Developing a common vision for supporting coherence in three preservice science teacher education programs

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Developing a common vision for supporting coherence in three preservice science teacher education programs

Members of the education community face a challenge bringing coherence to the apprenticeship of preservice science teachers (PSTs) and creating a common vision among the many individuals who play a role in developing PSTs' understanding of effective science instruction (Darling-Hammond, 2014; Zeichner, 2010). The STeLLA CO^2 project seeks to address this challenge through a partnership with three universities (pseudonyms: Universities A-C) in the Rocky Mountain West region. Our project has three goals:

- To establish, develop, and grow a community of educators that will collaboratively and seamlessly support undergraduate secondary science preservice teacher education.
- To support communities within each university to enhance their preservice program.
- To generate knowledge about the effectiveness of the STeLLA approach for new teachers and their students.

Learning to teach is a complex, social practice that occurs in the context of a community of practice (Grossman et al., 2009; Lave & Wenger, 1991). Novices learn alongside more knowledgeable experts through cognitive apprenticeship (Collins et al., 1991). They learn theory from university faculty and rehearse what they have learned in the context of K-12 classrooms with a mentor teacher (MT). To help PSTs learn effective pedagogical practices, knowledgeable experts need to break down the components of these complex practices and articulate how and why these components contribute to meaningful science learning (Grossman et al., 2009). Through these rehearsals, novice teachers become skilled practitioners and meaningful users of learned practices. However, PSTs are often presented with conflicting images of science teaching from their experiences as K-16 science learners, their university teacher preparation courses, and their classroom practicum experiences (Fletcher & Luft, 2011; Lortie, 1975). For example, one of our university faculty reported, "It's frustrating when I tell them one thing, and they go out and see something different in the schools." When the visions of effective science teaching and learning are not aligned between the experts tasked with apprenticing novice teachers, a new teacher might wonder which image they should emulate or how to internalize potentially conflicting feedback for improving one's classroom practices.

The STeLLA CO^2 project works to bring together relevant stakeholders tasked with apprenticing PSTs to develop a university-based community that shares a common vision and language for talking about effective science teaching practices and can model this vision in their own teaching contexts. This community includes faculty members who teach undergraduate science courses; faculty members who teach secondary preservice education courses; and MTs who support PSTs' field experiences. Through the STeLLA CO^2 project, these communities reflected on the extent to which their existing PST programs present PSTs with a coherent and consistent vision of effective science instruction in secondary classrooms. To facilitate the co-development of a common vision, participants learned about the STeLLA (**S**cience **Te**achers **L**earning from **L**esson **A**nalysis) conceptual framework, which involves two lenses that teachers can apply to their classroom practices to move students' science thinking forward: a *student thinking lens*, which includes pedagogical strategies for surfacing and using student thinking, and a *science content storyline lens*, which involves pedagogical strategies for supporting students in constructing coherent science learning (Roth et al., 2019; Taylor et al., 2017). To develop an understanding of the STeLLA strategies, participants collaboratively discussed and analyzed

classroom videos showing the strategies in action and reflected on how they might apply what they've learned to their own teaching contexts.

Building on Stennett et al. (2020), this paper shares the plans each university team developed using what they learned about STeLLA to enhance the coherence of the PST learner experience and implemented during the 2019-20 academic year. Using surveys and interviews with university team participants, we describe the successes and challenges that each team faced during the first year of implementation of their plan and how they intend to iterate on their plan or develop ways to work together better in service of realizing their common vision. This work will be of value to the ASTE community, as we share a novel approach towards enhancing the PST learner experience by bringing relevant stakeholders together to develop a common vision and coherent approach to secondary science PST preparation. Two questions informed this research:

1) What guided the design and implementation of each university team's plan?
2) What successes and challenges have teams faced as they developed a common vision and implemented their plans?

The STeLLA CO^2 Project: Description and Theory of Change

Facilitating Cross-stakeholder Collaborations to Realize the Vision

Figure 1 outlines our Theory of Change for how the STeLLA CO^2 project can support PSTs and their students. The project involved three different phases: Phase 1: Developing a community with shared vision and purpose; Phase 2: Operationalizing a vision of effective science teaching and learning; and Phase 3: Analyzing Pre-Service Teacher (PST) Outcomes.

