RAISE Scale-up: Implementation and Sustainability in Year 3

2015 AERA Annual Conference
April 19, 2015

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Reference for this paper:
Zacamy, J., Newman, D., Lin, L, & Jaciw, A.P. (2015). *RAISE Scale-up: Implementation and Sustainability in Year 3*. Retrievable from http://empiricaleducation.com/pdfs/RAISEp.pdf

Study Overview and Significance

This report examines the implementation and sustainability of a secondary school academic literacy initiative that is being scaled up as part of five year Investing in Innovation (i3) project. The results focus on the first cohort of schools and follows them through three years of implementation. We provide an overview of the background and goals of the scale-up study as a whole, including the literature, logic model, research questions and methods, to provide the reader with context in which these results are situated.

RAISE Evaluation

In October 2010, WestEd's Strategic Literacy Initiative (SLI) won an i3 "Validation" grant to scale up and validate the Reading Apprenticeship (RA) model in three core secondary content area classes: U.S. history, biology, and English language arts.[1] SLI's proposal stated two goals.

Goal 1: To transform academic literacy teaching and learning in high school subject areas so that students are able to achieve high standards.

Goal 2: To build LEA capacity to disseminate, support, and sustain academic literacy improvement in high school subject areas within and beyond their regions.

Goal 1 is being addressed through a longitudinal randomized control trial (RCT) conducted in approximately 40 schools in Pennsylvania and California. Goal 2, the focus of this paper, is being addressed through the Scale-up Study, a formative evaluation of the scale-up process. This five year study spans four states: Utah, Michigan, Indiana, and Pennsylvania (schools other than those participating in the RCT). During the grant period, four consecutive cohorts of teachers and schools have been invited to participate in the RAISE initiative.

The RCT and the Scale-up Study have distinct research questions and are designed around complementary theories of how Reading Apprenticeship works. The primary outcome of interest in the RCT is student achievement in disciplinary literacy. The theory of action for the RCT is focused on changing teacher practices so as to support an apprenticeship process in the classroom and thereby improve student cognitive capacities measured by achievement tests and attitude measures. The theory operates primarily at the teacher-classroom-student level. In contrast, the primary outcome for the Scale-up Study is the project's success in scaling-up and in building a self-sustaining capacity to build and maintain the improvements. For scale-up, the logic model operates at organizational levels at and above the classroom: the support structures at the teacher, school, district (LEA), and state levels. The theory sees the elements at all these levels as forming potentially positive feedback loops and indicates potential sources that block successful scale-up.

The overall goal of the Scale-up Study is to understand *how* school systems build capacity to implement and disseminate RAISE and sustain these efforts. In our review of the literature in this area, we found that unified theory of scaling-up education reforms is in its early stages, and few empirical studies have investigated this process. This is also one of the first empirical studies of a scale-up process across multiple states and contexts. Our goal is to investigate how the program becomes rooted across several different contexts under authentic conditions of implementation. From this, we can develop hypotheses to guide the scale-up process and begin to build generalizations about the conditions for successful scale-up of RAISE in various settings. The results

[1] The term "Reading Apprenticeship Improving Secondary Education" (RAISE) is used to describe the focus of this project.

of this study will add to the research knowledge and literature on educational scale-up, as well as scale-up of literacy programs. In addition, this project will inform the development and elaboration of the RAISE scale-up logic models and theory.

This report focuses on the first cohort of RAISE teachers and schools, who were introduced and trained in Reading Apprenticeship during the 2011-12 school year. Using longitudinal teacher survey data (from AY 2011-12, 2012-13, and 2013-14), we first examine trends over time of key indicators that participants are taking up RAISE activities and indicators of scale-up outcome variables. Then, we examine if changes in the indicators of participation in RAISE activities from the first year (AY 2011-12) to the third year (AY 2013-14) predict changes in scale-up outcomes over the same period of time.

SCALE-UP LITERATURE

The review of scale-up literature documents a distinction between what we call studies of scale-up *impact* and studies of scale-up *process*. While this distinction is not always clearly drawn, approaches to scale-up and studies that instantiate the approaches can usefully be categorized this way. In the more traditional approach, a scale-up study seeks to measure impacts on a larger number of participants as a program is expanded in new and different contexts (McDonald, 2006). There are accepted norms of research to measure the impact of a program through experimental studies. However, the nature of these studies can constrain the natural expansion of a program because of specific recruitment requirements, procedures to reduce contamination, and other controls put in place in order to produce an unbiased impact estimate. Scale-up studies can also, however, focus on the spread of reform-related norms, beliefs, and principles within a classroom, school, and district and the *process* of growth and expansion. From our review of scale-up research in education, we have concluded that a unified theory of the scale-up "process" is in very early stages. Sternberg et al. (2011) contend that "little—arguably, almost nothing—is known about the factors that lead to successful scaling up" and that there has "not been a systematic review of the available knowledge, either at the level of theory or at the level of empirical evaluation of hypotheses and observations on the process of upscaling." The scale-up studies that have been conducted in education have been primarily focused on the quantitative impact of such reforms rather than the processes of reaching larger numbers of schools and students or the processes of transfer of ownership and commitment from schools.

The focus of this study is to understand the processes involved in scaling up RA in different states and contexts, as well as the stages of transition that occur as ownership is transferred from the developers to local districts and schools. Given this focus, we build upon Adelman and Taylor's (1997) four phases of scale-up and Coburn's (2003) four dimensions of scale-up.

Adelman and Taylor's (1997) model depicts four overlapping phases of scale-up. In the first stage, *Creating readiness*, efforts are directed toward disseminating program information, building interest, and negotiating policy frameworks for involvement. The second phase, *Initial implementation*, includes guiding the adaptation of the intervention by creating temporary mechanisms to facilitate implementation (e.g., mentors or coaches). The third phase, *Institutionalization*, ensures long term ownership and sustainability of the intervention which requires ongoing leadership to take responsibility for the intervention, and coordination mechanisms to keep the intervention running. The fourth phase, *Ongoing evolution*, is concerned with accountability and continually informing practices for improvement through formative and summative evaluation. Within each of these four phases are activities carried out by the scale-up staff, as well as collaborative efforts between scale-up staff, organizational leadership, and stakeholders.

Coburn (2003) proposed an expanded "conceptualization of scale consisting of four interrelated dimensions:" depth, spread, sustainability, and shift in reform ownership. Beyond just changes in classroom structure (e.g. materials, classroom organization), depth of reform-centered knowledge also includes changes in the teachers' underlying assumptions about pedagogical principles and expectations of students and how student learn. Spread pertains to increasing the number of schools or classrooms using a program, as well as the spread of reform-related norms, beliefs, and principles within a classroom, school, and district. This idea of spread includes an increase in the number of participants across sites (external spread), as well as within classrooms, schools, and districts (internal spread). Sustainability is the distribution, adoption, and maintenance of an innovation over a long term. Coburn identifies some of the biggest challenges of sustainability as competing priorities in schools, changing demands (within the school and larger policy demands), and teacher and administrator turnover. Shift in reform ownership concerns the ultimate goal of reform efforts—to transfer the reform-centered knowledge, authority, and agency from the "external" providers to the "internal" actors (e.g., teachers, schools, and districts) thereby sustaining the reform in ways that make a difference to students. This expanded conceptualization of scale moves away from the idea of replication to conceptual, organizational, and philosophical changes that can be sustained over time.

RAISE Scale-up Logic Model

A traditional logic model, with inputs on the left, outputs or intermediate outcomes in the middle, and final outcomes on the right does not lend itself to representing this complex, multilevel, iterative scale-up process. Instead, we developed an interactive logic model that shows four stages of development from initial project development to the project goal of RA being broadly institutionalized.[2] The RAISE scale-up logic model consists of four stages.

1. Stage 1: Development activities
2. Stage 2: Increased ownership
3. Stage 3: Sustained ownership
4. Stage 4: Reading Apprenticeship broadly institutionalized

Stage 1 comprises the design and construction of the four development activities (i.e., Professional Development for Reading Apprenticeship facilitators and teachers; Instructional Support Resources; Recruitment and Retention; and Project Development and Coordination). The processes and materials for these activities, which we call "WestEd's RAISE" are developed through the i3 grant funds. Additionally, this stage includes the uptake of these activities within the recruited and implementing schools and districts. This stage is similar to Adelman and Taylor's first two phases: Creating readiness and Initial implementation. These activities are not only designed to spread the enactment of RA activities in the participating schools, but they are also expected to instill participant buy-in and capacity to the extent that, in the ensuing stages, the developers are able to transfer responsibility for and ownership of RA to local districts and schools, as described in Coburn's model.

The development activities are hypothesized to lead to five intermediate outcomes: (1) increased participation in RA, (2) classroom fidelity of RA, (3) buy-in to the RA framework, (4) capacity to implement and disseminate RA practices, and (5) student achievement. Our first two intermediate outcomes—increased participation and classroom fidelity of RA—correspond to Coburn's (2003) first two dimensions of scale-up: spread and depth. Our second two intermediate outcomes—increased local capacity and buy-in—are expected to lead to increased local ownership of RA in later stages of the process.

[2] See Appendix A for the accompanying figures and comprehensive narrative description of each stage.

These intermediate outcomes will also interact with each other. As buy-in and commitment to RA increase, we hypothesize that districts, schools, and teachers will dedicate the time and resources necessary to increase capacity to implement and disseminate RA at the local level. As capacity and support builds, we expect districts and schools to increase the numbers of teachers implementing RA; that is, schools will send more teachers to RA training and spread the RA ideas to other districts and schools. We also expect classroom fidelity of RA to lead to increases in student achievement, as evidenced by improved standardized student test scores (Corrin, Somers, Kemple, Nelson, & Sepanik, 2008; Greenleaf et al., 2009; Greenleaf, Schneider, & Herman, 2005).

Stage 2 (Increased ownership) and Stage 3 (Sustained ownership) are hypothesized to result from the intermediate outcomes. These stages correspond to Coburn's "shift in reform ownership" dimension. Stages 2 through 4 are also similar to the third phase in Adelman and Taylor's model, institutionalizing new approaches. In Stage 2, we hypothesize that as the local level begins to take ownership of the development activities, these activities are adapted to meet their needs, which further reinforces the intermediate outcomes.

Stage 4 is RAISE's ultimate goal, RA broadly institutionalized as the model of academic literacy instruction, and where activities are fully implemented at the local level with limited support from SLI. Once the intermediate outcomes are realized, we hypothesize two end outcomes: policy shifts and RA spreading with depth beyond the original LEAs that were recruited to join the project (SLI, 2010). The model also depicts the influences and feedback loops that are active during this stage. Our final stage corresponds to Coburn's dimension of Sustainability.

Research Questions

The overall Scale-Up Study is guided by three sets of research questions investigating the spread of RAISE, the scale-up process, and contextual factors that affect scale-up. In addition to measuring the study's intermediate outcomes,[3] these questions investigate the transfer of responsibility for and ownership of the RAISE initiative from the RA developers to the local level, which is represented by movement through the stages of our logic model.

Spread Research Questions

1. In each of the four regions, what is the outcome of the scale-up process of RA in terms of numbers of teacher leaders trained, teachers trained, schools participating, and students taught by RAISE-trained teachers?

