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The K-12 Outreach Office at the University of Alaska Fairbanks (UAF) proposes a mid-phase Education Innovation and Research (EIR) project, *STARR* that builds off of a validated in-person mentoring program known as the Alaska Statewide Mentor Project (ASMP). For 16 years, ASMP has successfully provided in-person mentoring to early career teachers (ECTs; first- and second-year teachers) with positive effects on student achievement, ECT practice, and retention.[1,2,3,4] In the proposed project, *STARR* will compare the efficacy and cost-effectiveness of two delivery methods (in-person and virtual) to expand the benefits of ASMP to additional high-need rural/remote schools and those serving largely Alaska Native communities which experience persistent teacher quality and retention challenges.

STARR aims to achieve two goals - *expansion* and *enhancement*. The first goal of the project is to **<u>scale the validated ASMP mentoring model to cost-effectively expand the program's reach to additional rural/remote schools in Alaska (Goal 1)</u>**. Three project objectives will help us achieve this *expansion* goal: (1) determine the efficacy and cost-effectiveness of ASMP mentoring for virtual vs. in-person delivery using a school-level cluster randomized control trial; (2) create and implement a scaling plan to expand ASMP implementation in additional rural/remote schools; and (3) increase ASMP's long-term sustainability to serve ECTs statewide.

Our *enhancement* goal is to **<u>advance knowledge of how culturally responsive teaching facilitates social emotional learning (SEL) for students in rural/remote schools and those that serve largely Alaska Native communities (Goal 2)</u>**. To achieve this goal, the fourth project objective is to: (4) engage in a line of inquiry examining how strengthening the cultural competence of teachers facilitates students' sense of belonging, sense of recognition, and sense of identity as a learner. *STARR* anticipates serving 400 ECTs (in two cohorts) over the course of three years. Assuming each ECT serves an average of 15 students per year, *STARR* will impact over 7,500 Alaska students. In addition, we anticipate significant cost savings of 30% per teacher because of reduced travel costs.

ABSOLUTE PRIORITIES

Priority 1—Moderate Evidence Multiple studies of ASMP's impact have yielded moderate evidence of effectiveness (see Evidence Summary). There is a robust body of research examining the effectiveness of mentoring and induction programs on teacher retention, teaching practice, and student achievement.[4] ASMP is based on the New Teacher Center (NTC) induction model, which has been validated by a randomized controlled study[3,4,5] rated by the What Works Clearinghouse (WWC) to have demonstrated moderate evidence of effectiveness in other states and in urban schools of Alaska. Quasi-experimental studies of ASMP have also shown the positive benefits that comprehensive mentoring programs have on ECTs' instructional practice, retention, and student achievement in rural/remote Alaska schools.[6] *STARR* seeks to next validate the ASMP mentoring model in the rural/remote schools of Alaska.

Priority 3—Social Emotional Learning *STARR* also seeks to strengthen mentoring support, resources, and partnerships to bolster rural and Alaska Native students' SEL (sense of belonging, sense of recognition, sense of identity as a learner) through culturally competent teaching aligned with state cultural standards.[7] In this project, SEL focuses on developing resiliency in students to become critical and thoughtful learners and contributing members of their communities. Through a field-initiated innovation, *STARR* aims to connect

> 2004 ASMP begins, based on New Teacher Center (NTC) model
>
> 2010 ASMP research shows promising results of "Alaskanized" mentoring model (modified NTC lessons that fit geography, cultures, and state policy) mentoring model
>
> 2017 ASMP external research validates mentoring model in Alaska urban schools
>
> 2018 ASMP pilot study on virtual delivery methods identifies needed criteria
>
> 2020 STARR proposal seeks to scale the validated ASMP mentoring model to cost-effectively expand the program's reach to additional rural/remote schools in Alaska

existing ASMP cultural competence practices and tools which are aligned to the Guide to Implementing the Alaska Cultural Standards for Educators and other culturally responsive pedagogical resources focused specifically on student SEL frameworks.

SECTION A: SIGNIFICANCE

The *STARR* project addresses the critical challenges of teacher quality and retention facing schools in Alaska and in other states serving rural/remote communities with large populations of Indigenous students. These schools face structural barriers to student success, including geographic remoteness, cultural disconnect between educators and students and their families, and limited access to quality

instruction[8] due to high teacher turnover. Although ASMP effectively keeps ECTs in the classroom, the previously validated in-person, intensive model of professional development was tested in urban settings and required additional costs and logistics to successfully implement in geographically remote areas. As such, *STARR* takes the critical step of evaluating cost-effective ways to scale the validated program to rural/remote communities while maintaining the positive benefits of ASMP.

A.1. Unmet Need Addressed by the Project Currently, ASMP only serves an average of 300 ECTs annually—about half (48%) of 600+ ECTs in Alaska. The service gap for ASMP in scaling to reach all ECTs each year is significant. In 2014-15 and 2015-16, ASMP was able to serve 60-70% of eligible ECTs. Over the last three years, ASMP has turned away mentoring requests from 38 districts because of a $2 million revenue gap, affecting more than 600 ECTs (200 rural) and nearly 9,500 students (more than 3,000 rural). Nearly 80% of ECTs in Alaska come from out of state and are ill-equipped to deal with the unique remote environment and cultural differences in rural communities—making the cultural components of ASMP even more critical.