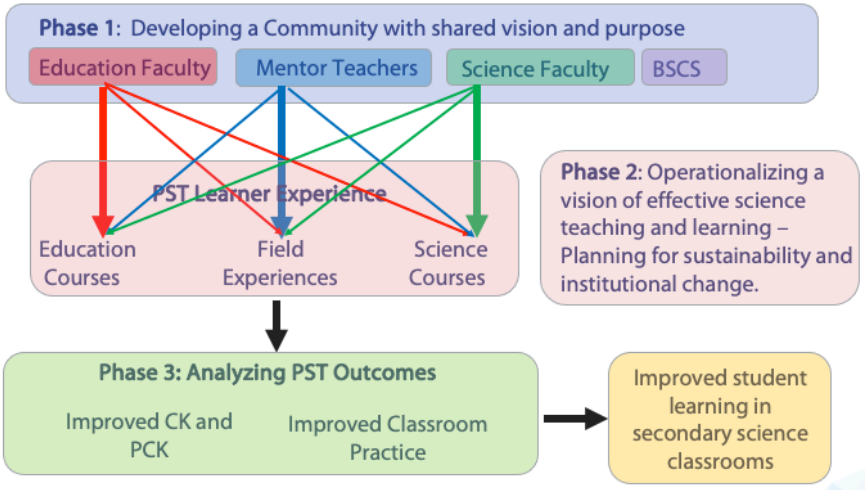

Figure 1. STeLLA CO^2 Project Theory of Change

Phase 1: Developing a community with shared vision and purpose. During Phase 1, university science and education faculty and MTs participated in BSCS STeLLA CO^2 project staff-facilitated synchronous sessions and asynchronous work to co-develop a common vision for effective science teaching and learning using the STeLLA conceptual framework. This work involved the analysis of classroom video from non-participant, secondary classrooms before participating in study groups, during which STeLLA CO^2 project stakeholders shared video of themselves trying to use one or more STeLLA strategies and discussing with others the implications of their use on student learning. Phase 1 involved recruiting two cohorts of

participants that were later combined during Phase 2 of the project to ensure that we had sufficient representation from each stakeholder group.

Phase 2: Operationalizing a vision of effective science teaching and learning. In Phase 2, STeLLA CO^2 project staff supported each university team in applying what they had learned and found useful from STeLLA to their own teaching practice and PST programs. Teams co-developed a localized plan to operationalize their vision for enhancing the coherence of the PSTs' learner experience and sustain changes beyond the scope of the grant period. Examples of plan components included revisions to education and/or science university courses that PSTs would enroll in to incorporate or make explicit the use of the STeLLA strategies and additional endeavors that university team members felt were necessary to support PSTs. To be funded as part of the STeLLA CO^2 project, plan components needed to be aligned with the STeLLA CO^2 project goals. Each team was led by at least one university faculty member, with one university team co-led by a university faculty member and mentor teacher.

A core goal of the STeLLA CO^2 project was a stronger and more coherent PST learner experience that was consistent with the co-developed vision of effective science teaching and learning and broke down traditional stakeholder roles and responsibilities. Thus, we invited cross-stakeholder collaborations to consider revisions to each aspect of the PST learner experience. For example, two of our universities involved mentor teachers co-planning and co-teaching class sessions related to the STeLLA strategies. In doing so, mentor teachers were able to leverage their classroom experiences to inform how PSTs developed an understanding of the strategies and how their use can be supported in the classrooms. In our general theory of change (see Figure 1), we use bolded, colored arrows to identify the primary stakeholder group responsible for key parts of the PST learner experience: Education courses, Field Experiences, and Science courses. When creating university team-specific models to understand what was happening at a particular university, we adjusted the arrow width to indicate the level of involvement of each stakeholder in informing that aspect of the PST learner experience. In the aforementioned example, we would use bolder arrows between mentor teachers and education courses to represent the enhanced role that mentor teachers played at that university site.

STeLLA CO^2 staff invited PSTs and their MTs to a three-day institute prior to their student teaching semester to ensure that all participants had a common understanding of key STeLLA strategies from both lenses and had the opportunity to co-plan together. The rationale was two-fold. Because the Phase 2 university plan implementation work involved iterative implementation and revision, we wanted to ensure that all PSTs had a basic understanding of key STeLLA strategies to ascertain the effects of learning about and using STeLLA on PSTs and their students in Phase 3. In addition, it was not always possible due to grade-band and disciplinary constraints of PST placement for PSTs to be placed with a STeLLA CO^2 MT. Thus, this 3-day institute provided the opportunity for MTs to become familiar with the STeLLA strategies.