2. How does the rate and distribution of scale-up in the four regions compare to the target numbers as set out in the i3 grant proposal?

Research Questions Regarding the Scale-Up Process

3. What is the relationship between the development activities, buy-in and the capacity to sustain RAISE?

4. Do schools/districts change to take responsibility for and ownership of RA? If so, how?

Context Research Questions

5. What contextual factors are either positively (potential supports) or negatively (potential barriers) associated with the scale-up process?

[3] We will not measure classroom fidelity of RA implementation or the effect of RA on student achievement in this study since a concurrent large-scale longitudinal RCT is exploring these outcomes.

6. How do these contextual factors result in differences in rate and distribution of RA in the four states?[4]

This report addresses the third overall research question and begins to examine the following hypotheses.

Hypothesis 1: Schools with more RAISE teachers will have higher levels of buy-in, commitment, sustainability of RAISE. During the planning stages of the grant, SLI estimated that each school would send nine teachers to the RAISE Institutes (three in each content area). They hypothesized that it would be important to establish a core RAISE team at each school, to build a critical mass of RA implementers so they could collaborate with and support each other. Recruiting multiple teachers per school (and per content area) would also allow for a larger number of students to be reached, in multiple content areas and grades, which would deepen and engrain practices in the school. A larger team would also make it less likely that teacher turnover would threaten the sustainability of RAISE.

Hypothesis 2: Teachers in schools with higher levels of collaboration and support will have higher levels of buy-in, commitment, and sustainability of RAISE. Like most reform-based initiatives, it is hypothesized that the understanding of Reading Apprenticeship practices is strengthened through collaboration and support from other RA teachers. Reading Apprenticeship provides a framework for instruction/interaction with students to support adolescent reading comprehension, and is not an "off-the-shelf" curriculum. Even with the intensive 65-hour professional development teachers receive, the ongoing support and collaboration teachers engage in will be important in sustaining RA practices. The RAISE monthly meetings, a primary mechanism for collaboration and support during the school year, are organized and led by the teacher leaders and are designed to foster a professional community among the RA teachers through teacher collaboration and learning. Activities may include sharing of practices, reviewing student work, using RA protocols to guide discussion and reflection about practices, reviewing videos of practice, and reading and discussing professional articles. As the formal supports from the RAISE initiative (such as the professional development institute) are withdrawn, many teachers rely on the social networks they have developed with other teachers to deepen and sustain RAISE in their schools.

Hypothesis 3: Teachers in schools where RA practices are used more frequently will have higher levels of buy-in, commitment, and sustainability of RAISE. While the program developers do not have prescribed guidelines for how often "RA practices" should be used in the classroom, as a framework for teaching reading, it is expected that the pedagogy is incorporated throughout reading lessons. It is expected that this process will take time, and as teachers move through the 10-day RAISE Institute, they will develop a greater understanding of the RA framework and deepen their practice. As teachers more fully integrate RA practices into their classroom, it is hypothesized that buy-in, commitment, and sustainability of the RAISE initiative will increase.

Research Methods and Data Collection

For the Scale-up Study, we use a mixed methods approach, with both quantitative analyses and a qualitative strategy of inquiry. In the first through third year of the study, we have observed and documented key project activities; tracked the numbers of schools, teachers, and students served by this initiative; and surveyed participating teachers (three times a year during each year of implementation) and school administrators

[4] For a more detailed description of the research questions and rationale, see *Year 1 Interim Report of Reading Apprenticeship/RAISE Scale-up.*

(annually).[5] Through the surveys, we were able to measure general uptake of the RAISE project activities, the extent to which they help districts and schools buy into the RA framework and build capacity, and how they take ownership of RA.

As shown in Table 1, we will have the opportunity to study four consecutive cohorts of RAISE teachers and schools.

TABLE 1. YEARS OF PARTICIPATION FOR RAISE COHORTS

Cohort	2011/12	2012/13	2013/14	2014/15[a]
1	Year 1	Year 2	Year 3	Year 4
2		Year 1	Year 2	Year 3
3			Year 1	Year 2
4				Year 1

[a] There will be limited data collection in the last year of the grant.

As the scale-up process proceeded across contexts, states, and years, we are able to quantify changes over time within a given cohort, as well as compare cohorts in their first, second, and third years of the initiative. The goal is to measure changes consistent with the stages of the logic model in order to better understand when the transitions through the stages occur. Importantly, descriptive trends analyses allow us to assess the timing and characteristics of changes; for example, how long the 'ramp-up' period is for practices to reach specific levels, plateau over time, and whether there are critical periods or 'tipping points' where buy-in happens suddenly. Also, we can examine the degree to which the program is sustained at the local level as the direct involvement from the developers is scaled back.

To address the focus of this paper, we first identified key indicators of participation in RAISE activities and scale-up outcomes, and mapped these to the logic model. Most of the indicators were measured through three years of Cohort 1 teacher survey data, for a total of up to nine survey occasions. The first survey of each year were deployed at the end of the first semester; the second survey was deployed in March of each year; the third survey was deployed in mid-May of each year. The number of RAISE teachers at each district and school was tracked in a participant database each year. The hypotheses described above reflect the relationships between the indicators of participation in RAISE activities and the scale-up outcomes that are listed in Table 2.

[5] We have also conducted case studies of four schools in one state to gather a more in-depth understanding of how the scale-up process evolves, as well as to understand the contextual factors that are associated with the process. Data collection included surveys, interviews, focus groups, and site visits with various stakeholders. Results from the case studies are not reported in this paper; see *Case Studies of the Scaling and Sustaining of Reading Apprenticeship in Four Michigan Secondary Schools* for the year 2 case study report.

TABLE 2. INDICATORS OF PARTICIPATION IN RAISE ACTIVITIES AND SCALE-UP OUTCOMES

Indicators of participation in RAISE activities and indicators of scale-up outcomes	Logic model component	Year 1 data source	Year 2 data source	Year 3 data source
Indicators of participation in RAISE activities				
Recruitment and building RAISE teams (# of teachers per school)	Recruitment and retention	Participant database	Participant database	Participant database
Receipt of support for Reading Apprenticeship implementation	Instructional support resource	Survey 1-3	Survey 4-6	Survey 7-9
Attendance at monthly team meetings	Instructional support resource	Survey 1-3	Survey 4-6	Survey 7-9
Average Use of Reading Apprenticeship pedagogical practices	Professional development[a]	Survey 3	Survey 6	Survey 9
Scale-up outcome				
Level of *buy-in* of the Reading Apprenticeship Framework	Buy-in	Survey 1 & 3	Survey 4 & 6	Survey 7 & 9
Level of *commitment* to Reading Apprenticeship	Buy-in	Survey 1 & 3	Survey 4 & 6	Survey 7 & 9
***Sustaining* Reading Apprenticeship practices**	Sustainability	Survey 3	Survey 6	Survey 9

Note. Year 1= 2011-12 school year; Year 2 = 2012-13 school year; Year 3 = 2013-14 school year

[a] Average use of RA pedagogical practices is an indicator that teachers are using the practices and strategies they learned during the Professional Development Institute.

Next, we conducted three types of analyses. All of the analyses were carried out at the school level, using school averages of the indicators of participation in RAISE activities and of the outcome variables:

(1) We estimated the change in school averages of the indicators of participation in RAISE between Year 1 and Year 3.

(2) We estimated the change in school averages of indicators of scale-up outcomes between Year 1 and Year 3.

(3) We measured the association between changes in the indicators of participation in RAISE and changes in the scale-up outcomes. The analyses allow us to draw some hypotheses about the how changes in indicators are related to changes in outcomes. This allows us to test the theory that increases or intensity of the uptake of RAISE activities positively reinforce or increase levels of buy-in, commitment and sustainability Additionally, if we do not find relationships between these measures at this stage, we can focus on other factors (of implementation or contextual) that potentially influence these changes.

Due to the correlational nature of all of the analyses, we cannot infer causality from the results.

It is important to note that the survey response rates declined across the three years. We continued to send surveys to teachers each year, unless they left the participating school or no longer wanted to participate. But teachers were not offered an incentive to complete the surveys. Table 3 includes the response rates for each of the nine surveys.

TABLE 3. SURVEY RESPONSE RATES FOR COHORT 1 TEACHERS

		No. of schools	No. of teachers
Year 1	Survey 1	61	296
	Survey 2	61	278
	Survey 3	61	261
Year 2	Survey 4	53	200
	Survey 5	54	187
	Survey 6	54	158
Year 3	Survey 7	48	136
	Survey 8	47	112
	Survey 9	48	114

The decrease primarily happens at the teacher level, although by the third year thirteen schools were lost. We examined for the possibility of response bias with the concern that teachers who continued to complete surveys were more engaged in RAISE than those who stopped. If this were the case, the survey results would be biased in a positive direction. In general, we found that the commitment levels were lower for teachers who stopped completing surveys during the first year (compared to those who continued responded), but the responses for those who stopped completing surveys in the second year were similar to those who continued completing surveys until the end. This suggests that the reason for discontinuing participation in the surveys in the later years (during Year 2 or Year 3) may have been more about survey fatigue or teachers leaving study schools, rather than disengagement with RAISE. It is important to keep this in mind when interpreting the results. We are continuing to examine indicators that my further clarify the potential for bias.

Results

The results in this section are from the first cohort of RAISE teachers and schools from their first through third year of implementation (AY 2011-12, 2012-13, 2013-14). We report trends in changes in participation in RAISE activities and scale-up outcomes across the three years, as well as whether the relationships between these changes in participation are related to changes in the outcomes.

Changes over time in Indicators of Participation in RAISE Activities and Scale-up Outcomes

In the following sections, we provide a series of graphs that illustrate school level average responses to each of the survey questions, across Year 1 through Year 3. Each graph shows the survey occasions/time points on the x-axis and the school level responses on the y-axis. The blue dots represent school averages at each response level, and the size of the dots are proportionate to the number of schools at each point (i.e. the bigger the dot, the more schools are represented). We have also indicated the overall sample mean and median with a purple and green circle, respectively.

Changes in Indicators of Participation in RAISE Activities

Number of RAISE Teachers per School

We tracked the number of participating RAISE districts, schools, and teachers (regardless of their participation in the study surveys) in our database each year. Cohort 1 schools had an average of six RAISE teachers by the end of the first year. By the end of the third year, the average number of Cohort 1 teachers dropped to four teachers per school, with nine schools no longer having any Cohort 1 teachers (Figure 1). This decrease may be due to teacher turnover (i.e. they are no longer at the school) or teachers no longer wanting to participate in RAISE. The reduction in the mean number of RAISE teachers per school is statistically significant ($p < .001$). This findings, however, does not include additional RAISE teachers that may have joined these schools as part of Cohort 2 or 3. A follow-on to this analysis will be to examine other characteristics of schools that gained new teachers (in Cohort 2 or 3) or lost teachers across the three years.

