

Rural Mathematics Education Landscape: A Study on Factors that Facilitate or Impede Ambitious Instruction

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Purpose

The purpose of this project is to generate a comprehensive understanding of the state of mathematics education and conditions impacting mathematics education in rural middle schools in the US. For that, we describe the set-up for the study design and share intentions of the project, along with details related to data collection.

Research Goals

We have two primary research goals, which are to study:

- (1) Understand the current landscape of mathematics curriculum and instruction in rural areas for middle grades;
- (2) Understand the factors that facilitate or impede development of the capacity for sustained enactments of rigorous mathematics teaching and learning.

Broader Impacts

Given that over 20% of US students reside in rural areas that cover 80% of the land, this study has the potential to impact a large number of students and communities in regions across the US (Schafft, 2016). Understanding how to scale up and support rigorous mathematics instruction will help rural districts enhance the STEM preparation of their students, which in turn may entice industries to locate in rural communities. This study will also identify the ways that policy at the state level impacts classroom instructional practices, which has the potential to inform and broadly impact the formation of educational policy.

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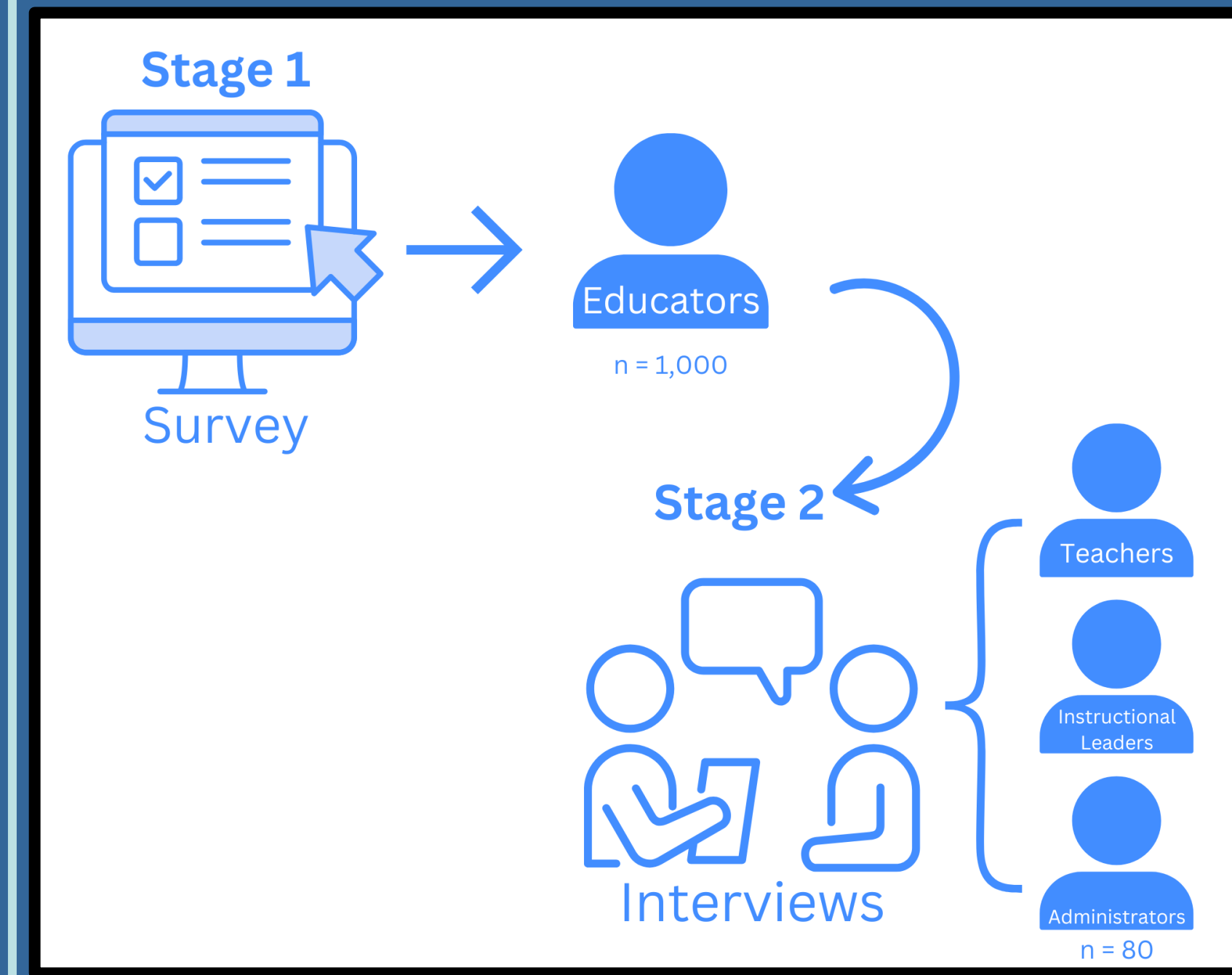
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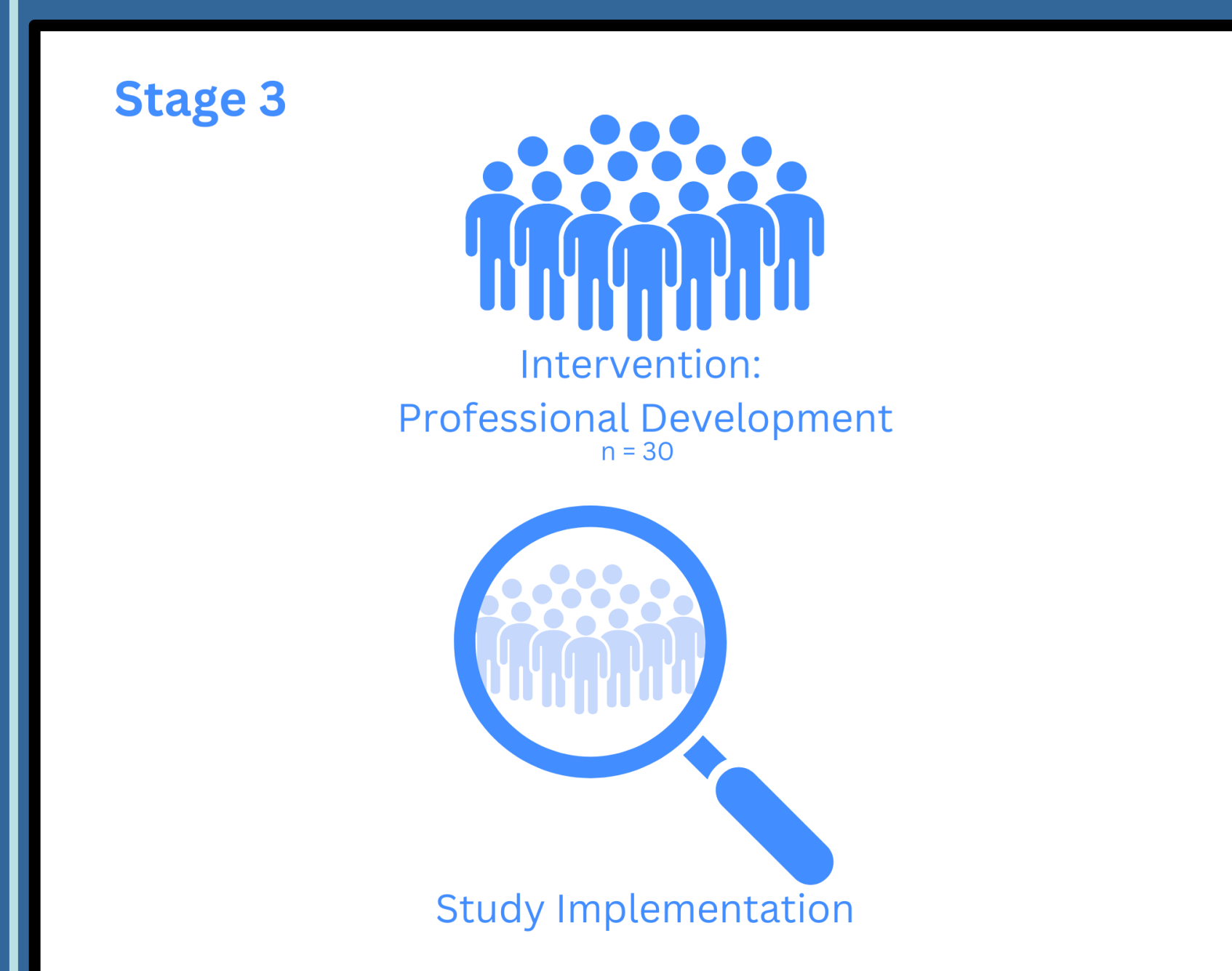
Year One