A.1.1. Stemming the Tide of Teacher Turnover Across the nation, high teacher turnover has serious negative consequences for students, schools, and communities,[9] and correlates with lower math and language arts performance,[10] more disruptions in instruction, and less experienced teachers. Often, more resources go to support ECTs, greater effort is given to recruit and train replacements,[11,12] and in high-needs schools, low achievement is often combined with high teacher turnover.[13,14,15,] Alaska experiences teacher turnover rates that are nearly 3.5 times the national rate (29% versus 8%,[16] respectively). Turnover rates are even higher in rural/remote communities, at (43%),[17] (Table A.1, Appendix I). Nationally, 44% of new teachers leave the profession within five years[18] and in rural/remote Alaska, 16% of ECTs leave the profession annually.[19] In Alaska, high teacher turnover impacts community willingness to invest in relationships with educators, as they rightly believe teachers will leave quickly; this unintentionally contributes to teachers feeling isolated, unsupported and disconnected from the community.[20] ECTs report a wide range of reasons for leaving the profession, including poor leadership,[21] geographic isolation and living conditions,[22] lack of community/parent support,[23,24] and failure to adapt to cultural differences.[25,26] Alaska hires 70% of its rural teachers from out of state compared to 23% out-of-state hires for urban schools,[27] increasing the risk that ECTs won't adapt

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successfully to geographic and cultural differences. A recent study estimated the cost of Alaska's teacher turnover at $20,431.08 per teacher.[20] Since Alaska hires approximately 1,100 teachers annually, teacher turnover costs the state approximately $22M per year. Further districts struggle to fill open positions because the pool of qualified teachers willing to relocate to Alaska is shrinking.[28] Costs are even higher for rural/remote schools as they must replace a larger percentage of their workforce yearly.[29]

A.1.2. Challenges to Student Learning. Many of Alaska's schools struggle to meet their students' academic needs. In 2019, 14% (73) of schools were classified as requiring Comprehensive Support and Improvement (CSI); another 8% (41) were classified as requiring Targeted Support and Improvement (TSI) using the new system for school success. To highlight the challenges to student learning in rural/remote schools, note that urban schools compose 47% of the system in Alaska and rural schools form 74% of the CSI list and 61% of the TSI list.[30] In 2017-18, student subgroups such as American Indian/Alaska Native (AI/AN) students, English Language Learners (ELL), students with disabilities, and economically disadvantaged students lagged behind in state and national achievement scores across all grade levels and subjects, and graduation rates[31] (Table A.2, Appendix I).

Due to Alaska's geography, supporting ECTs in rural/remote schools is time intensive. Mentors must travel between widely geographically dispersed schools, even in urban districts such as Anchorage and Fairbanks. Nearly two thirds of Alaska schools are small with an average enrollment of 153 students;[32] and rural (82% of these schools are only accessible by plane or boat,[33]) yet, these schools serve nearly half of the state's students (~42,000) making it difficult and costly to deliver mentoring to teachers. Many rural/remote districts in Alaska serve almost entirely AI/AN students. Alaska has the highest AI/AN student population in the nation with 24% of students on average, with rural districts at >90%. These schools also face greater challenges in accessing consistent, high quality education. This is true for Alaska, and other states, where AI/AN students consistently score lower on state assessments[34] and are twice as likely as non-AI/AN students to drop out.[35]

A.2. Potential Contributions of the Project. Decades of research indicate that teachers have a greater effect on student achievement than any other aspect of schooling.[36,37,38,39] Of the many influences contributing to a students' academic success, teachers have two to three times more impact than any other aspect of a child's educational experience, including services, facilities, and school leadership.[39,40]

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However, the distribution of high-quality teachers is inequitable and so not all students have the benefit of a high-quality classroom experience.[40,41] Students who attend schools that are systematically left behind—such as those that serve low-income and Native students in rural/remote areas —are more likely to be taught by less qualified and less experienced teachers [5,14,19,42] many of whom are teaching outside of their certification areas and expertise.[43] These schools also tend to face higher rates of teacher turnover.[43,44] ECTs face a host of challenges and a steep learning curve in adapting to their unfamiliar classroom roles.[5,45] Without strong support and continued growth, many leave the profession. Providing ECTs with needed and ongoing support reduces the sense of isolation, improves instructional practice, and helps their students reach higher academic standards.[19]

Outside Alaska rural/remote schools that serve Indigenous communities face similar challenges of scale and resources in addressing student needs in culturally responsive ways. As in Alaska, it is difficult for these schools to recruit and retain quality educators who often must be certified to teach multiple content areas and grade levels. [46] However, rural/remote schools vary significantly in access to resources, economic systems, cultures, and racial/ethnic composition, which necessitates an adaptive approach to scaling. *STARR* will contribute to Alaska's education system within Alaska by expanding and enhancing mentoring to all ECTs with cost-effective delivery methods and a dedicated focus on building SEL through culturally responsive methods.

SECTION B: QUALITY OF PROJECT DESIGN

In this section we will first state our project goals and objectives, then describe our theory of change (TOC). Next, we will briefly describe the theoretical and empirical rationale for our project, including effective mentoring practices, potential benefits/tradeoffs of virtual versus in-person delivery methods, and the relationship between culturally competent teaching and student SEL outcomes. We conclude this section with a description of how our project will be implemented to address our two main project goals. **Goal 1: Scale the validated ASMP mentoring model to cost-effectively expand the program's reach to additional rural/remote schools in Alaska.** We will articulate *STARR*'s *expansion* component of a virtual delivery validation study and scaling strategies, including a brief description of the ASMP mentoring model to be scaled and the two delivery methods we are testing. **Goal 2: Advance knowledge on how culturally responsive teaching facilitates social emotional learning for students in**

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rural/remote schools and those that serve largely Alaska Native communities. We will describe how *STARR* will carry out an *enhancement* inquiry examining the relationship between teacher cultural competence and student social emotional learning in Alaska, which will contribute new knowledge to the field, while enhancing an essential component of ASMP.

  B.1. Project Objectives, Strategies and Outcomes. Table 1 details *STARR* objectives, strategies, and outcomes including scaling strategies, to achieve the *expansion* (Objectives 1-3) and *enhancement* (Objective 4) goals.