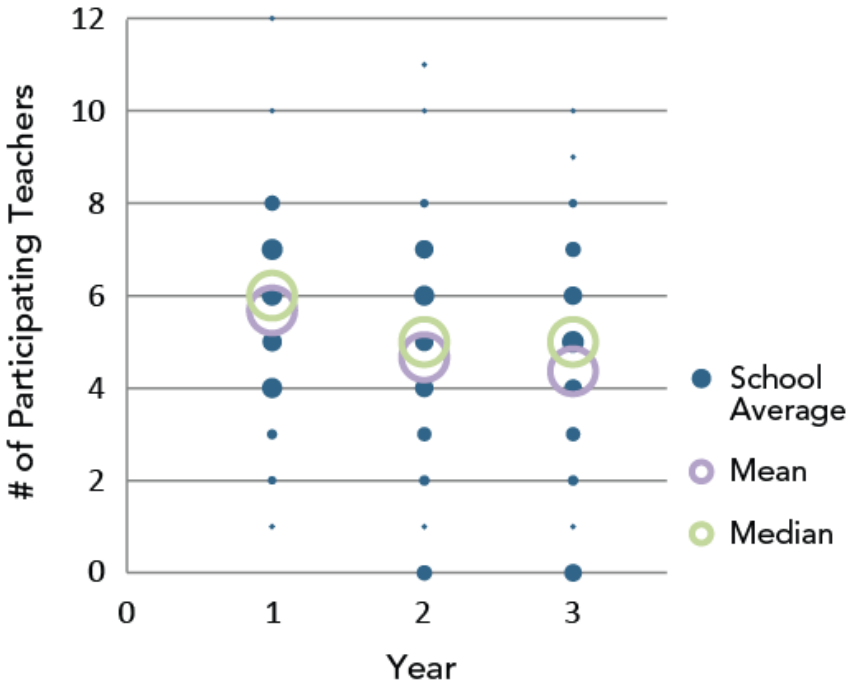

FIGURE 1. NUMBER OF RAISE TEACHERS PER SCHOOL
n = 63 schools in Year 1; *n* = 56 schools in Year 2; *n* = 54 schools in Year 3

Receipt of Support for Instruction

In each survey, we asked teachers to report if they had received support for implementing Reading Apprenticeship in their classroom during the prior four weeks of instruction (teachers were asked to exclude support from the monthly meetings in their response). We found that, during Year 1 there was a decline in teachers reporting that they received support; this decline is statistically significant ($p < .001$)). Looking at the mean and median reported levels, however, we see an increase from the end of the first year to the beginning of second year. This trend does not continue for the rest of Year 2 or Year 3. There are also more schools in Year 2 and 3 where either all teacher reported receiving support or no teachers reported receiving support.

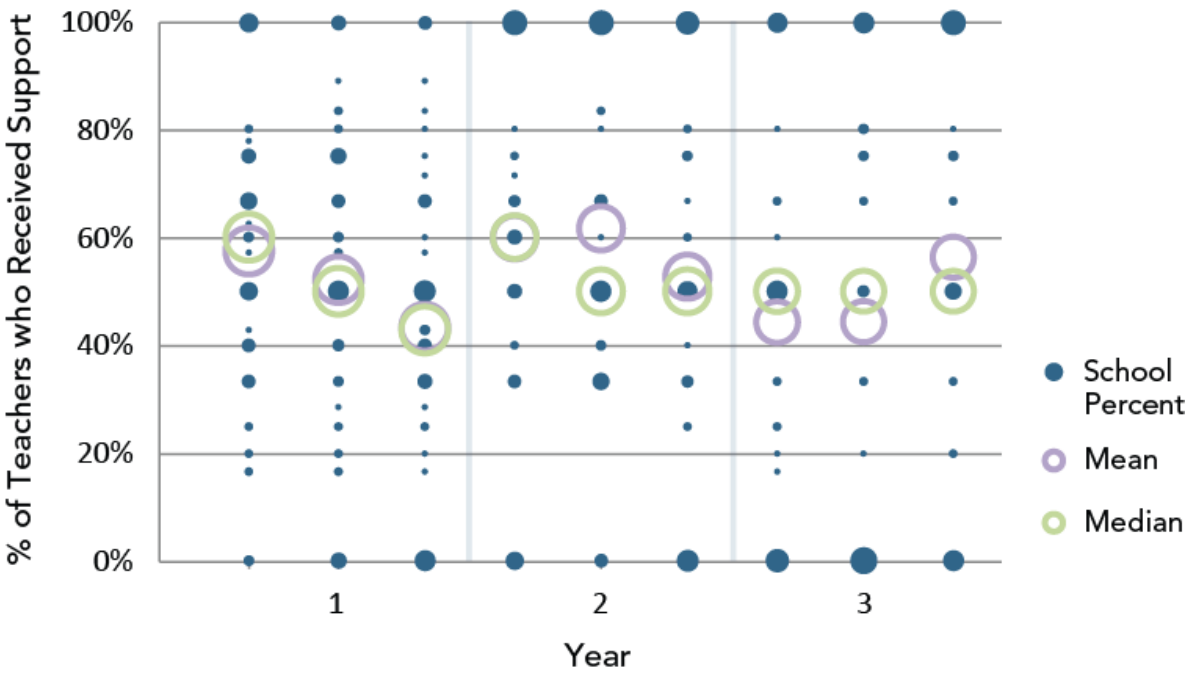

FIGURE 2. SUPPORT RECEIVED FOR RA INSTRUCTION

n = 61 schools in Year 1; *n* = 54 schools in Year 2; *n* = 48 schools in Year 3

Attendance at Monthly Meetings

Also on each survey, teachers reported if they had attended a monthly meeting between the prior and current surveys (or between the beginning of the school year and the current survey for survey 1, 4, and 7). As shown in Figure 3, we found a significant decrease in the attendance at monthly meetings within each year and across the three years. While in Year 1, nearly all teachers (96%) reported that they attended a monthly meeting in the first survey, by the end of the second and third year, the average dropped to 35% and 21%, respectively. Additionally, most schools (73%) had no teachers reporting that they attended a monthly meeting (Figure 3). This reduction in the average attendance at monthly meetings is statistically significant ($p < .001$). This finding suggests a possible decrease in participation or uptake of the program. It is also possible, however, that teachers were finding other, more efficient ways of collaborating and supporting their RA implementation.

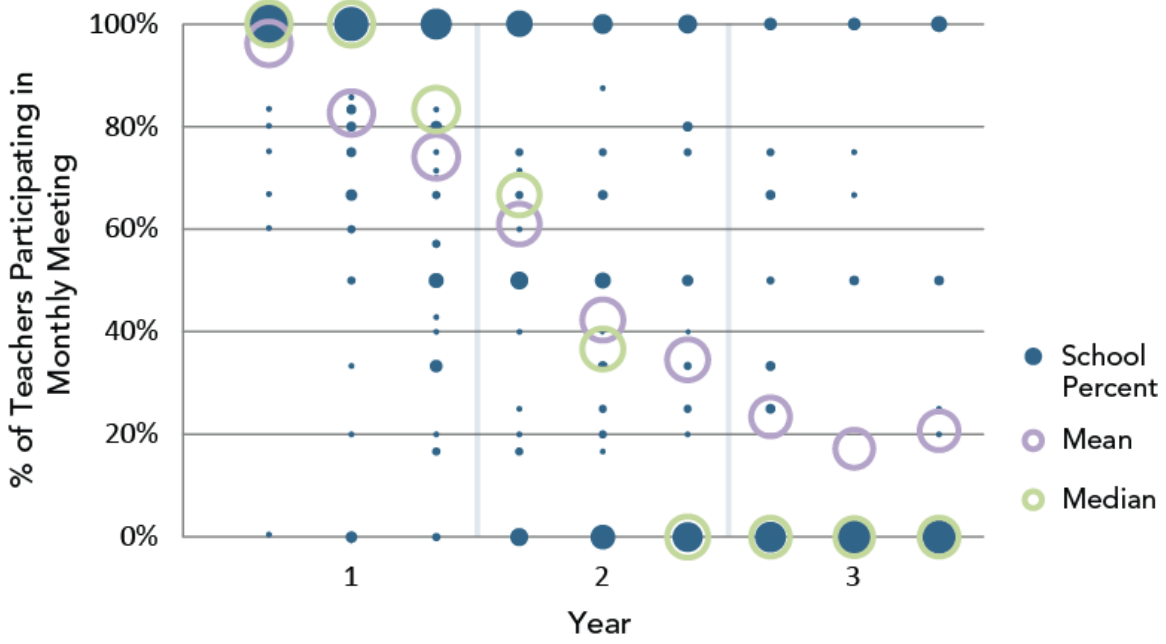

FIGURE 3. ATTENDANCE AT MONTHLY MEETINGS

n = 61 schools in Year 1; *n* = 54 schools in Year 2; *n* = 48 schools in Year 3

Use of Reading Apprenticeship Practices

While the RA pedagogical practices are expected to be integrated throughout each lesson, it may take teachers several years to learn, become comfortable with, and fully incorporate new instructional strategies. At the end of each year, we asked teachers how often they used the RA pedagogical practices in their classroom, on average, during the school year. Teachers responded on the following scale.

- Throughout each lesson (5)
- A few times during each lesson (4)
- A few times per week (3)
- A few times per month (2)
- A few times per grading period (1)
- Never (0)

At the end of the first year, a majority of teachers reported that they were implementing RA practices on at least a weekly basis. While it might be reasonable to expect that the use of the RA practices would increase in the second and third year of implementation as teachers are becoming more familiar with the framework, we found that the average reported use is consistent across the years (Figure 4). What is interesting here, however, is that the variation in the response increases. In Year 1, we see many of the responses clustered between a 2 and 4 (a few times per month and a few times during each lesson, respectively). By the third year, we see a few schools (n = 3), where the average is "throughout each lesson", and one school reported that they are no longer using Reading Apprenticeship.