Get a representative picture of Rural Middle Grades Mathematics



Years Two & Three

Study Implementation of Rigorous Forms of Mathematics Instruction



Year Four

Engaging Policy Makers and Other Stakeholders



Research Questions

Addressing Goal 1

1. What curriculum resources and instructional practices are prevalent in middle grades mathematics education?

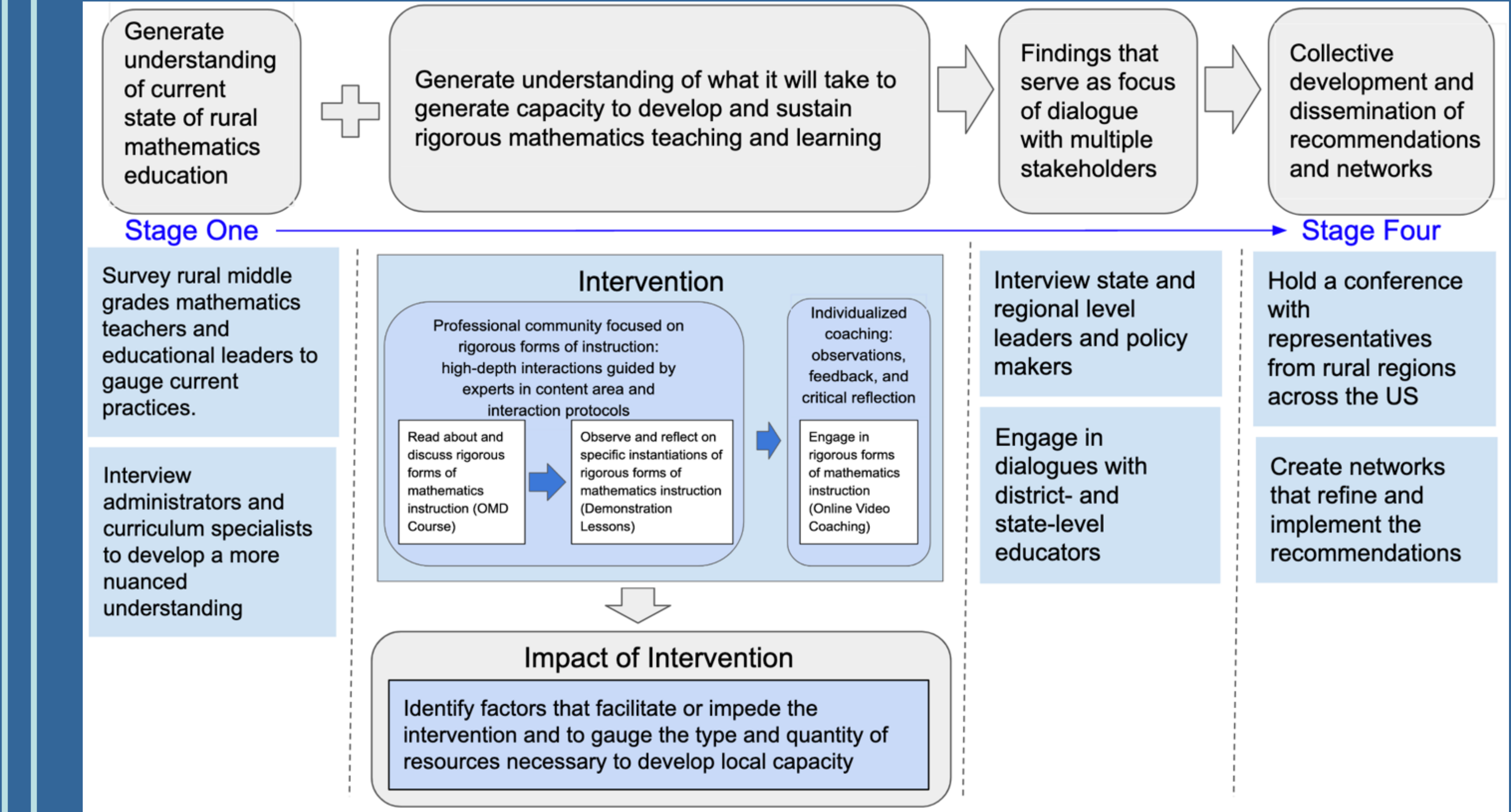
- a. We will survey of rural middle grades mathematics educators (n=1000) to develop a picture and comprehensive understanding of the forms of curriculum resources, instruction, and professional learning experiences reported to be in use in a variety of rural contexts.