Table 1. STARR Goals, Project Objectives, Strategies, Outcomes, and Measures

| Strategies	Outcomes	Measures
Goal 1: Scale the validated ASMP mentoring model to cost-effectively expand the project's reach to additional rural/remote schools in Alaska (*expansion*)		
Objective 1: Determine the efficacy and cost-effectiveness of ASMP mentoring via different delivery methods - virtual vs. in-person - using a school-level cluster randomized control trial (see Section E)		
Strategy 1.1 Conduct rigorous assessment of project impact	Comparison of virtual and in-person delivery methods of the ASMP mentoring model: impact, moderators, mediators	State teacher retention data; ECT retention post cards; mentor surveys; ECT surveys; MAP assessments in math, science, and ELA; Quaglia Institute's Student Voice survey; student demographics from school administrative records
Strategy 1.2 Conduct rigorous assessment of project implementation	Implementation of fidelity and quality tools	Fidelity of implementation ratings using ASMP fidelity tool repurposed from i3 study
Strategy 1.3 Conduct cost-effectiveness analysis	Comparison of virtual and in-person delivery methods showing cost in relation to effectiveness	Incremental cost-effectiveness ratio; cost-effectiveness acceptability curves
Objective 2: Create and implement scaling plan to expand ASMP implementation in additional rural/remote schools		
Strategy 2.1 Expand ASMP support to ECTs in rural/remote schools	Mentors/ ECTs are competent with delivery technology; Regional coordination of services	Number of reported technology issues; Number of activities engaged in by regional liaisons; Percent of school administrators reporting satisfaction with *STARR* services
Strategy 2.2 Strengthen school and district capacity to support ECTs	Webinars for principals and veteran teachers; highly engaged and satisfied administrators;	number of ASMP activities in which school staff engage; percent of school administrators reporting satisfaction with events
Strategy 2.3 Create stakeholder buy-in	Outreach to communities by regional liaisons; advocacy with policymakers; expanded partnerships	Number of activities in which regional liaisons engage in; percent of stakeholders reporting knowledge of ASMP; number of presentations to legislature; number and types of new connections, collaborations, and partnerships
Strategy 2.4 Conduct mixed methods evaluation of the scaling strategies	Identification of factors that support and hinder *STARR* implementation and scaling	Project logs; meeting notes; fidelity of implementation ratings; number of reported technology issues; number of activities engaged in by regional liaisons; percent of school administrators reporting satisfaction with *STARR* services; number of ASMP activities engaged in by school staff; percent of school administrators reporting satisfaction with events

Table 1. STARR Goals, Project Objectives, Strategies, Outcomes, and Measures (cont'd)

Strategies	Outcomes	Measures
Goal 1: Scale the validated ASMP mentoring model to cost-effectively expand the project's reach to additional rural/remote schools in Alaska (*expansion*)		
Objective 3: Increase ASMP's long-term sustainability to serve ECTs statewide		
Strategy 3.1 Establish district cost-sharing	Fee-for-service policy and procedures supported by districts	Cost-sharing $ by districts & state; Percent of stakeholders reporting value for and knowledge of *STARR*
Strategy 3.2 Advocate for sustainable state funding streams	ASMP listed as item in the annual state budget	Line item in annual state budget
Strategy 3.3 Develop additional grant funding plan	Multi-year grant proposal plan for federal agency programs; funding from private foundations	Number and types of federal grants; Numbers and types of private foundations
Strategy 3.4 Share resources on teacher cultural competence connected to student SEL	Advance knowledge of how ECT cultural competence facilitates student SEL	Number and types of resources shared; Number of presentations at state and national conferences
Strategy 3.5 Conduct cost-benefit analysis of scaling strategies	Identification of strategies that provide the highest cost-benefit of ASMP	Money allocated for scaling activities; Benefit estimates based on impact results from Strategy 1.1
Goal 2: Advance knowledge on how culturally responsive teaching facilitates SEL for students in rural/remote schools and those serving largely Alaska Native communities (*enhancement*)		
Objective 4: Examine how strengthening mentor and teacher cultural competence (CC) facilitates students' SEL		
Strategy 4.1 Review and align Alaska's standards for cultural competence with identified SEL frameworks	Crosswalk between existing AK CC standards and selected SEL frameworks	Percent of items in CC standards and selected SEL frameworks connected
Strategy 4.2 Expand and refine ASMP materials, FAS tools, and mentor trainings to include CC-SEL relationships	Revised materials explicitly demonstrating connection between CC and SEL	Number of new and revised materials for mentors and ECTs
Strategy 4.3 Mediational analyses	Assessment of relationship between teacher CC and student SEL	Culturally Responsive Teaching Self-Efficacy Scale (CRTSE; Siwatu, 2007) Mentor Cultural Competency rubric (developed in Year 1, see Section B.4.)
Strategy 4.4 Conduct case studies	Rich description of the relationship between teacher CC and student SEL in the Alaska context	Student SEL surveys; ECT CC surveys; mentor notes and CC ratings; Mentor/ECT interviews sharing observations

  B.2. Conceptual Framework. Central to *STARR's* Theory of Change (TOC) is how ASMP mentoring leads to increased ECT confidence, skill development, and retention as well as student social, emotional, and academic learning (Figure 1). Our TOC posits that the validated components of the ASMP model (high-quality mentors and supportive interactions with ECTs) will lead to positive ECT outcomes including a sense of belonging (less isolation), and confidence as a teacher and effective and culturally competent instructional practices—regardless of delivery method (in-person or virtual). As a result, ECTs will be more satisfied with their jobs and stay in the profession longer, ensuring that students have continuity in access to caring, effective teachers. Better supported, culturally competent, skilled, and satisfied ECTs in turn will be better able to facilitate students' SEL (sense of belonging, sense of

recognition, sense of identity as a learner) and academic learning. To support the expanded reach and impact of ASMP to rural/remote schools and maintain program quality and positive impact, we will also implement scaling strategies for key mechanisms such as: 1) technology support and regional coordination, 2) building local school/district capacity to support ECTs, 3) creating buy-in from communities and stakeholders, and 4) sharing resources on teacher cultural competence connected to student SEL. The scaling strategies and cost-effectiveness results will facilitate sustainability of ASMP's impact on ECTs and students by developing diverse stable funding, advocating for more state funding/stronger policies, and deepening strategic alliances with partners. The relationship between these mechanisms are influenced by local culture, school conditions, and state policy and fiscal climate are shown in the *STARR* TOC (Figure1).