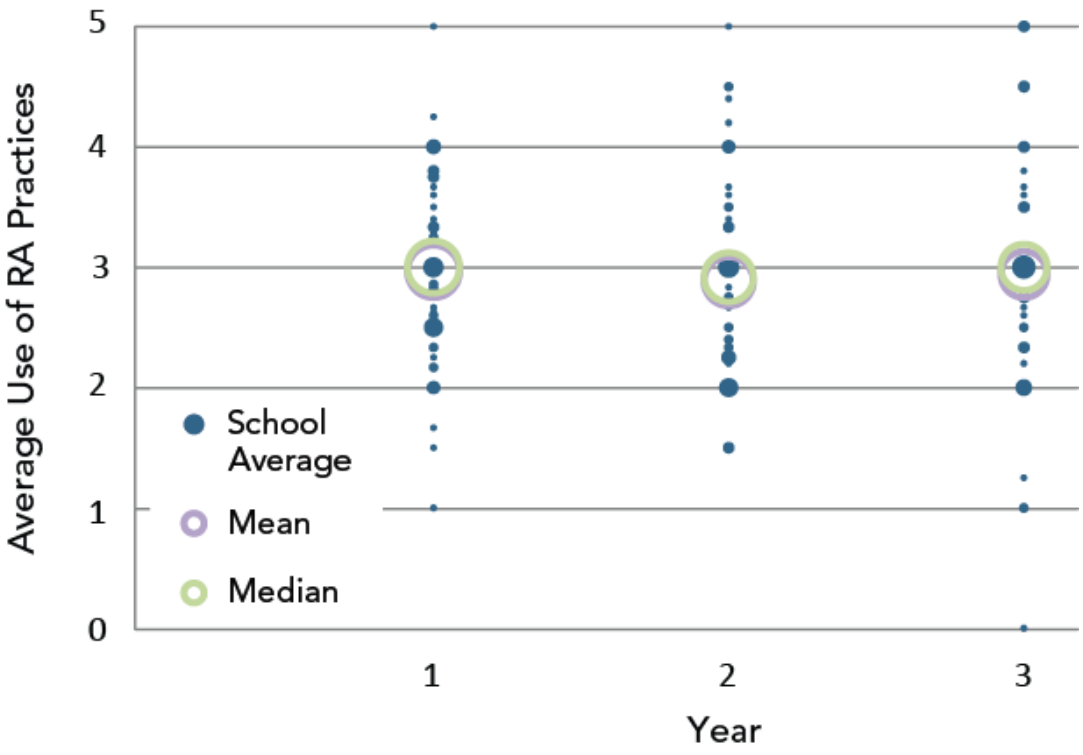

FIGURE 4. AVERAGE USE OF RA PRACTICES

n = 61 schools in Year 1; n = 54 schools in Year 2 n = 48 schools in Year 3

Changes in Indicators of Scale-up Outcomes

Buy-in to Reading Apprenticeship Framework

As explained in our scale-up logic model, we defined buy-in as the belief that RA is an appropriate strategy for literacy instruction, and a means of improving student achievement. Therefore, we asked teachers at the beginning and end of each school year to rate their levels of agreement with those statements (5 = Strongly agree; 0 = Strongly disagree). Cohort 1 teachers reported high levels of buy-in, as reflected in a large majority of the teachers agreeing or strongly agreeing with those statements. While teachers' buy-in levels remain high, we did find an slight decrease over time in the school mean levels of agreement with RA being an appropriate strategy for classroom instruction (between survey 1 and 9) (p = .048) and as a means of improving student achievement (p = .048) (Figures 5 and 6).

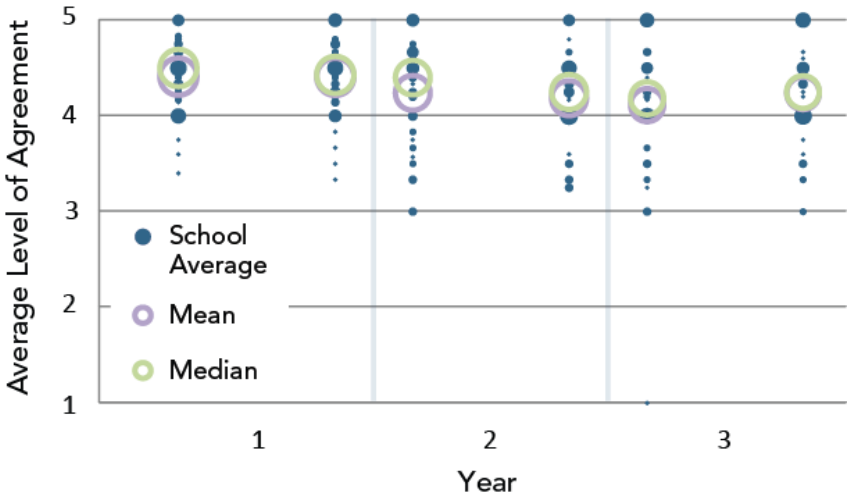

FIGURE 5. BUY-IN OF RA AS APPROPRIATE LITERACY INSTRUCTIONAL STRATEGY FOR CLASSROOM

n = 61 schools in Year 1 ; *n* = 54 schools in Year 2; *n* = 48 schools in Year 3

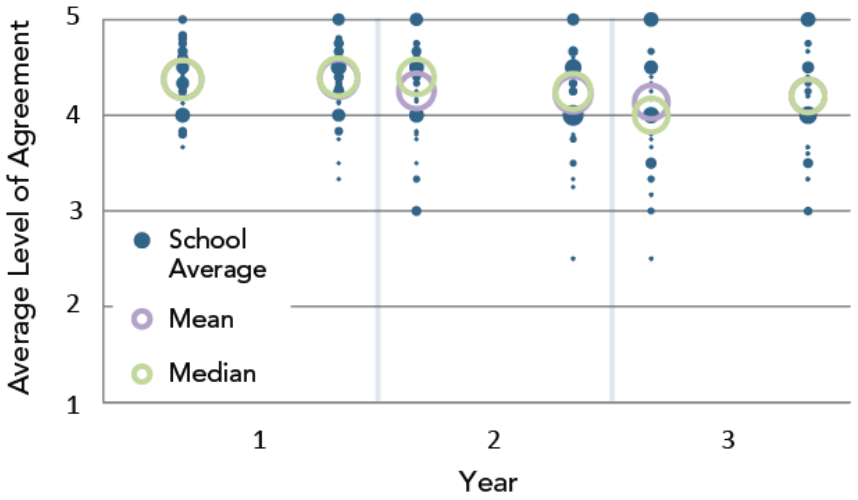

FIGURE 6. BUY-IN OF RA AS MEANS TO IMPROVE STUDENT ACHIEVEMENT

n = 61 schools in Year 1; *n* = 54 schools in Year 2; *n* = 48 schools in Year 3

Commitment to Reading Apprenticeship

At the beginning and end of each year, we also asked teachers to report their level of commitment to making Reading Apprenticeship work in their classroom and in their school (5 = Fully; 4 = Fairly; 3 = Willing to give it a chance; 2 = Not a priority; 1 = Not willing to do it).

As we found with levels of buy-in, Cohort 1 schools reported high levels of commitment, with a majority being fully or fairly committed to making RA work (Figures 7 and 8). There is, however, a statistically significant decrease in commitment levels between the first and third year. In Year 1 the decrease in average reported commitment in classrooms and schools was not statistically significant. In Year 2, the picture changed, with a decrease in both average reported commitment in classrooms ($p < .001$) and in schools ($p < .001$). This drop-off in reported commitment in Year 2 was greater with respect to schools than classes ($p < .001$). During Year 3, there is a slight decrease in commitment levels between the beginning and end of the year; this decrease, however is not statistically significant. Between the first and the third year, we also found that on average teachers reported being more committed to making RA work in their classes than in their schools ($p < .001$).

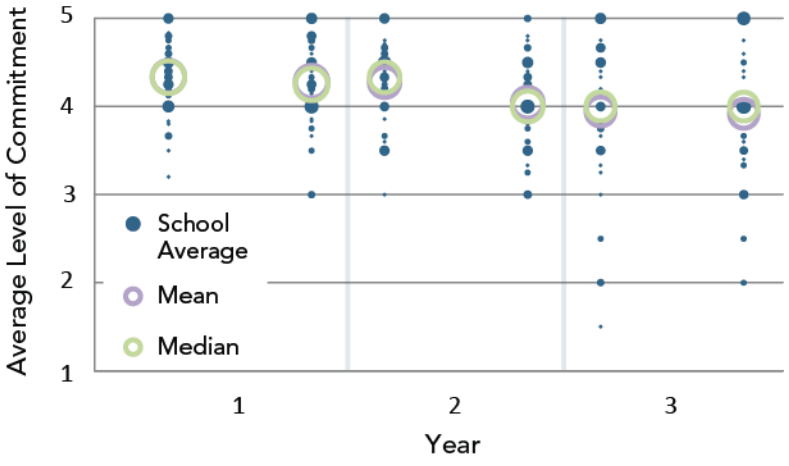

FIGURE 7. COMMITMENT TO READING APPRENTICESHIP IN CLASSROOM

n = 61 schools in Year 1 ; *n* = 54 schools in Year 2; *n* = 48 schools in Year 3

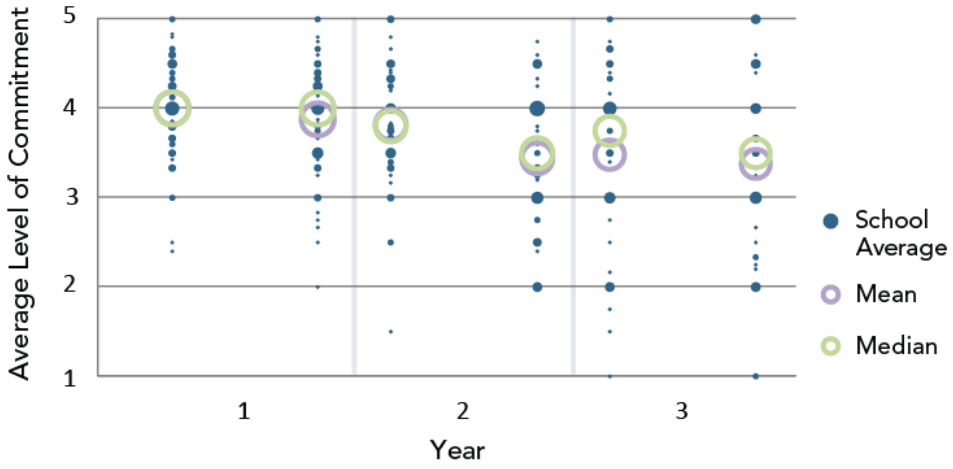

FIGURE 8. COMMITMENT TO READING APPRENTICESHIP AT SCHOOL

n = 61 schools in Year 1; *n* = 54 schools in Year 2; *n* = 48 schools in Year 3

Continued Use of RA Practices

One measure of sustainability is teachers' report of whether they plan to continue using Reading Apprenticeship pedagogical practices in the following school year. At the end of Year 1, on average 91% of teachers in each school said they would continue to use RA. By the end of Year 2, on average 85% of the teachers in each school said they would continue using RA practices in their third year of implementation. By the end of Year 3, on average 82% of the teachers in each school said they would continue using RA practices in their fourth year of implementation. The reduction in the percentage of teachers reporting that they would continue implementation at the end of the first and third year is not statistically significant (p =.064). The median percent of teachers in each school responding that they plan to continue using Reading Apprenticeship stayed constant across the three years.