Phase 3: Analyzing Pre-Service Teacher (PST) Outcomes. In Phase 3, we will analyze the effects of the STeLLA CO^2 intervention on PST outcomes. The composite treatment for PSTs is a combination of their participation in the revised components of the PST learner experience, as guided by each university team's plan, and the STeLLA CO^2 PST/MT institute. In our Theory of Change, we theorize that the incorporation of the STeLLA strategies in the context of university instruction will improve PSTs' content and pedagogical content knowledge for how to use the STeLLA strategies to improve secondary science learning.

Research Methods

This paper shares findings from the first of three years of Phase 2 of the STeLLA CO^2 project, which involved analyzing underlying rationales for including components of each university team's plan and the successes and challenges of developing and implementing the plan. The data from this study comes from 9 university faculty and 23 mentor teachers across 3 universities. To understand the development and implementation of each university team's plan, we analyzed video recordings of two in-person institutes, during which each team developed their plan; administered monthly and year-end surveys; and conducted interviews with a representative sample of team participants (6 university faculty and 11 mentor teachers). See the Appendix for copies of year-end survey and university team participant interview protocol.

We used an inductive coding approach (Miles & Huberman, 1994) to identify themes in the university team plan components, the rationales for those components, and the stated roles for education faculty, science faculty, and mentor teachers when implementing the plan. We used survey and university participant interview data to identify themes related to community and factors that hindered plan implementation. Table 1 summarizes the categories of codes that emerged from the data analysis.

Table 1. Category of Codes

Category	Description
University Team Plan Components	This category of codes involved identifying the components of the university team plan. • Course content • Tools and protocols • Professional Learning • Additional STeLLA-related work that was not part of university plan
Underlying rationale for proposed plan	This category of codes examined the underlying rationales for each of the components of their plan. • Use of STeLLA strategies • Coherence • Capacity-building
University Participant Roles	This category of codes examined the planned and actual roles that each stakeholder group played in the university team plan implementation. • Education faculty • Science faculty • Mentor Teachers
Ideas related to community	This code examined sentiments related to the extent to which university team participants felt like they • shared a common vision for implementing what they learned about STeLLA in each university's PST program and • were part of an inclusive community that honored their ideas and contributions.

Additional Factors that hindered plan implementation	This code examined additional factors from the university team's context that may have hindered implementation of the team's plan. Examples include departmental rotation of faculty scheduled to teach university courses or relationships with districts where mentor teachers are supporting PSTs.

Findings

Nearly all STeLLA CO^2 participants agreed that they felt part of a community committed to improving PST education and looked forward to contributing to that work. However, there were differences in the extent to which team members felt engaged in their university team work. In this section, we describe each university team's plan to revise their PST learner experience, and the successes and challenges that university teams faced implementing their plans as a community. Figures 2-4 show university team-specific versions of Phase 2 of the generic theory of change to describe the key features of their plans and the adopted roles for each stakeholder group in the PST learner experience.

University A

Although education faculty members and MTs shared that they have always used the STeLLA strategies as part of their classroom practices, they did find it helpful to use the STeLLA strategies as a common language to communicate with one another about the desired classroom outcomes and useful pedagogical strategies for achieving those goals. One education faculty member shared,

> I might talk about, discourse and someone else might talk […] like, "That's the same thing." But to I think the candidate sometimes [found] that was confusing. […] I think we all had shared goals and perspectives, but I don't know if we were all using the consistent language. And so, I think that STeLLA really helped with that. (University Faculty Member, May 20, 2020)

In response, the University A team plan (see Figure 2) involved university faculty and mentor teachers in revising lesson planning templates and observation protocols used in education courses to help PSTs focus on particular areas when planning and carrying out lessons, such as identifying the focus question and main learning goal for a lesson (STeLLA *science content storyline lens* strategies) and provide targeted, coherent, and objective feedback from all relevant stakeholders. Prior observation tools placed too much focus on what the teacher was doing or saying rather than analyzing student discourse, a key shift found in NGSS-aligned instruction. In response, the lesson planning template included educative features to support PSTs, such as questions to guide the development of questions to elicit, probe, and challenge student thinking (STeLLA *student thinking lens strategies*). Furthermore, the team developed a tool that secondary science students, PSTs, MTs, and observers could use to assess the extent to which students were communicating in scientific way (STeLLA *student thinking lens* strategy).

