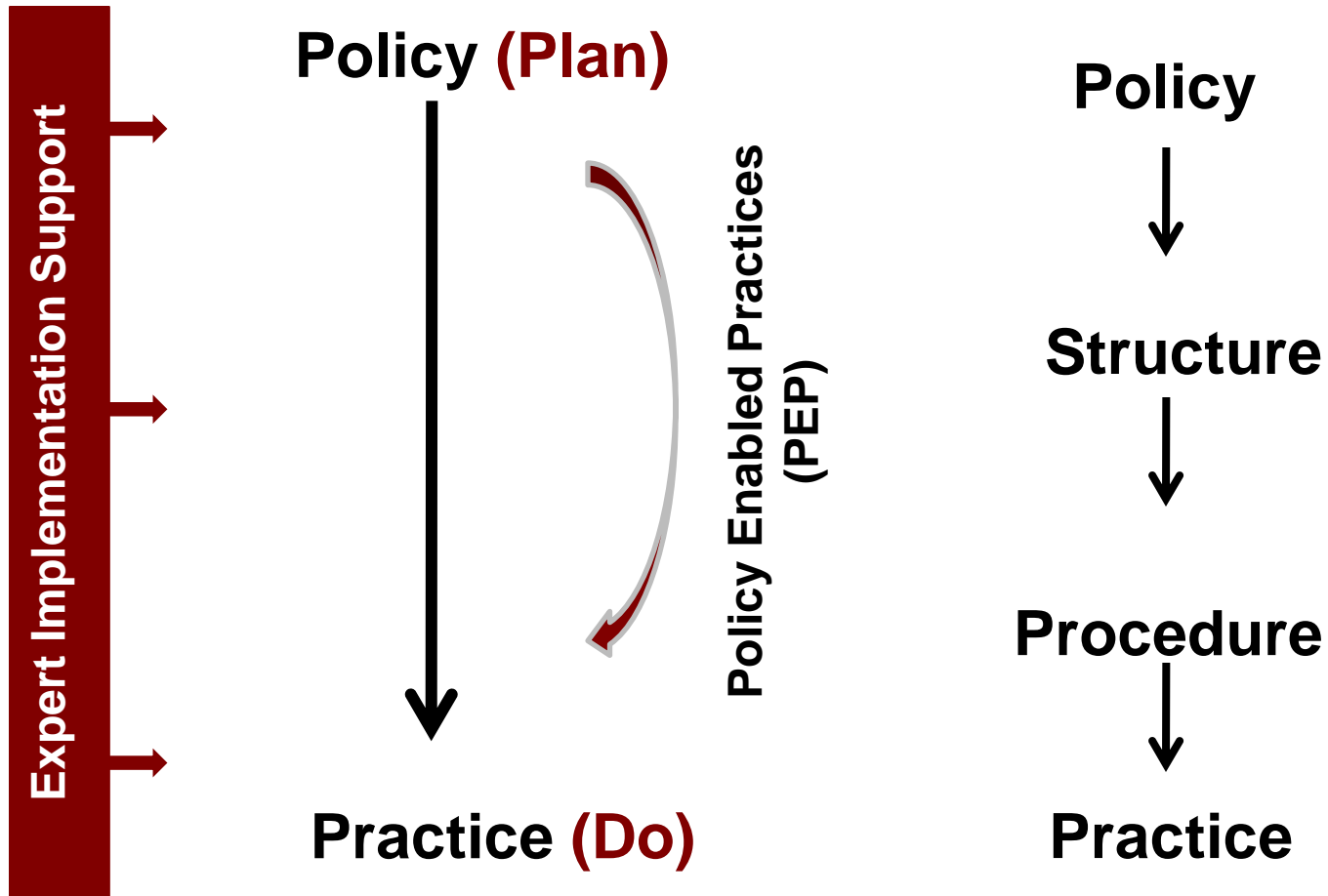
PEP-PIP Cycle

- **Policy enabled practice (PEP)**
- **Practice informed policy (PIP)**

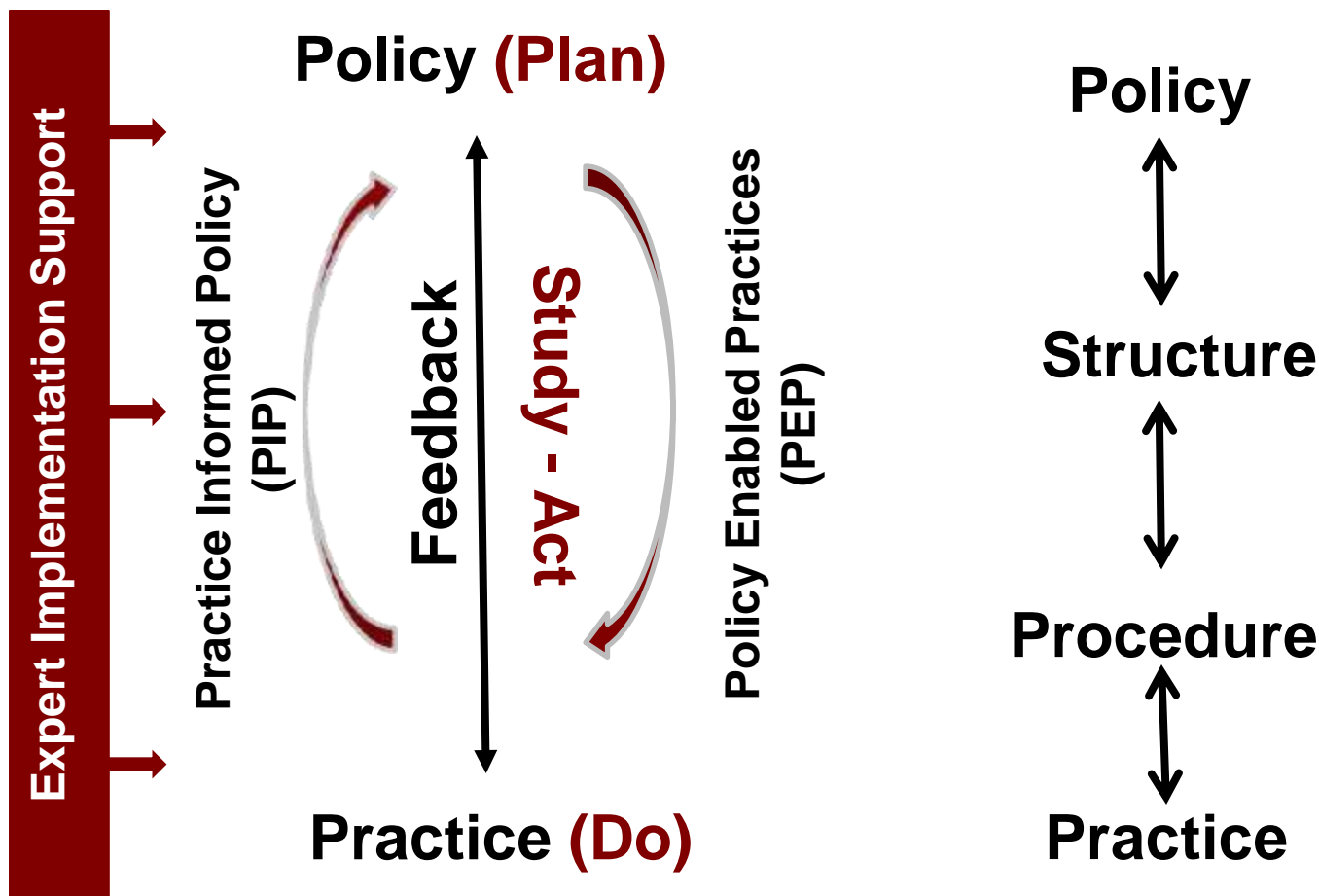