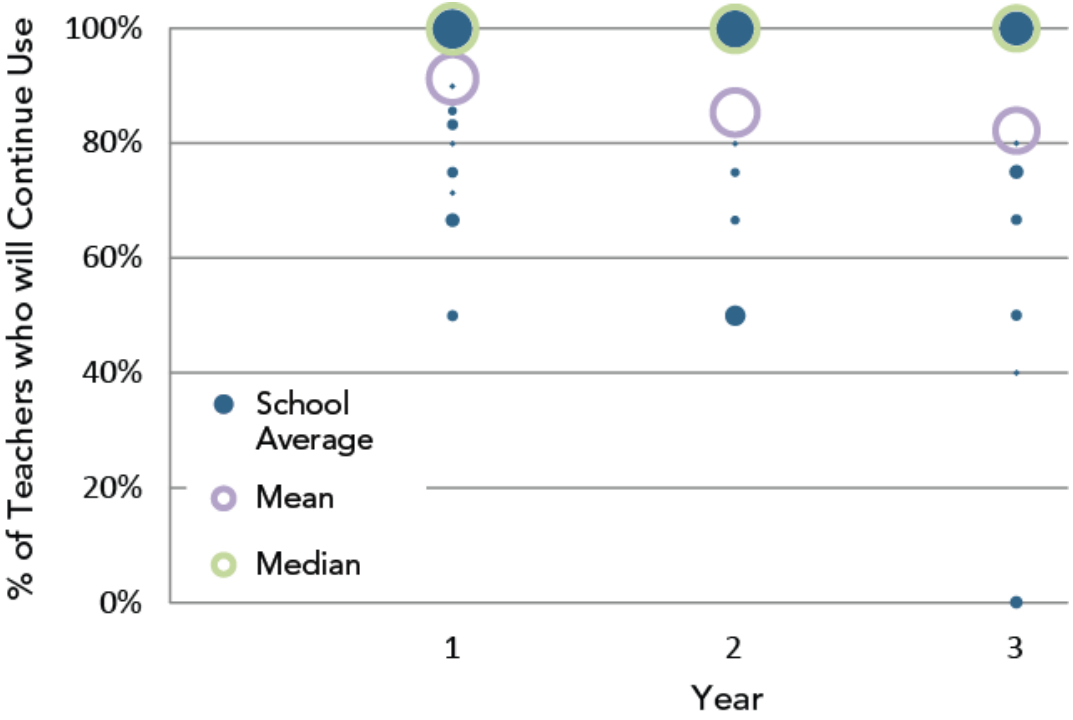

FIGURE 9. CONTINUE USE OF READING APPRENTICESHIP

n = 61 schools in Year 1 ; n = 54 schools in Year 2; n = 48 schools in Year 3

RELATIONSHIP BETWEEN INDICATORS OF PARTICIPATION IN RAISE ACTIVITIES AND INDICATORS OF SCALE-UP OUTCOMES

In addition to assessing the change in indicators of participation in RAISE activities and scale-up outcomes over the three years, we examined if there was a relationship between the change in the indicators of the uptake of RAISE from Year 1 to Year 3 and the change in the indicators of scale-up outcomes over the same

time period.[6] We cannot infer causality from these results; however, they allow us to consider how certain activities potentially influence outcomes. We found that the following relationships were statistically significant (Table 4).

- Change in receiving support for RA instruction is positively associated with change in self-reported levels of commitment to making RA work within the school
- Change in attendance at monthly meetings is positively associated with change in self-reported levels of commitment to making RA work within the school
- Change in the average use of RA is positively associated with all reported outcomes

TABLE 4. RELATIONSHIP BETWEEN CHANGES IN INDICATORS OF PARTICIPATION IN RAISE ACTIVITIES AND SCALE-UP OUTCOMES

	Receiving support for instruction	Attendance at monthly meetings	Average use of RA
Buy-in as appropriate literacy strategy	0.15	0.05	0.35*
Buy-in as means to improve student achievement	0.20	0.09	0.33*
Commitment in classroom	0.29	0.17	0.55***
Commitment in school	0.35*	0.31*	0.46**
Continued use of RA next year	0.14	0.09	0.61***

Note.

* $p < .05$

** $p < .01$

*** $p < .001$

[6] Because we did not measure several of the indicators of participation in RAISE activities across all nine survey occasions, we assess the change in the indicators between the first and last surveys in which we asked the question; the change in the outcome score is limited to the same interval.

Discussion

This paper offers results over three years from the formative evaluation of the scale up of SLI's Reading Apprenticeship program. Our analysis focuses on teacher survey data from the first cohort of RAISE schools. We found that while reported levels of participation in RAISE activities, buy-in, and commitment were high in the first year of implementation, this enthusiasm decreased or "leveled off" by the third year. One of the most obvious decreases over time was teachers' attendance at the RAISE monthly team meetings, which was considered an important mechanisms for collaboration and support. Reported levels of buy-in remained high, but commitment to making Reading Apprenticeship work at the school level decreased by the third year. Furthermore, we found a statistically significant positive relationship between the change in commitment to making Reading Apprenticeship work at the school and change in participation in each of the RAISE activities, suggesting that school level engagement or collaboration is an important process related to continued use of the program.

We also found a greater spread in responses by the third year (with schools reporting at both high and low levels), whereas in the first year most responses were generally clustered together. This further supports the hypothesis that contextual factors at the school or district levels may support or hinder the scale-up process and should be explored. While we noted a decline in the response rates across the three years and recognize that this may introduce some response bias, we did not find major differences in commitment levels for teachers who stayed in the sample until the end of the study and those that left in the second year. If there was a response bias (in the positive direction), than the decrease in the participation of RAISE activities and commitment levels would be underreported, and our conclusions would be further substantiated.

During the five year grant, Reading Apprenticeship has been scaled-up with multiple cohorts, across years, states, and subject areas, in complex educational contexts. To date, SLI has trained over 1,700 teachers from 239 schools, across the four scale-up states. These results presented in the this paper raise some questions about the sustainability of the current model and lead us to continue to investigate what activities or contextual conditions may affect the scale-up process. One way to do this is to identify which schools and districts "gained" participants (i.e. added additional cohorts of teachers) or "lost" participants (i.e. no longer participating in RAISE) over the years, acknowledging that broadening the adoption of RAISE is an important scale-up goal. We can then examine both malleable and non-malleable factors that may have affected the scale-up process for these schools. For example, we will investigate if demographic characteristics or school size, or involvement from schools administrators support or hinder successful scale-up. Because the theory of scale-up is in its early stages, we will continue to track the work of other researchers, provide formative feedback to SLI, and work to generate systematic hypotheses to guide our future analysis and reporting.

References

Adelman, H. S., & Taylor, L. (1997). Toward a scale-up model for replicating new approaches to schooling. *Journal of Educational and Psychological Consultation*, *8*(2), 197-230.

Coburn, C. (2003). Rethinking scale: Moving beyond the numbers to deep and lasting change. *Educational Researcher*, *32*(6), 3-12

Corrin, W., Somers, M. A., Kemple, J., Nelson, E., and Sepanik, S. (2008). *The Enhanced Reading Opportunities Study: Findings from the Second Year of Implementation* (NCEE 2009-4036). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Greenleaf, C., Hanson, T., Herman, J. Litman, C., Madden, S., Rosen, R., Kim-Boscardin, C., Schneider, S. & Silver, D., (2009). *Integrating Literacy and Science Instruction In High School Biology: Impact On Teacher Practice, Student Engagement, and Student Achievement*. Final Report to the National Science Foundation Grant #0440379.

Greenleaf, C., Schneider, S., & Herman, J. (2005). *An Efficacy Study of Reading Apprenticeship Professional Development for High School History and Science Teaching and Learning."* Teacher Quality Research Reading/Writing Grants, U. S. Department of Education Institute of Education Sciences, Grant # R305M050031, Greenleaf PI.

Hegseth, W., Zacamy, J., & Newman, D. (2015). *Case Studies of the Scaling And Sustaining of Reading Apprenticeship In Four Michigan Secondary Schools: Report 2*. (Empirical Education Rep. No. Empirical_ i3SU-7019-CS2-Y3-O.1). Palo Alto, CA: Empirical Education Inc.

McDonald, S., Keesler, V., Kauffman, N., & Schneider, B. (2006). Scaling up exemplary interventions. *Educational Researcher*, *35*(3), 15–24.

Sternberg, R. J., Birney, D., Jarvin, L., Kirlik, A., Stemler, S., & Grigorenko, E. L. (2011). Scaling up educational interventions. In R. J. Sternberg & M. Constas (Eds.), *Translating educational theory and research into practice*. Mahwah, NJ: Erbaum.

Schneider, B., & McDonald, S. (2007a). Introduction. In Scale-up in Education, Volume 1, Ideas in Principle, Schneider, B. and S. McDonald, Eds., pp 1-15.

Strategic Literacy Initiative (SLI). (2010). *Scaling up content-area academic literacy in high school english language arts, science and history classes for high needs students* (pp. 1-37, Rep.). San Francisco, CA: WestEd.

Zacamy, Z., Gray, S., Jaciw, A., & Newman, D. (2013). *Year 1 Interim Report of Reading Apprenticeship/RAISE Scale-up*. (Empirical Education Rep. No. Empirical_i3SU-7019-IR1-Y1-O.1). Palo Alto, CA: Empirical Education Inc.

Appendix A: Scale-Up Logic Model

In this appendix, we provide a comprehensive narrative description of each stage of the RAISE scale-up that is guiding our study. We also present the accompanying logic model figures. As described in the methods section of this report, the arrows in the logic model figures represent relationships or interactions between different components of the process. They change color and directionality through the different stages of the model.

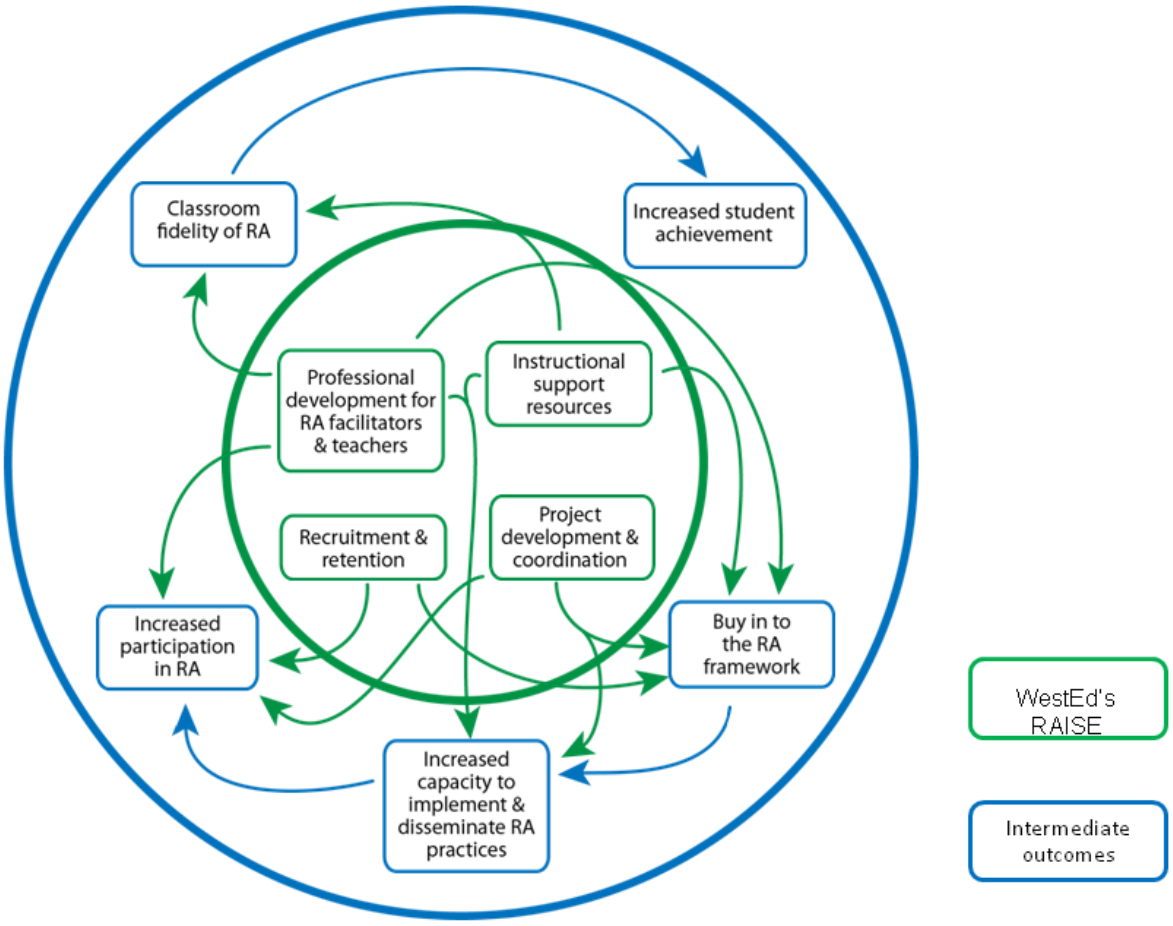

FIGURE A1. STAGE 1: DEVELOPMENT ACTIVITIES

Stage 1: Development Activities and Intermediate Outcomes

The Stage 1 diagram (Figure A1) consists of two concentric circles. The inner green circle, which represents the money and management of WestEd's RAISE, contains the four key development activities. The outer blue circle contains the intermediate outcomes, which are the result of direct uptake of the development activities.