Addressing Goal 2:

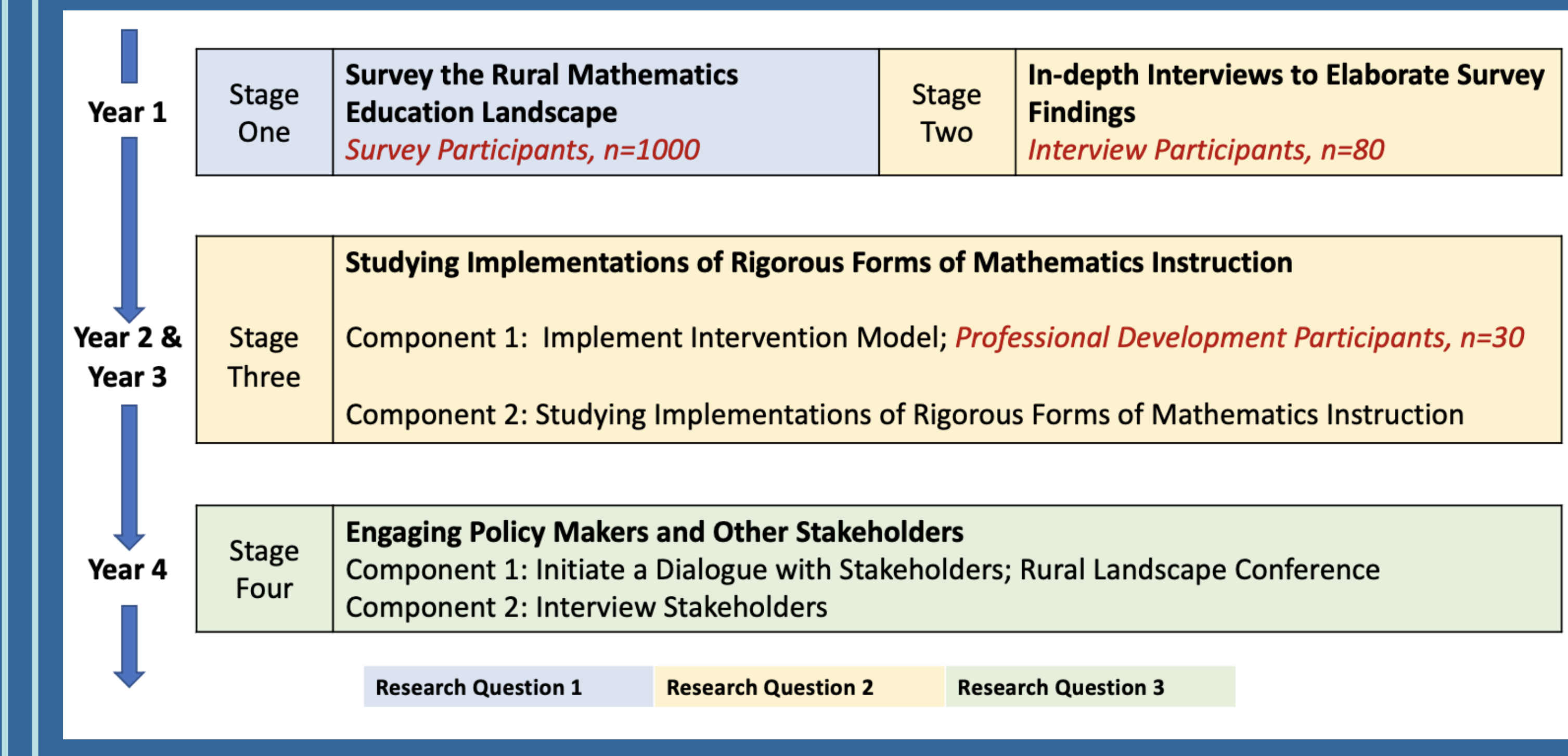
The following stipulate how we will understand the factors that facilitate or impede development of the capacity for sustained enactments of rigorous mathematics teaching and learning.

1. What factors facilitate or impede efforts to develop local capacity to implement rigorous mathematics teaching and learning in rural contexts?
 - a. We will interview teachers, instructional leaders, and administrators (n=80) in selected, diverse rural districts about their perceptions of their district's/school's current mathematics curriculum and instruction, their goals related to their mathematics programs, the resources and opportunities for improving mathematics curriculum and instruction, as well as the challenges they face.
 - b. We will use case studies of the implementation of a professional development program in roughly 10 districts, the purpose of which is to investigate factors that facilitate or impede efforts to implement rigorous forms of mathematics curriculum and instruction, and to gauge the resources that would be necessary to develop local capacity for a sustained implementation.
2. How do state and federal education policies (e.g., assessment instruments, funding priorities, mandates) impact mathematics instruction in rural landscapes?
 - a. We will establish a collective dialogue with a range of stakeholders in education policy to gain greater insights into the rural mathematics education landscape and to develop recommendations for enacting rigorous mathematics instruction at geographic scale.

Theory of Action



Project Events



Professional Development Model