The PDSA cycle in slow motion

- **Monthly instead of hourly, daily cycles**

Policy Practice

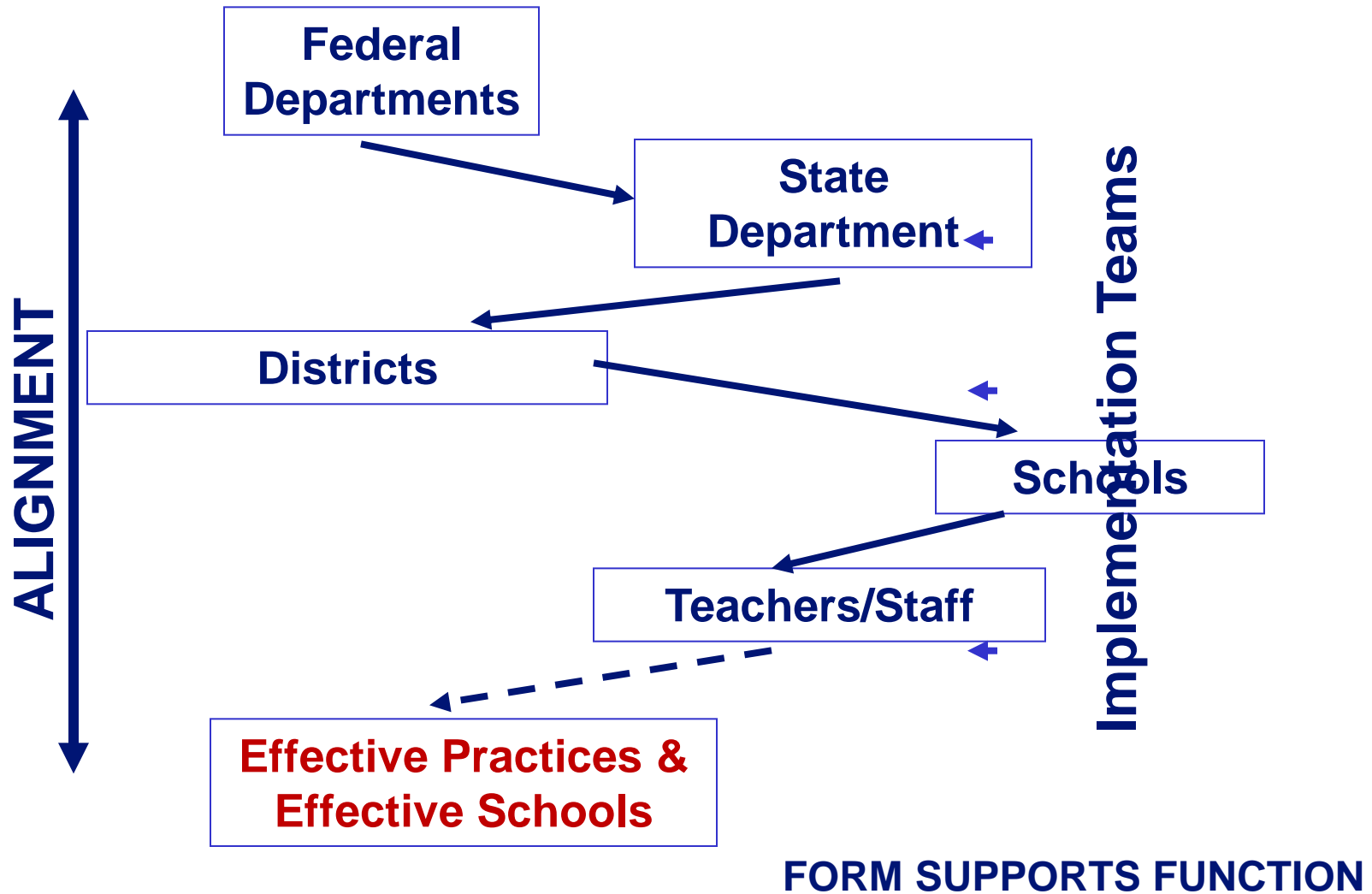


Policy ↔ Practice Feedback Loops



FORM SUPPORTS FUNCTION

System Alignment



For Discussion

Think about the implications for the 5 IES Goal Areas.