Figure 1. STARR Theory of Change
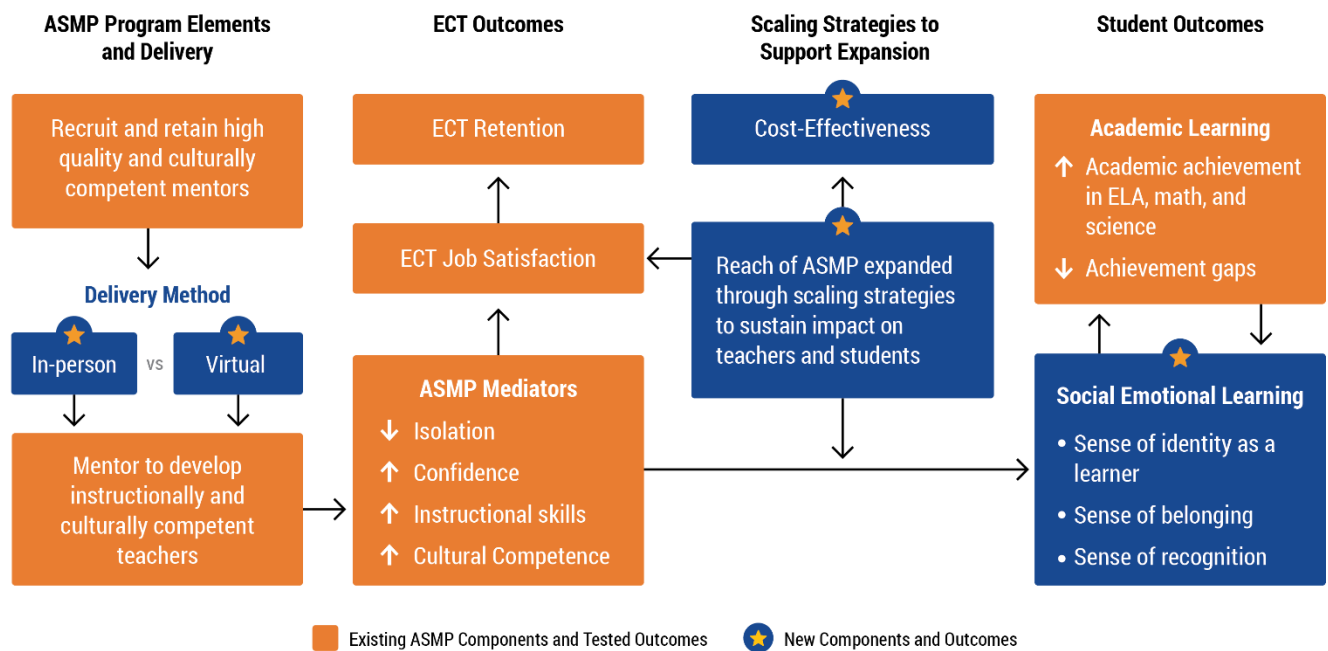
B.3. Expanding ASMP's Reach and Impact Through Virtual Delivery. For our first goal, we examine the efficacy and cost-effectiveness of two delivery methods for the validated ASMP mentoring model.

B.3.1. Description of Mentoring Intervention and Delivery Methods. ASMP's two-year, ECT induction program includes two key components—validated through an Investing in Innovations (i3) study—that build self-efficacy, strong instructional skills, and cultural competence in ECTs' practice: (1) recruiting, hiring, and training highly qualified mentors and providing them benefits, such as low caseloads and full release from teaching to facilitate mentor work, and (2) multi-faceted mentoring

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support for ECTs including strong mentor relationships, use of formative assessment system (FAS) to target instructional needs, and explicit integration of cultural competence into instruction.

Theoretical framework: Research has found that schools have induction programs that feature multi-faceted support such as professional learning communities, meaningful interactions with high quality mentors, and curriculum facilitators experienced decreased attrition rates and are able to create successful support systems for beginning teachers.[47,48] Providing beginning teachers with an appropriate, well-designed support system and professional development during their first years is a critical step to promote their success and longevity in the classroom.

Findings from the i3 randomized controlled trial of the ASMP program[3] suggest that ECTs participating in ASMP mentoring are significantly more likely to report positive relationships and trust of their mentors than those receiving non-ASMP business-as-usual induction support. ASMP ECTs were more likely to consider their mentors to be expert guides, role models, advocates, and therapists/ counselors. These ECTs were also significantly more likely to rate their mentors as high on characteristics of honesty, benevolence, competence, and reliability. In addition, ASMP ECTs participated in and benefited more from discussions related to data-driven instruction, equity and cultural issues, instruction-focused dialogue, and communication with parents and principals than their non-ASMP ECT peers.

B.3.2. In-person vs. Virtual Delivery. *STARR* will examine two treatment conditions in this study: 1) an ***in-person delivery method*** and 2) a ***virtual delivery method***. The validation study, further described in Section E, involves randomly assigning schools within participating districts to either the in-person or virtual delivery methods, and collecting outcome, implementation, and cost data to assess the efficacy and cost-effectiveness of each delivery method. If the two delivery methods produce similar positive effects and the virtual method is cost-effective, more ECTs can be reached at lower cost. Table 2 shows how the core aspects of the mentoring model are delivered through the two treatment conditions.

Table 2. In-person and Virtual Delivery of ASMP Program

ASMP Component[1]	In-Person Delivery	Virtual Delivery
Mentors		
Structures		

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[1] There are optional and infrastructure components to ASMP that not all ECTs and mentors utilize including online interaction and data tracking, curriculum and resource library, opportunities for peer-to-peer learning, and credit-earning options for courses. Because these are not required, we will assess exposure to them, but they are not part of *STARR*.