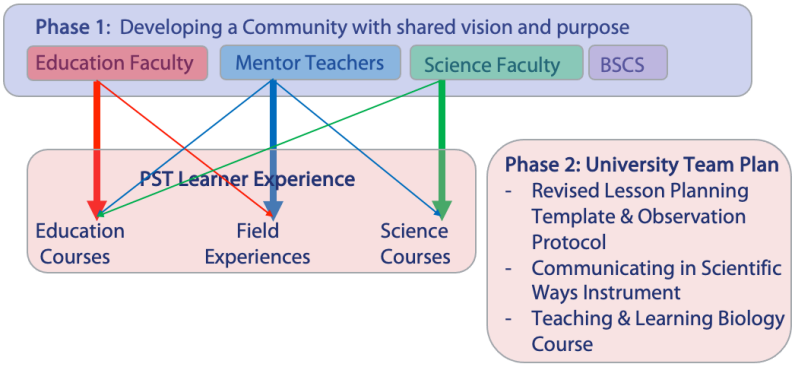

Figure 2. University A's Theory of Change

As a team, participants reported a common vision for the usefulness of the STeLLA strategies for supporting and enhancing PSTs' classroom practices. The university plan had a positive impact on MTs' relationship with education faculty, as MTs reported having a clearer understanding of what the PSTs were working on in their university courses, allowing MTs to provide PSTs with the right opportunities to practice and develop their classroom practices and use consistent language when providing feedback. For example, rather than evaluating a lesson in general terms, a MT could use common language to articulate how using the STeLLA strategies could help PSTs better achieve their goals. One mentor teacher shared

> It is nice, I think using the stuff that we've done in the STeLLA that where we can have some common language and this is how we go about structuring a lesson. And so, one of the things that I really wanted, and have come out of it with is a lesson planning design of like, "This is how we're going to go about making the lesson. These are the things that are good in a lesson. And that's what we're shooting for." (Mentor Teacher Interview, June 3, 2020)

Although plans to test the designed tools with PSTs were interrupted due to COVID-19, there are plans to iterate upon this work in the future. When asked to consider what additional work they would like to pursue, MTs reported needing additional meetings to allow the lesson planning template and observation protocol teams to share their ideas to ensure alignment between the tools. Due to the size and number of districts represented on the team, MTs requested more frequent meetings to ensure a common vision. In addition, MTs wished to have additional conversations with education faculty about how the developed tools would be used in the context of the university program to ensure that the tools were used to provide formative feedback rather than to formally evaluate PSTs. Furthermore, MTs desired to iterate on the tools and protocols to design less scaffolded versions of the tools in later courses to correspond with PSTs' developing expertise and more closely resemble tools that practicing teachers may use on a regular basis.

Although this work contributed to improving relationships between education faculty and MTs, the science faculty felt less engaged in the core aspects of the university team work. The science faculty members designed courses that used pedagogy that aligned with the STeLLA strategies, including one course that was cross-listed with the School of Education to learn strategies for teaching biology. However, this work was done in parallel and was not part of University A team's original plan. During interviews, science faculty shared ideas for working

with PSTs, such as co-teaching the cross-listed course with a faculty member familiar with the STeLLA strategies or inviting mentor teachers to host small group discussions. However, science faculty resisted sharing their ideas with the broader team, as they felt that the PST program was a "well-run ship" and did not want to suggest ideas that may not be useful or without being explicitly invited to do so by education faculty. Thus, more intervention might be needed to welcome science faculty's contributions to the University A PST learner experience. At a recently hosted STeLLA CO^2 project meeting, this issue was brought up in a facilitated conversation and the University A team decided to make this cross-listed education and science course a core part of University A's team plan. Thus, the stakeholder role arrows in Figure 2 represent the science faculty's increased role in the cross-listed teaching and learning biology course, while maintaining their primary role in the instruction of their own science courses.