- How is implementation research currently incorporated?**
 - Are there measures of independent variables?**
 - Might “implementability” become as important as evaluability?**
- Is there merit in IES more strongly infusing implementation research agendas into each goal area?**
- Is there an opportunity for a conversation about a new goal area related to implementation science?**

Eight Hypotheses about Implementation

**The conditions, challenges, issues that
impact the development and value of
Implementation Research**

Hypothesis 1

Science will not impact educational settings by doing more or better research on interventions.

- An intervention supported by 10 rigorously conducted randomized clinical trials (RCTs) is not more readily implementable than an intervention supported by 1 rigorously conducted RCT.**
- Research on interventions helps schools, communities, Districts and states choose *what* to adopt.**
- Intervention research results do not help implement those interventions in educational settings**

Hypothesis 2

Implementation is implementation across domains and service sectors

- Agriculture**
- Business**
- Child Welfare**
- Education**
- Juvenile Justice**
- Early childhood**
- Substance Abuse Services**

The commonalities are striking.

Hypothesis 2

What is learned about implementation in one domain can be used to inform implementation practice and science in other domains.

Concerted efforts to collaborate and learn across domains promise to rapidly advance the practice and science of implementation in the next decade.



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Across Domains...

Best Data Show These Methods, When Used Alone, Do Not Result In Uses of Innovations As Intended:

-  **Diffusion/ Dissemination of information**
-  **Training**
-  **Passing laws/ mandates/ regulations**
-  **Providing funding/ incentives**
-  **Organization change/ reorganization**

...Leading to Hypothesis 3

Implementation research findings will become more socially significant as implementation practices improve.

Implementation researchers can only study what is being done in practice. Thus, if we are engaged in poor implementation practices, we will study poor implementation practices.

We need to ‘build better laboratories’ to study implementation, organization, and systems change ~ create more hospitable environments

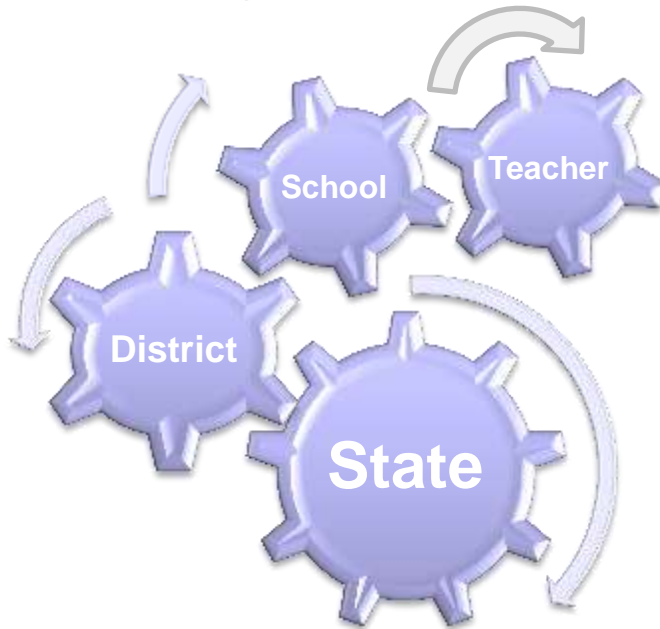
Hypothesis 4

Better Laboratories consist of:

- ❑ Administrators and educators that have access to and make use of:
 - ❑ Intervention Science - the “what”
 - ❑ Implementation Science – the “how”
- ❑ Program developers of evidence-based programs who create “implementation organizations” (e.g. purveyor groups; implementation teams) to help others use their evidence-based programs
- ❑ Policy makers and funders who understand the need for and are willing and able to fund implementation infrastructure and purveyor services