ASMP Component[1]	In-Person Delivery	Virtual Delivery
• 15 ECTs per full-time mentor • Mentors are fully released from the classroom for two years • Recruitment of experienced teachers, at least eight years of AK teaching	No difference between treatment groups	
High Quality Mentors • Training and workshops • Peer-to-peer support	• Regular ASMP and NTC training sessions, including Orientation and wrap up, Friday forums • Regular administrative meetings, peer shadowing, additional support as needed	• Regular ASMP and NTC training sessions, including orientation and wrap up, Friday forums • Regular administrative meetings, peer shadowing, additional support as needed • **Required virtual learning training** • **On-demand technology support[2]**
Multi-faced Support for ECTs		
Supportive mentor/ECT interactions • Initial contact/planning with ECT • Intensive interactions with mentor and ECT (minimum of four additional sessions annually, at least 3.5 hours monthly) • At least three required observations of ECT teaching practice • Weekly contact with ECTs • Year-end wrap up/reflection with ECT	Minimum of six intensive interactions during the school year must include: • One in-person at beginning of year for initial contact and one in-person at end of year for wrap up/ reflection • Four in-person intensive interactions minimum with ECT annually at school site • At least three in-person classroom observations annually	Minimum of six intensive interactions during the school year must include: • One in-person at beginning of year for initial contact and one in-person at end of year for wrap up/ reflection • **Four virtual intensive interactions minimum with ECT annually using virtual platform** • **At least three virtual classroom observations annually**
ECT Formative Assessment System and Reflective Practice • Weekly use CAL, and annually ILP, PGR tools with all ECTs • Use of four additional FAS tools with each ECT during the school year	No difference between treatment groups	
Cultural Competence • Alignment of cultural standards with SEL framework • Guidance for practical cultural implementation in all teaching resources • Use of revised mentor tools for building ECT cultural competence • Connections to other cultural resources in the state	No difference between treatment groups	

A recent pilot study of ASMP's virtual delivery method found no difference between ECTs who received in-person versus virtual mentoring in how they perceived the adequacy of instructional resources and the coaching and emotional support provided by the mentor.[49] Implementation recommendations from this pilot study indicate that holding at least two annual in-person meetings—one at the beginning of the school year—with mentors to build rapport is important. Findings also indicate that a rigorous inquiry

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[2] See Section C for description of technology support.

of cost-effectiveness of the virtual method is needed.

B.4. Enhancement: Teacher Cultural Competence and Student SEL Inquiry. To address our second goal of strengthening the culturally responsive teaching aspect of ASMP, a core component of the program, we propose an examination of how strengthening the cultural competence of teachers facilitates students' sense of belonging, recognition, and identity as a learner—critical preconditions for student success. This *enhancement* goal seeks to deepen the alignment of the Guide to Implementing the Alaska Cultural Standards for Educators with identified social emotional learning frameworks that are relevant to *STARR*'s targeted student SEL outcomes. To assess the potential impact of this strengthened cultural integration in ASMP, we will conduct a mixed methods study including case studies (see Section E) to assess the degree to which mentors support ECTs in building cultural competence and how that cultural competence is related to the ECT's teaching self-efficacy and students' social emotional wellbeing.

B.4.1. Strengthening Cultural Competence Connected to SEL in ASMP. ASMP plays a critical role in helping ECTs adapt to the unique context of Alaska by: 1) providing support for all new teachers to adjust to the classroom environment and develop strong pedagogical skills, and 2) equipping teachers new to Alaska with the confidence to successfully navigate the cultural and geographic complexities of the state's schools and communities. ASMP integrates cultural responsiveness into all aspects it's mentoring program (see example tools in Appendix I) to prepare ECTs to teach in schools serving AI/AN students. To enhance ASMP's cultural focus, we will build additional resources, including expanding mentor guidance in all teaching resources for integrating cultural competence in alignment with an identified SEL framework for students into all teaching resources, updating mentor tools to ensure enhanced cultural competence is integrated, increasing the number of cultural resources in the online resource library, and creating formative rubrics to more systematically assess ECT's cultural

competence.[3]

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[3]The Alaska Humanities Forum's cultural competence checklist, Guide to Implementing the Alaska Cultural Standards for Educators and other identified sources will be the foundation for formative assessment rubrics developed in Year 1.

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B.4.2. Theoretical Rationale. As we described in Section A. Significance, students with AI/AN heritage often experience the largest gaps in achievement compared to other groups (see Table A.2. in Appendix I). They are more likely to feel disconnected from their schools and to experience a cultural mismatch between themselves and their teachers with respect to world view and ways of learning.[50] In addition, a core value for most AI/AN parents is that their children become productive members of their local and cultural community, with practical life skills and traditional cultural identity are valued as much as, or more than academic outcomes.[51] Further, AI/AN students thrive when educational experiences and ways of knowing match their own learning styles and cultural background. This cultural congruence supports student success through shared cultural and linguistic traditions, positive Native role models, and students' learning styles.[52]

A culturally responsive approach, one that situates and celebrates learning within students' rich cultural contexts, may be the key to bridging this gap; teachers with strong CC recognize the strength and collective power of cultural values and ways of knowing and connect to these in lessons in order to more effectively reach their students. Because most ECTs in Alaska's rural/remote schools do not have first-hand experience with the cultural contexts of the communities in which they are teaching, it is critical to develop ECT cultural knowledge and skills. For this inquiry, we assume that teachers with higher CC will value students' cultural identity and heritage—elements which are connected to students' intrinsic motivation, self-efficacy, relationships with land and place, and senses of belonging.

Within Alaska's educational community there has been a long and deep history of educators working together to integrate cultural competence and responsive practice into teaching and learning—which provides a window of opportunity to contribute to the nascent knowledge in the field. These include efforts to improve school climate through school-wide commitments to student SEL programming,[53] collaborative work with AI/AN students and their families to co-create culturally relevant school climates, and explorations of how teachers examine implicit bias they may bring to the classroom.[54] Other efforts have outlined frameworks for culturally responsive pedagogy including concepts such as expert-apprentice modeling[55] that provide examples to lean on for understanding cultural competence[56] and supporting teachers new to Alaska in understanding the cultural norms and historical context through

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experiential learning.[57] Many of these approaches take into account regional topics and practices, such as how to incorporate seasonal subsistence into skill-building in the classroom, and how to acknowledge the nuances of different Alaska Native values when teaching students about learning and behavioral practices. Results of many of these efforts suggest a link between these programs, positive changes in teacher's cultural competence and instructional confidence[58] and benefits for AI/AN students.

SECTION C: STRATEGY TO SCALE

Scaling is traditionally defined as replication of programs in new sites or locations. However, scalability is complex and multidimensional and more often pertains to the potential of an innovation or change to be expanded, adapted, or replicated in new settings and local contexts.[59] In addition, not all elements of a program can or should be scaled since program components are context-specific and may not translate well to different locations or as conditions change. ASMP is a complex, emergent, and adaptive strategy where conditions and culture in local communities are unique, state education policies constrain innovation, political uncertainties, and financial unpredictability are the norm. Scaling strategies will help ensure ASMP is successful not just in the urban settings where it was validated, but also in the rural/remote schools *STARR* aims to reach.