Development Activities

The program developers provide schools and districts with the resources, information, and skills to implement RA. Here we describe the four activities.

1. Project development and coordination
2. Recruitment and retention
3. Professional development for Reading Apprenticeship facilitators and teachers
4. Instructional support resources

The Project development and coordination and Recruitment and retention activities are similar to Adelman & Taylor's (2007) Creating readiness stage, which refers to developing interest and dissemination of information, and creating agreements and policies for implementation. The Professional development and Instructional support resources activities align with Adelman & Taylor's Initial implementation, which involves supporting and guiding the adaptation and employment of the intervention in new contexts by creating temporary mechanisms to facilitate implementation (e.g., mentors or coaches).

Project Development and Coordination

The Strategic Learning Initiative (SLI) co-directors are responsible for overall project leadership and guidance in management of the scale-up process. They will maintain project budgets, make key decisions, and guide the process during each phase. SLI will secure funds to supplement the i3 grant through partnerships with private sector organizations for materials, resources, salaries, and stipends for project development. In addition, the SLI co-directors will lend their expertise in the RA method, the RA philosophy, and orientation to instruction to lead the core intellectual work. SLI administrative staff will supply general project coordination (e.g., reserving space for trainings, communicating with teachers/administrators). This core group is similar to what Adelman & Taylor call the "change team." They are responsible for developing and following through with the "big picture" process of scale-up through developing linkages of resources across sites, resolving large-scale problems systematically, and ensuring effective diffusion. Furthermore, as part of RAISE scale-up, the evaluation team will collect quantitative and qualitative data on the scale-up process and provide formative feedback to the SLI co-directors to inform practice.

Recruitment and Retention

The site coordinators (SCs) are responsible for identifying and recruiting districts, schools, teacher leaders, and teachers to participate in RA professional development and adopt the RA framework. The site coordinators from each state, as well as the multi-site coordinator join the "change team" and provide regional knowledge and management of their local sites. Site coordinators will be responsible for recruitment and site management through assessing the interest and need of districts and schools, building relationships with participants, addressing barriers or concerns to participation, and disseminating information. The co-directors and support staff will work with the SCs, district contacts, and school administrators to identify and recruit teacher leaders. Teacher leaders are recruited from among teachers who have already had training and experience implementing RA and/or have experience and capacity in leading teachers.

Retention of schools and districts will involve frequent and ongoing communication between schools/districts and site coordinators. Retention of teachers will include ongoing support and professional development as well as a ladder of movement in which outstanding RA teachers will be identified and asked to be trained as teacher leaders, and potentially will be trained as RA facilitators. Model RA classrooms also will be identified as exemplars for training and professional development purposes.

Professional Development

Professional development is the primary vehicle for bringing RA principles and pedagogy into districts, schools, and classrooms. The professional development team at SLI consists of three subject area leads and support staff who are responsible for updating existing RA professional development and implementing the plan for the RAISE professional development.[7] This team will also identify, recruit, and train a group of RA

[7] The professional development team works in consultation with the SLI co-directors.

facilitators who will conduct the RAISE Institutes. In addition, the professional development team will develop the training modules and materials for the facilitator and teacher trainings.

Facilitator professional development. The professional development team will select the facilitation team from a group of RA certified consultants and previously trained RA teachers and coaches. The facilitation team will attend a two-day intensive training and collaborate through an online resource website to deepen their understanding of the RA model and framework, content-specific RA training modules, and work in facilitation teams to plan which team member will be responsible for implementing each module at the upcoming RAISE Institutes.

Teacher professional development. The RAISE Institutes consist of 65 hours of training on the RA model and philosophy as follows.

a) Five full days of training in the first summer prior to implementation focusing on the foundation of RA
b) Two full days of training during the first year of implementation focusing on formative assessment, differentiation, and planning for implementation
c) Three full days of training in the summer following the first year of implementation focusing on formative assessment and planning for implementation

The goals for professional development are fivefold.

a) Articulate and define the RA model and framework (social, cognitive, knowledge building, and personal dimensions)
b) Define, model, explore, and practice RA instructional strategies that foster metacognitive inquiry, collaboration that facilitates metacognitive inquiry and conversations; and students' use of reading comprehension strategies
c) Describe the teachers' role in an RA classroom including formative assessment and differentiation of instruction
d) Teach discipline-specific reading comprehension strategies and instructional practices
e) Plan for implementation

A key aspect of the professional development is working to change teachers' perspectives from seeing themselves as only teachers to seeing themselves as learners as well. As learners, teachers continually improve their practices, learn from the experiences of other RA teachers and teacher leaders, and approach the implementation of RA as a learning process, similar to those of their students. SLI intends to accomplish this through inquiry-based, collaborative discussion of metacognitive processes, with a lot of professional reading and small-group discussion.

Instructional Support Resources

Instructional support resources will also be available in four forms: (a) monthly webinars for teacher leaders,[8] (b) monthly on-site support meetings for teachers led by teacher leaders, (c) administrator online course, and (d) *Thinking Aloud* website.

Monthly webinars for teacher leaders. In addition to attending the RAISE Institute, teacher leaders participate in monthly webinars focusing on the following.

[8] Starting in the 2012-13 school year, these webinars were replaced with three day-long, in-person meetings with all teacher leaders in the state. The goals of the webinars and in-person meetings are the same.

a) Articulating the RA model and framework
b) Methods for providing on-site support to teachers
c) Tools and resources for teachers

During the first year, the SLI staff will present the teacher meeting agendas to the teacher leaders, but in future years the SLI staff will work more collaboratively with the teacher leaders during the webinars to prepare and review the teacher meeting agendas.

Monthly on-site support meetings for teachers. The teacher leaders will take what they have discussed and learned during the monthly webinars and facilitate one monthly on-site meeting with their school's RAISE teachers. These meetings will be similarly structured during the first year of implementation and the agenda for meetings will be prepared by site coordinators and SLI for continuity across schools and districts. During the meetings, the teacher leaders will provide support to teachers, help them problem solve, and provide tools to facilitate implementation. These meetings will be designed to foster a professional community among the RA teachers through teacher collaboration and learning. Activities may include sharing of practices, reviewing student work, using RA protocols to guide discussion and reflection about practices, reviewing videos of practice, and reading and discussing professional articles.

Administrator online course. Administrators will also have the opportunity to participate in an online course about RA so they can support RA instruction in their school classrooms. The course will be developed in collaboration with SLI and the site coordinators and will be designed to prepare administrators to articulate the RA model and framework, recognize RA practices, provide an infrastructure for supporting teachers (e.g., space for monthly meetings, supplies and materials, allowing for time for collaboration), and provide tools and resources for teachers (e.g., model lessons, rubrics for practice, protocols for collecting and reviewing student work). The course will not focus on evaluating teachers. While the course will be optional, administrators will be encouraged to attend.

Thinking Aloud website. Additional resources for facilitators, administrators, teachers, and teacher leaders will be provided through an online portal, called *Thinking Aloud* (to be developed in years 1-2 of the initiative). The *Thinking Aloud* website will provide the means for educators to support one another, share ideas, ask questions, discuss strategies, and build a stronger professional network of the RA community.

Intermediate Outcomes

Here we describe the hypotheses regarding *how* the Stage 1 development activities will lead to the five intermediate outcomes, as depicted by the green arrows in our logic model.

Buy-in to the RA Framework

We define buy-in as commitment to RA as an appropriate strategy for literacy instruction and as a means of improving student achievement. Our model contains four green arrows leading from the four development activities to buy-in. Project coordination includes communication with teachers/administrators that is intended and designed specifically to increase staff buy-in, and is the channel through which schools and districts will get the support and materials to implement and expand RA. Recruitment and retention will also lead to increased buy-in; recruitment offers teachers and schools the chance to participate, and retention offers incentives for participants to continue use, as well as to evolve in their practice. The professional development and instructional support are designed to convince staff at all levels of the district, from teachers to administrators, that RA will be an appropriate and effective method for teaching literacy instruction and improving student achievement.

Increased Capacity to Implement and Disseminate RA Practices

Our model contains green arrows leading from three development activities (project development and coordination, professional development, and instructional support resources) to increased capacity. Project development and coordination, as well as recruitment and retention activities are expected to directly lead to the increased capacity of states, districts, and schools to implement RA through allocation of funding and dissemination of information. In addition, as a result of participation in the RA professional development activities and as a result of receiving instructional support, teachers, teacher leaders, and principals are expected to have increased capacity to implement and disseminate RA practices. As teachers, teacher leaders, and administrators become well versed in RA, it is hypothesized that they will put in place and maintain structural supports (e.g. meeting space for teachers, time for collaboration) and will create and sustain resources (e.g., materials and tools for teachers).

Increased Participation in RA

A key outcome in most scale-up work is to spread ideas and interventions to larger and more diverse populations (Schneider & McDonald, 2007). This intermediate outcome corresponds to Coburn's dimension of spread, which she describes as the spread of reform-related norms, beliefs, and principles within a classroom, school, and district. In our logic model, this outcome relates to both spread from within, as well as outward expansion to more districts, schools, and classrooms. There are three development activities from our logic model (project development and coordination, active recruitment, and professional development) that are hypothesized to increase the number of teachers, schools, and districts using the RA framework. Specifically, project development and coordination will help with funding and building of local partnerships, which will allow for more schools to implement RA. Active recruitment and retention will also result in more involvement from teachers, schools, and districts. By the end of the grant period, SLI's goal is to have trained 2,800 teachers and 240 teacher leaders, and have impacted 410,000 students (SLI, 2010). The professional development is the primary method of disseminating RA norms, beliefs, and principles.

Classroom Fidelity of RA

The goal of the RA professional development is to transform academic literacy teaching. In this logic model, we operationalize this goal as classroom fidelity of RA. This outcome corresponds to Coburn's dimension of depth, which is defined by changes in teachers' beliefs, norms of social interaction, and pedagogical principles enacted in the curriculum. At the classroom level, fidelity will be characterized by increased numbers and varieties of texts, collaborative activities and assignments for students, use of metacognitive inquiry, and instruction promoting equity. Our model contains two arrows leading from two development activities (professional development and instructional support resources) to classroom fidelity of RA. Professional development will provide teachers with the skills to implement RA with fidelity and continually improve on their practices, and the instructional supports will further improve teachers' understanding of RA practices. Furthermore, it is hypothesized that use of instructional supports will lead to changes in teachers' and administrators' beliefs about literacy instruction, as well as provide a forum for collaboration and support, thus resulting in higher classroom fidelity.