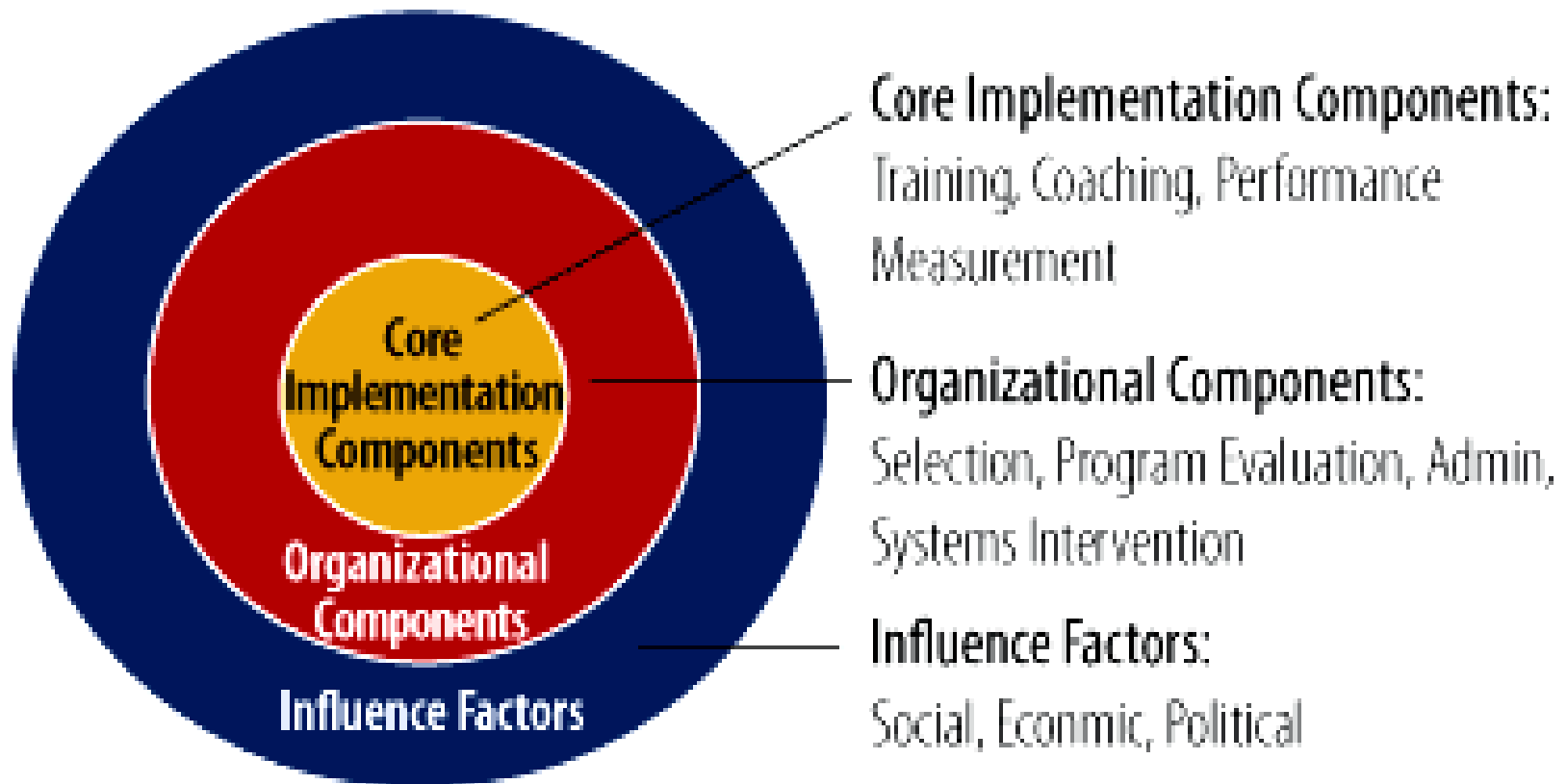
Hypothesis 5

Implementation science is multi-dimensional and requires study over time and among education, community, and system players and partners.