C.1. Strategies that Address Barriers to Scale. To ensure uptake and robust implementation, we focus on five barriers to scale: 1) geographic and logistical challenges that hamper cost-effective expansion into rural/remote communities; 2) the limited stakeholder awareness of and buy-in to ASMP's potential value; 3) the lack of integration with other state educational initiatives; 4) the lack of school/district capacity to support ECTs beyond ASMP; and 5) the fiscal challenges resulting from declining state investment in education. To address these challenges, we will implement the following *four scaling strategies*: 1) expanding ASMP support to ECTs in rural/remote schools and those serving largely Alaska Native students; 2) strengthening district and school capacity to support ECTs; 3) creating local and state community stakeholder buy-in; and 4) sharing resources on teacher CC connected to student SEL.

C.1.1. Strategy 1: Expanding ASMP Support to ECTs in Rural/Remote Schools. Geographic challenges include limited access to communities—many are off-road and inaccessible by car, and are

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only accessible by small plane during certain times of the year. As a result ASMP labor and travel costs are high to serve these remote schools. *STARR* addresses these geographic challenges in two ways: technology support and regional *STARR* liaisons.

One of *STARR*'s key activities is to assess the efficacy and cost-effectiveness of a virtual delivery method. For this method to be utilized effectively, mentors and schools/districts must be competent with the virtual technology needed to deliver service. Mentors use virtual delivery platforms (e.g., Skype, Zoom) routinely used by districts. *STARR* will host three days of virtual pedagogy and technology training at the beginning of each school year and hold monthly online mentor seminars on virtual learning for adults. *STARR* will provide technology support to schools and districts to ensure the virtual platforms function properly. This support will include initial setup at schools and ongoing consultation on broadband and connectivity challenges by a technology support person housed at UAF.

The vast distances between schools and districts in Alaska also make centralized administration of ASMP less feasible. To be more responsive to local districts and schools, STARR will deploy four regional liaisons to hub[4] communities. Liaisons will work directly with districts in their region, mentors, and ASMP staff to align district priorities, policies, and programs to ASMP requirements. Liaisons will oversee ASMP logistics implementation, such as ensuring program fidelity, record-keeping, communication, and supporting evaluation data collection.

C.1.2. Strategy 2: Strengthening School and District Capacity to Support ECTs.
A major reason that ECTs do not remain in their schools is poor school leadership and support. To address this challenge, *STARR* will build schools' capacity to implement the mentoring program by connecting with school leaders and veteran teachers to support ECTs in their building beyond the formal mentoring process through a principal and veteran teacher three-module webinar series. The series will address common issues ECTs face such as classroom management and collaborating with teacher aides and how principals and veteran teachers can best support ECTs to successfully adapt to the school and community. Mentors will provide on-demand consulting to principals and veteran teachers about how to

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[4]Hub communities are typically the larger, centrally located town for a region. Often the hub community has the largest airport or ferry terminal in the region and serves as a go-through area for travel to smaller nearby communities.

work more effectively with ECTs. ASMP staff will conduct similar capacity-building workshops and presentations at gatherings aimed at school leaders and board members.

    C.1.3. Strategy 3: Creating stakeholder buy-in. The *STARR* team will engage in many forms of outreach, communication and advocacy strategies to local communities, policymakers, and partners.

    Outreach to local communities. To build community buy-in and support, *STARR* team members, mentors, and regional liaisons will conduct a variety of community outreach and input activities designed to increase understanding about the value of high-quality teachers and the importance of fostering positive environments for ECTs, especially those who are new to the state. These activities will include: community presentations, focus groups with community members, and radio, public television, and social media content.

    Advocacy with policymakers. While ASMP is viewed in the state as an effective program, declining state budgets have led to policymakers no longer prioritizing it for funding and support. Statewide outreach to raise visibility of ASMP and build policymaker buy-in will inform stakeholders about ASMP and its goals and positive impacts. *STARR* progress will be reported to the Alaska State Legislature annually to demonstrate ASMP's reach and replicability as an effective model to support ECTs and increase teacher retention. The *STARR* team will engage in joint advocacy activities with state professional organizations to strengthen educator support policies and funding—including conducting joint testimony, showcasing successes, creating policy briefs, and hosting public events to connect constituents with legislators.

    Engaging state education partners. Strategic partnerships will help to scale and increase the available resources while also and promoting alignment across the educational system around a set of common goals.[60,61,62] ASMP is integrated with some state initiatives, but there are opportunities to leverage partner resources and programs through more intentional alignment. These partners can contribute financial resources, make connections, expand access to professional development, training opportunities and resources across the system, and are strategic advocacy allies. The *STARR* team will continue building and fostering partnerships with other university programs (e.g., outreach through the International Arctic Research Center and EPSCoR), regional tribal foundations such as Tanana Chiefs Conference and

NANA; business partners; school districts; and state professional organizations such as Alaska's Association of School Boards (AASB). State partner outreach efforts include attending three state educational conferences sponsored by AASB, the Alaska Council of School Administrators, and the State Department of Education and Early Development (DEED), holding semi-annual, one-on-one meetings with district, school board, and state education leaders, publishing quarterly newsletters, and presenting at three public events annually.

C.1.4. Strategy 4: Sharing Resources on Teacher Cultural Competence Connected to Student SEL. Once resources are developed explicitly connecting teacher cultural competence to student SEL, these will be published in formats ready to share to a larger community of interest. Teaching resources can be shared with schools and districts across the state who may not be using ASMP mentoring. Mentoring tools can be presented at the annual New Teacher Center Symposiums to share process and materials with other programs across the nation. Formative rubrics, teacher materials and mentor tools can be presented at other national conferences to demonstrate their effectiveness in enhancing student SEL through culturally responsive teaching.

C.2. Efficiency in Use of Time, Staff and Money The strategies that address the barriers to scale described above are all intended to either reduce mentors' direct labor and travel costs, reduce the extensive cost of teacher turnover by increasing capacity of local communities and schools to support ECTs, or to expand and diversify ASMP revenue sources.