Increased Student Achievement

The fifth intermediate outcome in this process is student achievement. RA has been shown to have positive effects on student achievement in previous studies (Corrin et al., 2008; Greenleaf et al., 2009; & Greenleaf, Schneider, & Herman, 2005). While there are no direct links between the development activities and this outcome, it is a critical intermediate outcome in this process.

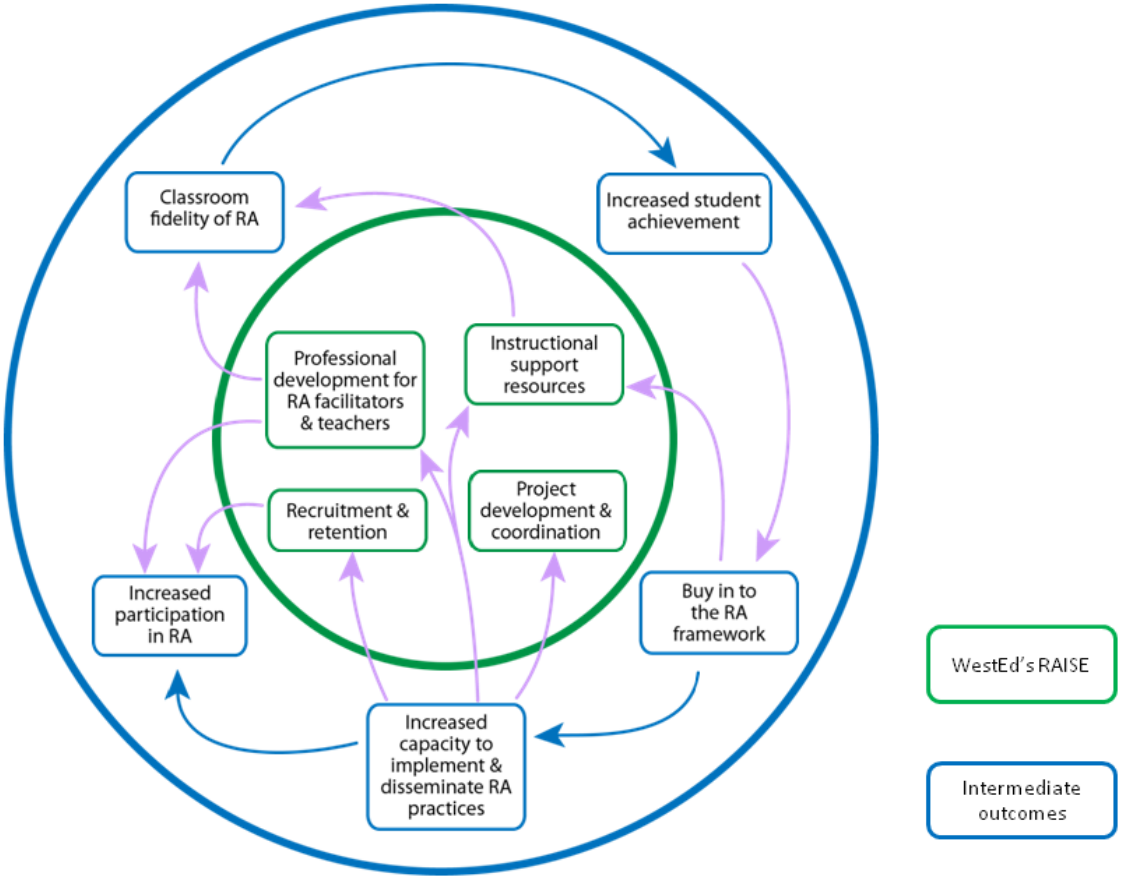

FIGURE A2. STAGE 2: INCREASED OWNERSHIP

STAGE 2: INCREASED OWNERSHIP

At Stage 2 of our model (Figure A2), ownership of RAISE begins to transition from the developers to the districts, schools, and teachers and a dynamic "cycle of improvement" develops. This stage, together with Stage 3, corresponds to Coburn's dimension—Shift in reform ownership—which refers to a transfer in ownership from the "external" providers to the "internal" actors. Adelman and Taylor describe ensuring long-term ownership and sustainability of the intervention, which requires (a) ongoing (local) leadership to take responsibility for the intervention, and (b) maintenance of planning, implementation, and coordination mechanisms to keep the intervention running. They state that "institutionalizing new approaches entails ensuring that the organization assumes long-term ownership and that a blueprint exists for countering forces that erode progress" (Adelman & Taylor, 2007, p. 220). Here we describe how the initial development activities become a shared responsibility between the SLI team and the local organizations (in this case, schools and districts).

Project Development and Coordination

The SLI co-directors continue to be responsible for overall management of the scale-up process as well as securing funds to supplement the i3 grant. Schools and districts also begin to examine local funding sources that can be dedicated to continuing and expanding RA. External formative evaluations will be ongoing, but the local level will also begin to develop tools to be able to evaluate their implementation and needs for future self-assessment. Local actors will also take more responsibility for organizing the dissemination of information about the overall pedagogical principles of RA in general, and specifically about the RAISE project

development, professional development, and support opportunities that will be available to their local schools and teachers.

Recruitment and Retention

The SCs continue to identify, recruit, and retain districts, schools, teacher leaders, and teachers to participate in the RA professional development and adopt the RA framework in their schools. Local district and school administrators work closely with the SCs to identify and recruit additional teachers and schools from existing RAISE schools and districts (i.e. horizontal spread) to join the scale-up efforts. Districts and schools will also play an active role in reaching out to neighboring schools and districts to share their experience with RA and invite them to join (i.e. vertical spread). Retention of RA teachers, teacher leaders, and schools becomes increasingly complicated as more actors are now involved. The SCs will depend more on local administrators to support retention efforts and alert them to issues that may jeopardize retention.

Professional Development

Professional development for new teachers will continue to include 65 hours of professional development (RAISE Institutes) on the RA model and philosophy. As veteran RA teachers and teacher leaders increase their depth of understanding of the RA model, they will play an important role in supporting newly trained RA teachers during the training and at their local sites. There will also be increased opportunities for RAISE trained teachers to apply for and join the professional development facilitation team.

Instructional Support Resources

The monthly meetings continue to occur, however, there will be more leeway and flexibility for teacher leaders to prepare their own agendas and respond to specific school needs. Furthermore, the *Thinking Aloud* website will be monitored by the SLI team, but at the local level, teachers and administrators will use the website to develop networks with RA teams in other states.

Cycle of Continuous Improvement

The four development activities from Stage 1 (project development and coordination, recruitment and retention, professional development, and instructional support resources) become shared responsibilities between the developers and the local actors. Each of these activities will be adapted to local contexts and needs and should be planned with the idea of sustaining RA locally. The intermediate outcomes are established and reinforced, and are beginning to become independent from the resources, funding and involvement of the SLI team. This cycle of improvement is characterized by continuous interactions and feedback loops between the development activities and intermediate outcomes.

As the cycle develops, not only do we expect a higher measure of each of the intermediate outcomes as the process evolves (i.e. increase in participants, more capacity to implement, deeper classroom fidelity, higher student achievement, more buy-in), but also that, as they increase, they are reinforced and supported from within (the classroom, school, district, state) rather than by the developer (i.e. the transfer of ownership). Here we describe each of these arrows in the cycle in relationship to the intermediate outcomes.

Buy-in of RA Framework

Our model contains one purple arrow leading from increased student achievement to buy-in. As student achievement increases, we hypothesize that teachers, schools, districts and states will become more committed to implementing and expanding RA. That is, the results will feed back into the uptake or buy-in of RA. Furthermore, our model depicts one purple arrow leading from buy-in to instructional support resources. We hypothesize that as teachers, schools and districts take ownership of RA, teachers, teacher leaders and

administrators will use the instructional support resources to supplement and inform their practices, as well as to develop networks with other RA professionals. Teachers, teacher leaders, and administrators will provide feedback to their site coordinators and the SLI team about how these resources are used and whether additional instructional supports are needed at their local level.

Increased Capacity to Implement and Disseminate RA Practices

The purple arrow leading from increased capacity to instructional support resources shows that teachers and administrators will take ownership of the instructional supports, such as the monthly school team meetings and web portal, and adapt these supports to fit their local contexts. Our model also depicts one purple arrow leading from increased capacity to professional development. As schools, districts and states build capacity to support the implementation of RA, we hypothesize that local actors will play a more active role in the professional development by providing feedback to inform the professional development of teachers and teacher leaders and becoming trained RA facilitators. Furthermore, as districts and states begin to develop their own professional development to support the sustainability of RA, additional feedback will be provided to improve the overall RAISE project. The local level actors will also build the capacity to take more ownership of project coordination and recruitment and retention activities, as represented by the two purple arrows leading from this intermediate outcome to those development activities.

Increased Participation in RA

There is a purple arrow leading from professional development to more teachers, schools, districts using RA. As the development of teachers, teacher leaders, and administrators is increasingly supported at the local level, more students will be impacted by RA.

Classroom Fidelity of RA

Our model contains two purple arrows leading from two development activities to classroom fidelity. These two purple arrows are the same as the green arrows described in Stage 1. As these development activities become increasingly shared between the SLI team and local actors, support and guidance to address challenges and issues with implementation in schools will occur more from the local level. Furthermore, through the web portal resources, RA teachers and teacher leaders become linked with a wider network of professionals engaged in RA. Through building this support network, teachers, teacher leaders and administrators will strengthen their commitment. Within this process, schools build capacity, improve performance, and maintain fidelity to the RA model.

Student Achievement

In our model, one purple arrow from student achievement leads to buy-in. As participating states, districts, and schools receive information regarding effects on student achievement, their support for RA will increase. As support continues to build, more resources will be put towards RA professional development, development of teacher leaders, and ownership over the tools and systems once provided by the developers.