NIRN - Multilevel Influences on Implementation

Multilevel Influences on Successful Implementation



Hypotheses About The Proposed Relationships among External Influence Factors, Organizational and Core Implementation Components and Fidelity and Sustainability Outcomes

External Influence Factors	Organizational Components	Core Implementation Components	Possible Fidelity Outcomes	Possible Sustainability Outcomes
Enabling	Strong	Strong	-> High	Long Term
Enabling	Strong	Weak	-> Low/Medium	Medium Term
Enabling	Weak	Strong	-> High	Medium Term
Enabling	Weak	Weak	-> Low	Short Term
Hindering	Strong	Strong	-> High	Medium Term
Hindering	Strong	Weak	-> Low	Medium Term
Hindering	Weak	Strong	-> Low/Medium	Short Term
Hindering	Weak	Weak	-> Low	Short Term

Hypothesis 6

Students cannot benefit from instructional practices and interventions that they do not experience.

...National Implementation Research Network

Effective Interventions Need Effective Implementation

Longitudinal Studies of a Variety of Comprehensive School Reforms

Effective Interventions

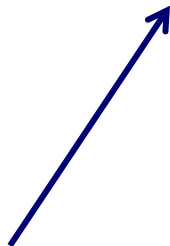
Actual Supports Years 1-3

Outcomes Years 4-5

Every Teacher Trained



Every Teacher Continually Supported



Fewer than 50% of the teachers received some training



Fewer than 25% of those teachers received support



Fewer than 10% of the schools used the CSR as intended



Vast majority of students did not benefit

		IMPLEMENTATION	
		Effective	Not Effective
PRACTICE	Effective	<i>Maximum Student Benefits</i>	
	Not Effective		

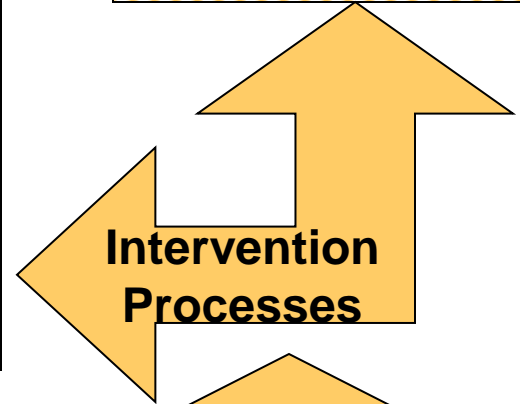
Hypothesis 7 and 8

More educational benefits will accrue if educational systems perform better in delivering existing known effective instructional practices and interventions than in producing new ones.

Increased funding for implementation research will substantially improve the likelihood of instructional practices and interventions being used effectively in educational settings.

- Behavior of:**
- Teachers
 - Parents
 - School Staff
 - School and District Administrators
 - SEA Staff

**Student
Outcomes**

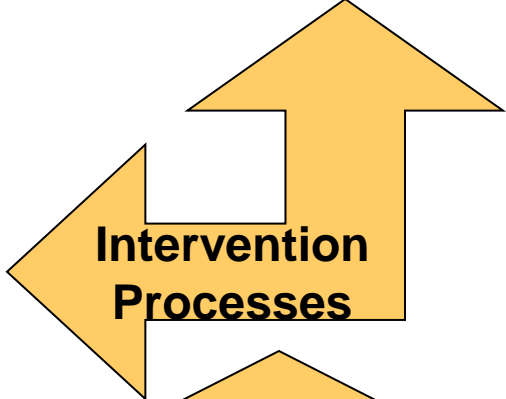


**Intervention
Fidelity**

Fidelity Matters
Higher Fidelity is correlated
with better outcomes across a
wide range of programs and practices