C.3. Learning and Dissemination Strategy To facilitate ongoing learning and program improvement, feedback loops are built into *STARR;* these provide real-time opportunity to learn from the variety of rich data sources collected through internal and external evaluation efforts. ASMP's current practice of collecting and analyzing data to feed back into program improvements and adaptations provides the foundation for an ongoing learning cycle. These data include ECT participation, tracking, and demographic data, state metrics, mentor log notes, participant and mentor feedback, ECT focus groups and interviews, and annual ECT and administrator surveys.

The external evaluation team and the internal learning consultant will prepare quarterly progress memos of evaluation progress and will provide recommendations for project adaptations. Quarterly

learning debriefs will be held between the *STARR* project and leadership teams; bi-annual meetings on evaluation findings will be conducted with the advisory team.

C.3.1. Dissemination The *STARR* project will produce two practitioner-focused products, such as a principal's guide to mentoring practice, designed to help schools, districts and educators work more effectively with ECTs by highlighting successful strategies and innovations. Research findings on impact, implementation, and cost-effectiveness will be disseminated through peer-reviewed journals (e.g., *American Educational Research Journal*, *Journal of American Indian Education*) and professional conferences (e.g., the American Educational Research Association).

SECTION D: RESOURCES AND MANAGEMENT PLAN

This section details key project staff; organizational and governance structures of the project teams; the project plan and timelines; and organizational resources and capacity to accomplish the proposed work.

D.1. Project Organizational Structure and Key Personnel Roles. The *STARR* staff include an expert team of administrators, researchers, mentoring practitioners, technology staff, and cultural knowledge holders to ensure successful implementation and oversight to achieve the two project goals of *expansion* and *enhancement* (Table 3). The organizational structure of *STARR* consists of two oversight and three implementation groups embedded within UAF as demonstrated in Figure 2.

D.1.1. Project Oversight *STARR* data and programmatic activities will be based and administered at UAF by the K-12 Outreach Office.

The **STARR Advisory Team** (AT), composed of key personnel and external stakeholders, will inform project alignment with ongoing educational support programs and cultural relevant practices for students and ECTs. The AT will include regional district administrators, school board members, teachers' union members, members of Native educator groups, university faculty from other education support programs, and representatives from DEED. The AT will meet quarterly to review project progress, bring outside perspectives to weigh in on planning and dissemination, recommend program and policy changes, seek out input from constituents, and champion *STARR* in larger education communities.

The **Leadership Team** (LT), has decision-making authority for program implementation, changes, and scaling. The LT will meet quarterly to assess project goals, coordinate and monitor activity progress, review data and preliminary findings, engage in ongoing learning from project data, and identify action

steps and course corrections for the next quarter based on formative data and feedback. The LT will include key staff listed in Table 3 below and a mentor and a principal, who have had at least three years of experience with ASMP.
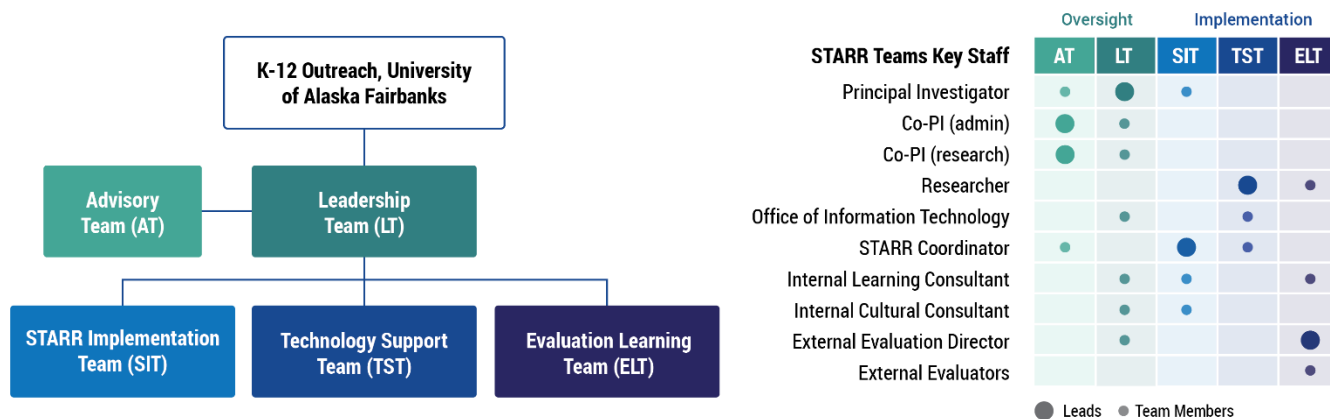
Table 3. STARR Key Staff, Roles, and Teams

Key Staff	Project Role	Team(s)
Program Oversight and Implementation Key Personnel, University of Alaska Fairbanks		
Dr. Janice Littlebear	**Principal Investigator (PI)**, project oversight, liaison with federal EIR Program staff and University administration	AT, LT, SIT
Dr. Laura Conner	**Co-principal Investigator**, provides research oversight	AT, LT
Glenda Findlay	**Co-principal Investigator**, provides fiscal and administrative oversight to grant; responsible for partner outreach	AT, LT
Dr. Keiko Herrick	**Researcher**, Responsible for internal program data collection and analysis; provides technology support to schools	TST, ELT
***STARR* Coordinator, TBH**	***STARR* Coordinator**, coordinates logistics and program implementation	SIT
Travis Payton, OIT Systems	**OIT Systems Engineering Lead**, coordinates portal and virtual technology support	LT, TST
Liaison Consultants		
Dr. Terri Akey	**Internal Learning Consultant (ILC)**, establish/facilitate learning agenda for program improvement; provide technical evaluation expertise; liaison between ELT & SIT	LT, SIT, ELT
Internal Cultural Consultant, TBH	**Internal Cultural Consultant (ICC)**, supports CC-SEL development, examination, and dissemination	LT, SIT
Evaluation Key Personnel, RTI International		
Dr. Katherine McKnight	**External Evaluator Director**, oversees external evaluation activities; liaison with *STARR* staff	LT, ELT
Dr. Alexander Cowell	**Evaluator**, oversees cost-effectiveness study including design, data collection and analysis	ELT
Dr. Yihua Hong	**Evaluator**, oversees impact study including design, data collection and analysis	ELT
Dr. Susan Rotermund	**Evaluator,** oversees implementation study including design, data collection and analysis	ELT