University B

The University B team has overcome community issues that affected their team's progress. Due to competing priorities and differences in participants' perceived usefulness of the STeLLA strategies and/or the STeLLA CO^2 program, there was a lack of common vision among education faculty and MTs for how the STeLLA strategies could support PSTs. University B's first year of implementation work involved the design and implementation of a pilot activity, in which PSTs applied what they learned about the STeLLA questioning strategies (elicit, probe, and challenge student thinking) to design an inquiry lab activity that MTs then implemented with their secondary science students. PSTs received videos of the classroom enactments, student work, and feedback from the MTs and students. During this pilot, MTs identified issues that hindered the enactment of this activity with students. They recognized that PSTs needed better command of the STeLLA questioning strategies and would benefit from additional support in their university course work. Furthermore, MTs pressed education faculty members for PSTs to have the opportunity to teach the lab themselves so that PSTs could develop an understanding for how to use the STeLLA strategies to support student learning.

The pilot work was a turning point for the team, as it prompted the education faculty members and MTs to be more receptive to hearing one another's perspectives supporting PSTs, and was the impetus for the co-development of a shared vision for how the STeLLA strategies could be a central, rather than a tangential, part of efforts to support PSTs. MTs pushed for the STeLLA strategies to have a more central focus in education courses and offered to take on a more active role in supporting the practical aspects of teaching PSTs how to use the STeLLA strategies in their classrooms. In addition, it was decided that the university team would be co-led by an education faculty member and MT to ensure a shared vision and enhanced communication among the team.

As with University A, University B's team's progress was hindered by COVID-19. Work scheduled to iterate upon the team's plan during Spring 2020 was pushed to the summer. During the Fall 2020 semester, the team revised two education courses to introduce and support PSTs' use of the STeLLA strategies. Mentor teachers co-planned and co-taught class sessions involving the use of the STeLLA strategies with education faculty members. Mentor teachers used videos and other professional learning resources from STeLLA CO^2 institutes to facilitate PST learning. The team implemented the revised inquiry lab activity, in which MTs adopted more of a

coaching role to support the PSTs' use of the STeLLA strategies rather than implementing the activity. Additional facets of the team's plan have yet to be implemented and will be the focus of future work. For example, MTs plan to design and facilitate after school workshops to support PSTs with the practical aspects of using the STeLLA strategies in their classroom and complement what PSTs are learning in their education courses.

Initial feedback from University B's team's work has been positive. Team members felt that there was more coherence within the courses and a greater sense of community among the team. In addition, university faculty members reported that the co-constructed work was more effective at achieving the desired learning goals compared to previous efforts.

> They're designing some lesson plans with my input and then I'm going to teach them. We started with research methods like Friday and I taught [Mentor Teacher]'s lesson and it went very well, very well. It's just kind of taking what I've already done and tweaking it to fit the needs of what they think the students [need], and I have to say I think the lesson that she designed was much better than what I was doing previously. (University Faculty Interview, August 30, 2020)

The team is now developing plans to revise additional courses within University B's PST program to ensure the incremental and coherent development of PSTs' understanding of the STeLLA strategies through their time in University B's PST program. In addition, University B's leadership has requested that the team design a new course centered around the use of the STeLLA strategies for PSTs early in the program. This program will be co-taught with a new university education faculty member, who has recently joined the STeLLA CO^2 project.

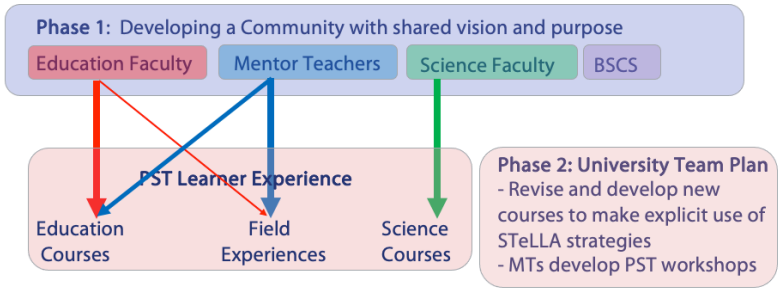

Figure 3. University B's Theory of Change

Despite the progress in the University B team's work, there are some persistent challenges. Due to time constraints, not all members of the STeLLA CO^2 team are able to actively participate in the university team work. However, we hope that participation will increase post-COVID-19. In addition, science faculty have not been involved in the university work despite repeated invitations. The stakeholder role arrows in Figure 3 represent the collaborative work of the University B education faculty and mentor teachers, and the parallel work of the science faculty in teaching their science courses. Despite these challenges, the team has made tremendous progress towards achieving their goals for building a more coherent and effective PST program.