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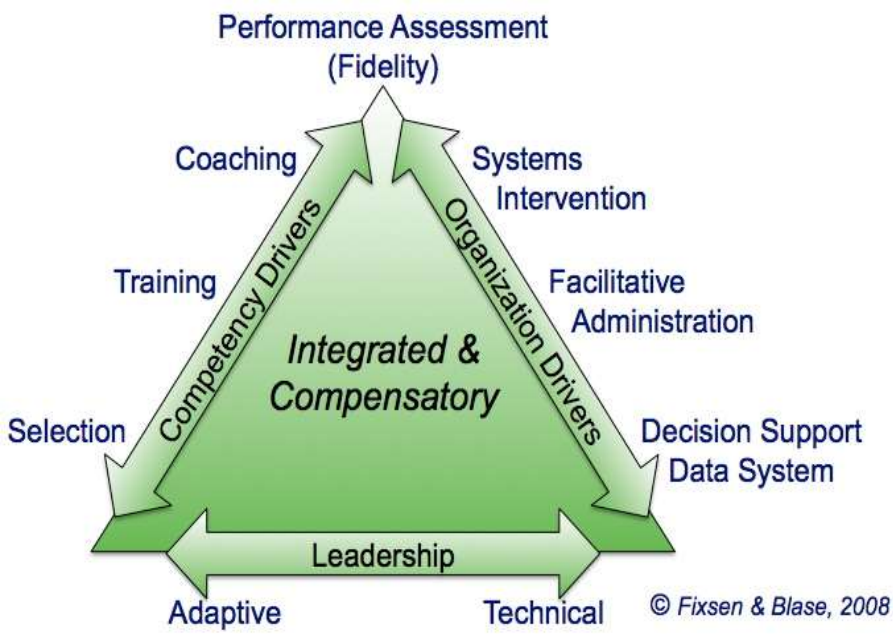
Student Outcomes



Intervention Fidelity

HOW?

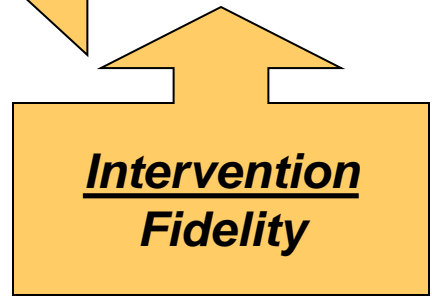
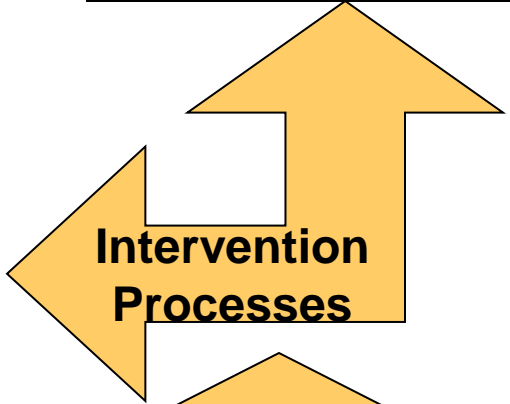
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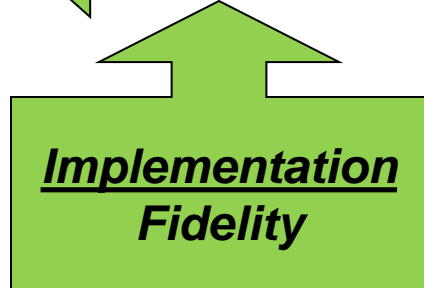
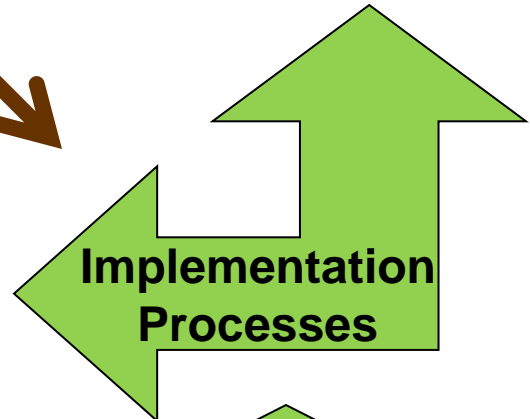
Student, Outcomes



Implementation Teams (Capacity)







Trial and Learning Feedback Loops

Exploration
Installation
Initial Implementation
Full Implementation



Summary

Implementation Science

-  Can make a difference in successfully using scientific findings about interventions in educational setting
-  Requires better 'laboratories'
-  May yield a significant ROI for society
-  Requires more financial support and attention
-  Will be methodologically challenging
-  Will benefit from cross-sector collaboration

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