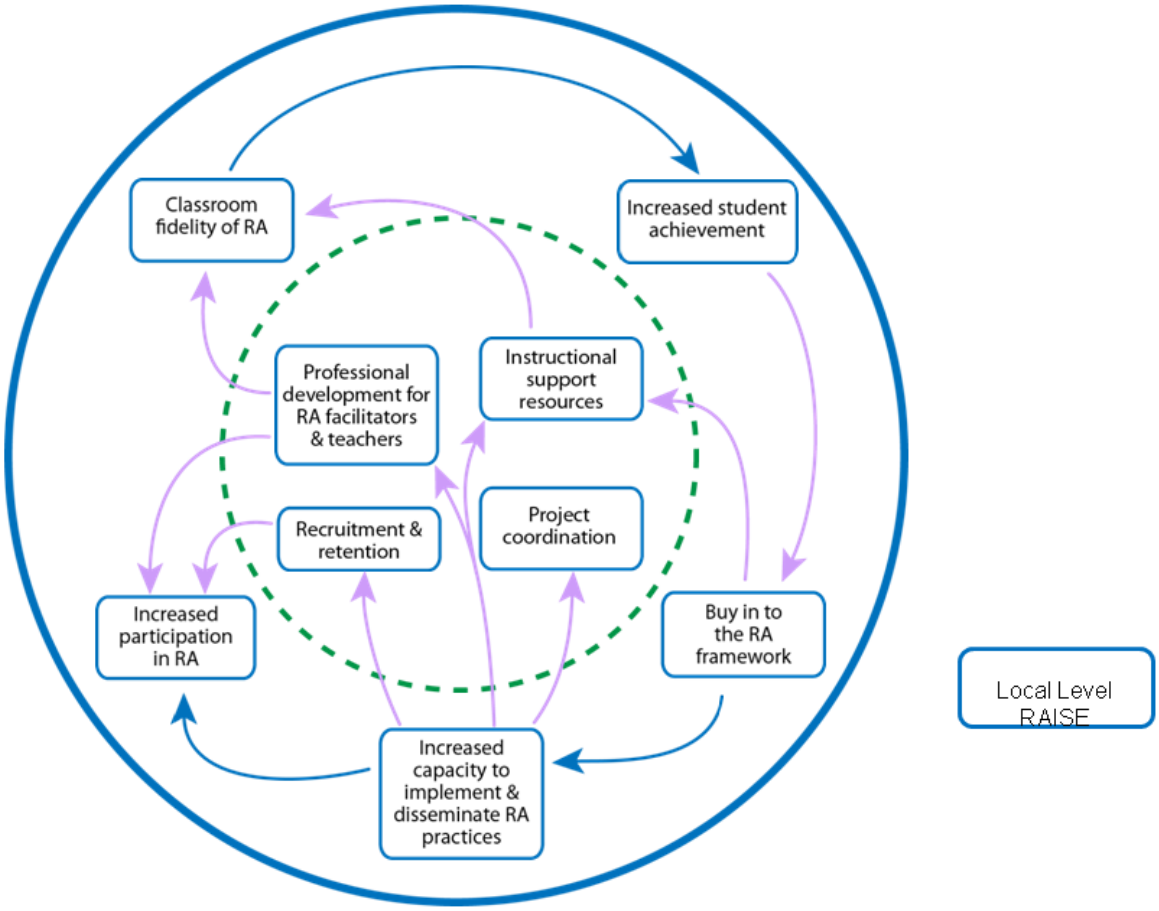

FIGURE A3. STAGE 3: SUSTAINED OWNERSHIP

STAGE 3: SUSTAINED OWNERSHIP

The third stage in our logic model (Figure A3), Sustained ownership, involves a withdrawal of resources and support from the SLI team and a transfer of more responsibility and ownership of the activities to sustain RA to the local schools and districts. In this stage, the green outlines around the development activities begin to fade, signifying the diminishing presence of the SLI team and sustained ownership of the RAISE project goals at the local level. Furthermore, the schools and districts take responsibility for the intermediate outcomes and the interactions among them, thus the blue arrows are also replaced by purple arrows, signifying that the cycle is sustained at the local level. Responsibilities for recruitment and retention, professional development, and instructional support resources are transferred to the local level. Project coordination is also transferred to the local level.

In this stage, we expect that RA has been fully implemented in a large number of schools and districts and that there are many teachers, teacher leaders, and administrators involved. While the developers are minimally involved in the project coordination, we hypothesize that states or districts have either sought external funding or have allocated internal resources for implementing and retaining RA in schools. Furthermore, states, in collaboration with school districts, will recruit and train new and replacement teachers on an as needed basis, as well as continue to provide incentives for teachers and teacher leaders who are doing exceptionally well to serve as models for others, or be trained at a higher level. Professional development opportunities and instructional support resources will be offered by states and districts. The *Thinking Aloud*

website portal will continue to be used to create and maintain social networks for RA professionals. Schools and districts will begin to shift their academic policies in support of broadly implementing RA long term. Districts will have developed evaluation tools for identifying needs, strengths, and areas of change for self-assessment. This stage is similar to the fourth and last phase of Adelman & Taylor's model, ongoing evolution, and is concerned with accountability in outcomes as well as in continually evolving practice for improvement through formative and summative evaluation.

The cycle of improvement continues in this stage. The purple arrows depicted in Stage 3 are the same as the purple arrows in Stage 2. However, these relationships between activities and intermediate outcomes have strengthened over time, and continue to evolve as ownership of the RAISE reform efforts is more thoroughly transferred to the local level.

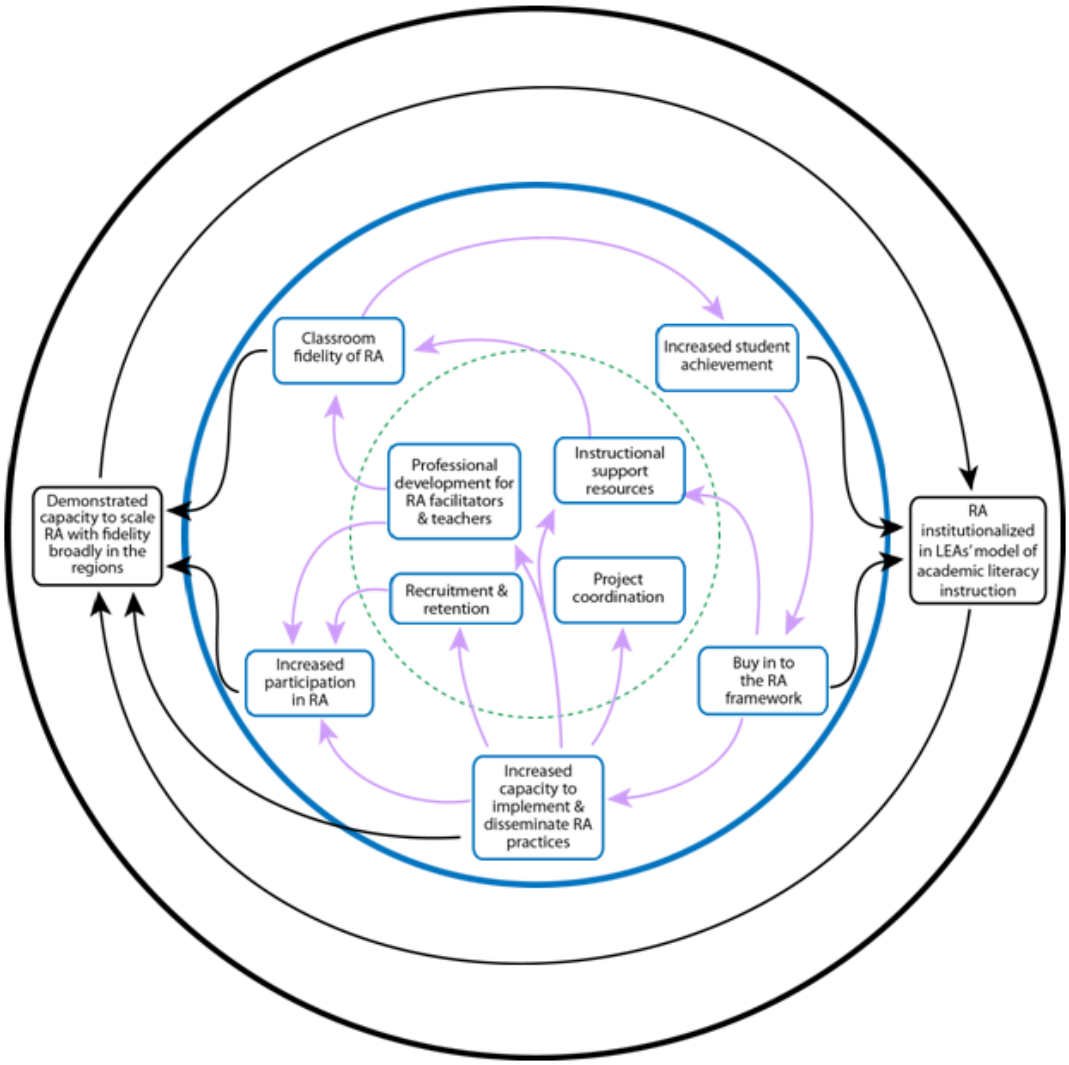

FIGURE A4. STAGE 4: RA BROADLY INSTITUTIONALIZED

Stage 4: RA Broadly Institutionalized

This last stage retains the arrows and boxes depicted in stage 3, and the cycle of improvement is ongoing; however, in this last stage (Figure 4), all activities are implemented at the local level and are built to sustain RA as well as to help other LEAs develop similar capacity. This stage corresponds to Coburn's Sustainability dimension, which is described as the distribution, adoption, and maintenance of an innovation long-term.

By Stage 4, RA has become a norm and standard in the originally recruited LEAs; there is solid commitment and support at all levels built into the system. In addition, all of the intermediate outcomes are realized, which is hypothesized to lead to two end outcomes: 1) RA becomes institutionalized as the LEAs' model of academic literacy and 2) LEAs demonstrate capacity to scale RA with fidelity broadly in the regions (SLI, 2010). Specifically, there are three black arrows leading from Classroom fidelity of RA, Increased capacity to implement and disseminate RA, and Increased participation in RA to Demonstrated capacity to scale RA with fidelity broadly in the regions. We expect that in this final stage an increase in local units implementing RA with fidelity will contribute to an increase in participation broadly in the region. Additionally, there are two black arrows depicted in the logic model leading from Increased student achievement and Buy-in to RA becomes institutionalized in the LEAs' model of academic literacy. As depicted in the logic model, increase in student achievement and continued support and commitment (buy-in) for RA will lead to policy shifts at the school, LEA, and state level where RA is "institutionalized" as the local model of academic literacy instruction. Our model also consists of black arrows leading from RA becomes institutionalized in the LEAs' model of academic literacy to Demonstrated capacity to scale RA with fidelity broadly in the regions and vice versa. Policy shifts that support RA institutionalization will result in an increase in units that implement RA. The increase in units will further reinforce institutionalization and policy at the school, district and state levels.

Logic Model Updates

In the early development of the scale-up logic model, we focused on the literature that described the "shift in reform ownership" as the primary dimension for scale-up. One of the key areas of investigation in our study was how the developers create conditions and build capacity to shift the ownership to the local level. However, there is another component of the process that we have realized must be accounted for in the logic model driving this study: balancing the centralized, on-going research and development functionality of the developers with the uptake of reform ownership at the local level.

Since the inception of Reading Apprenticeship, SLI has followed a "design research" model in which they have maintained a dialogic exchange with the field. At each stage of implementation, SLI has included a research component, and revised and improved RA based on that research. While the core theory and pedagogy behind RA has remained constant, the R&D team has continued to develop new resources and supports to deepen the RA professional development experience and practice in the field. In this scale-up process, the local level is expected to adapt these resources to their contextual needs, and SLI will continue to improve and revise these components as they learn from the field.

As the process of generative scale-up will continue through the RAISE project, it has, therefore, now been built into our logic model. In the original version of the logic model, as ownership strengthened at the local level, we hypothesized that the presence of the developers would diminish, until it completely disappeared. We have revised the logic model so that the developers' presence fades, but remains as they interact, build relationships, and improve the program based on what they learn from the field.