University C

While University C PSTs enroll in foundational education courses taught by education faculty, courses specific to science education methods and practicum experiences are taught by science faculty, who also teach university science courses and specialize in discipline-based instruction. Because University C science faculty share similar roles as education faculty and science faculty at Universities A and B, we do not have any education university faculty participating in the STeLLA CO^2 project. Since non-science-specific education courses continue to be an important part of the PST learner experience, we include education faculty in the University C's theory of change diagram (see Figure 4).

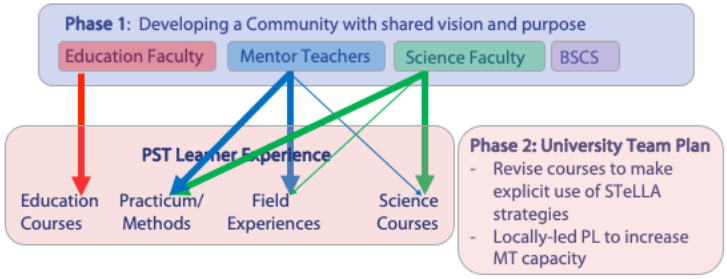

Figure 4. University C's Theory of Change

University C's plan introduces PSTs to the STeLLA conceptual framework in stages through four practicum seminars and uses the STeLLA CO^2 strategy booklet as a primary text in their methods courses. With multiple, rotating science faculty leading these practicum seminars, it was critical to introduce all faculty to STeLLA even though they were not part of the STeLLA CO^2 project. To support coherence, the team redesigned each course syllabus to include STeLLA CO^2 MTs as guest instructors to introduce the STeLLA strategies and facilitate the analysis of video showing the strategies in action. This approach was designed to maintain fidelity to the team's vision of effective science teaching and learning, while broadening multiple science faculty members' exposure to STeLLA and the video-based resources used to learn the STeLLA strategies.

> I think it's helped them to get a more and will continue to help them to get a more consistent message, even from our own instructors, because we tend to rotate instructors through that course. So, when they do that, instead of getting everyone's sort of pet topics [it will] be a more consistent [approach]. (University Faculty Interview, June 12, 2020)

Since PSTs are involved in community-based practicum experiences at each step of their program, the team recognized the need to recruit additional MTs to model the STeLLA strategies and maintain a consistent vision and language for describing and improving effective science instruction. To meet this need, STeLLA CO^2 MTs received approval to design and implement a year-long professional learning program at a local, large district to introduce STeLLA to any science teacher interested in hosting PSTs in their classrooms. Since all PST classroom observations and interactions prior to student teaching occurred in this local district, it was critical from a coherence perspective that PSTs observed teachers modeling how to use the STeLLA strategies in meaningful ways. They plan to expand this learning opportunity to MTs in neighboring districts in the coming year. The stakeholder role arrows in Figure 4 represent the enhanced role that the MTs adopted in the practicum/methods courses taught by science faculty.

The team reported having a common vision and purpose grounded in the implementation of STeLLA in their university PST programs. Their greatest challenge was increasing the understanding and acceptance of the approach by a rotating group of science faculty leading

practicum seminars. Another concern the team had was productively engaging existing and new MTs with the knowledge and experience with STeLLA so that they could adopt leadership roles and support and sustain the team's vision. University C's PSTs noted a lack of continuity between their theory-based education courses and the science department-led practicum seminars and methods courses. Additionally, the University C's School of Education arranges all practicum placements, which presents a problem when trying to prioritize placement with STeLLA CO^2 MTs. Thus, additional coordination may be needed between science and education faculty and school districts to ensure coherence for PSTs.

Discussion

Through the STeLLA CO^2 project, three university teams used what they learned about the STeLLA framework to implement a common vision for effective science teaching and learning in different ways considering their institutional contexts and needs to support coherence in PSTs' learner experiences. At University A, there was a need to ensure that all stakeholders had a common vision for what PSTs should be attending to when planning and carrying out classroom instruction. At University B, there was a need to enhance the MTs' role in the PST learner experience so that the university experiences and practicum experiences could complement one another and support PSTs in adopting effective classroom practices. At University C, there was a need to build capacity so that PSTs had appropriate contexts in which to practice what they are learning in their university courses and receive appropriate feedback. Underpinning this work is the use of the STeLLA conceptual framework that provided a common language for stakeholders to use when referencing effective science teaching and learning. However, supporting a coherent PST learner experience requires intentionality to place PSTs with STeLLA CO^2 MTs or recruit additional MTs, as was happening at University C.

This research highlights the challenges of developing and implementing a common vision that accounts for the ideas and roles of all relevant stakeholders. Figures 2-4 reflect the differences in the roles adopted by each stakeholder group at each university. All stakeholders need a clear role and invitation to meaningfully contribute to their community's plan. Each university team distributed leadership in different ways that influenced the focus of their plans and who was involved in that work. At University A, the team was led by education faculty, which influenced their focus on developing tools needed for their PST program. Since education faculty and MTs were the primary stakeholders responsible for using those tools, the science faculty adopted a more consulting role in the work. In contrast, there was more distributed leadership between MTs and faculty at Universities B and C, which may have been due to only having two, rather than three, stakeholder groups actively engaged in the STeLLA CO^2 project work. This research highlights the importance of communication and intentionality when inviting stakeholder groups to the table to ensure that all stakeholders are productively engaged in realizing the vision.

This research suggests the promise of using the STeLLA approach to support coherence in PST programs. The STeLLA CO^2 project offered the opportunity for relevant stakeholders to use STeLLA to support the co-development of a common vision for effective science instruction using a common language for describing targeted aspects of science teaching and learning. We have identified lessons learned that may benefit members of the teacher education community who seek to improve their own teacher education programs.

Appendix

End of Year University Plan Implementation Survey (All Participating university faculty & mentor teachers)

Progress on University Plan

1. What progress has your university team made on your plan this year?
2. How do you think these changes better prepared or will better prepare PSTs?
3. As a member of your University Team, what suggestions do you have for improving your University Team's plan? Why?

Participants' Role in Community of Practice

4. What was your role in enacting this plan this year?

5. Likert style questions from University Team Monthly Check-in: Reflecting on your experience **this year**, please indicate the extent to which you agree with the following statements.
    - I am satisfied with my university team's progress in implementing our STeLLA plan.
    - The STeLLA work my team has been doing is aligned with **my vision** of what should be occurring.
    - I am satisfied with **my role** on the University team.
    - **My ideas and expertise** were valued by my University team.
    - Through my STeLLA work, I feel like **I am part of a community** that is committed to improving preservice teacher education.

6. Likert Style Question with Conditional Follow-up: Based on your experience working with your University team as a whole, please indicate the extent to which you agree with the following statement:

    I believe that **my team members share a common vision** for implementing STeLLA.

    - For those who *agree/strongly agree*:
        1. What are some examples of ways in which your team has demonstrated and/or utilized this shared vision?
    - For those who *disagree/strongly disagree*
        1. What challenges do you think prevented the development of a shared vision?
7. In what ways did your participation in the STeLLA community of practice impact your own classroom practices?

8. In light of your successes and challenges working with PSTs this year, what changes will you make to your work with PSTs moving forward? Why?

University Team Participant Interview Protocol

1. What do you think are the most important features of a program for preparing effective PSTs?
    - Are there ways in which your STeLLA experience has enabled to you better support (or not) PSTs in these areas? If so, in what ways.
    - In what ways did your University Team Plan reflect these features?

2. To what extent do you think features of your University Team's plan have the potential to effectively prepare PSTs?
    - As a member of your University Team, what suggestions do you have for improving your University Team's plan? Why?

3. Did you feel like *everyone on your team* shared a common vision for implementing STeLLA or improving PST education?
    - If yes:
        - What are some examples of ways in which your team demonstrated and/or utilized this shared vision?
    - If no:
        - What are some examples/experiences that indicate, to you, that not everyone shared a common vision?
        - What challenges do you think prevented the development of a shared vision?

4. <u>University Team Lead</u>
    - What successes or challenges has your team faced as a result of implementing STeLLA?
    - What success or challenges do you anticipate in the coming year as we look forward to the coming year?

5. What suggestions do you have to help your community work better together to support your team's goals?

6. Show General Theory of Change Model with participants
    - To what extent do you think this diagram identifies the relevant features of our collective work together to influence PST classroom practices and Ss learning?
    - Are there particular things that you would change to reflect your experience?

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