Key Terms: Advisory Team (AT), Leadership Team (LT), STARR Implementation Team (SIT), Technology Support Team (TST), Evaluation Learning Team (ELT)

D.1.2. Project Implementation Teams. The *STARR* project includes three project implementation teams to execute project goals and objectives. The ***STARR* Implementation Team** (SIT) will oversee day-to-day logistics and execution of the project. SIT will conduct bi-monthly project meetings and report back to the LT. The **Technology Support Team** (TST) will provide ongoing oversight and support for the technology users in the project, such as training and support to mentors, ECTs, and schools on the virtual technology and hosting, supporting, and developing new features for the online portal system. The TST will meet quarterly to address emerging needs. The **Evaluation Learning Team** (ELT) will oversee and execute all learning and evaluation activities that support *STARR* implementation and outcomes. The ELT

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will meet bi-monthly to coordinate evaluation, learning, and data collection activities. In addition, the Internal Learning Consultant will act as a liaison between the ELT and the SIT to ensure continuous program improvement cycles.

Figure 2. Organizational Chart, Team Members, and Lines of Authority.

STARR Teams Key Staff	Oversight		Implementation		
	AT	LT	SIT	TST	ELT
Principal Investigator	●	⬤	●		
Co-PI (admin)	⬤	●			
Co-PI (research)	⬤	●			
Researcher				⬤	●
Office of Information Technology		●		●	
STARR Coordinator	●		⬤	●	
Internal Learning Consultant		●	●		●
Internal Cultural Consultant		●	●		
External Evaluation Director		●			⬤
External Evaluators					●

⬤ Leads   ● Team Members

D.2. Project Resources and Capacity. UAF is a Land, Sea, Space grant institution with extensive experience managing federal grants from NSF, NIH, DOD, DOE and the Department of Education. UAF has grants and contracts departments at each branch of the University to oversee grant work, collaborate with K-12 Outreach on all fiscal issues, and assist in the timely submission of reports. K-12 Outreach and ASMP are housed within UAF and have, for more than 16 years, been delivering professional development to veteran Alaska educators serving as mentors to ECTs. Equipment, technical assistance, meeting rooms, and personnel resources associated with UAF are available for use by *STARR*. UAF also will support *STARR* with staff from finance, human resources, marketing, communications, and contracts offices.

D.2.1. Office of Information Technology (OIT), UAF. OIT Systems Engineering is a team of professional development and operations engineers with a strong background in computer science and software development that has supported the ASMP program successfully to date. OIT has several engineers with advanced degrees in computer science and web developers with expertise in full stack web application development. The OIT team will provide training and support for the online portal, distance interactions, and virtual mentoring to *STARR* mentors, ECTs and participating schools.

D.2.2. District Partners. STARR leverages existing access and positive relationships with districts across the state to implement the program (see letters of district support in Appendix C). STARR staff will recruit districts with rural/remote schools and those serving largely Alaska Native students to enroll up to a total of 200 ECTs for each of the two years of the project. Districts signing up for ASMP services vary from year to year, but in the past decade have included at least 50 of Alaska's 54 districts.

Participating districts will sign memoranda of understanding (MOUs) that include agreements for the ECT to participate and mentor to have access to school buildings and certain records and to transport, house, and provide internet access to mentors onsite. The MOU also will include district commitments that administrators and ECTs at school sites will participate in surveys, interviews, and other activities related to the evaluation of STARR and to release access through DEED to annual student assessment scores, graduation, dropout, and attendance rates, and other performance data.

D.2.3. RTI International (External Evaluation Partner). RTI International is an internationally recognized leader in evaluation. As a nonprofit research organization, RTI is dedicated to delivering the promise of science for global good. RTI staff of nearly 5,000 provide research and technical services to governments and businesses in more than 75 countries in areas such as education and training, surveys and statistics, and economic and social policy. Headquartered in Research Triangle Park, North Carolina, RTI has regional offices across the U.S., including in the Pacific Northwest. The external evaluation team has designed rigorous cost-effective, implementation, and experimental and quasi-experimental impact research designs in K-12 schools; conducted large-scale survey and interview data collection; obtained and managed K-12 state administrative and test data; and has conducted sophisticated statistical analyses, including multi-level modeling and mediation analyses needed for this project.

D.3. Extent to Which the Costs Are Reasonable. The cost of this project is reasonable with respect to both project objectives and significance. STARR will provide resources to implement ASMP mentoring to an additional 400 ECTs (200 ECTs per cohort for two years each) who will support approximately 7,500 students in rural/remote schools and those serving largely Alaska Native communities. STARR expands the ASMP mentoring beyond the current capacity to address persistent issues of teacher turnover, low academic performance and high achievement gaps of Alaska Native students, and capacity issues for supporting ECTs at school and district levels. Addressing the connections between ECT cultural competence and student SEL provides a new lens from which to tackle these issues. Because these resources will support implementing cost-effective mentoring in the years to follow, the investment provides long-term benefits to the Alaska education system and its students. With the scaling strategies proposed, *STARR* has the potential to make impacts at both the school and district levels in the state, as well as in other states with high numbers of rural/remote schools and AI/AN student populations. Given the potential impacts on students from high-needs and minority areas the project's significance cannot be overstated.

D.4. Potential for Continued Support of the Project after Funding Ends. *STARR* seeks to scale ASMP to serve all ECTs in the state. As such, a diverse and stable revenue stream is needed to strengthen ASMP's influence in the larger educational system. While the primary mechanism for increasing

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sustainability is to deliver mentoring virtually (anticipated to reduce costs up to 30%), cost reduction by itself is not adequate to achieve financial viability. As we described earlier, the number of ECTs that ASMP can serve fluctuates annually and is steadily declining with state revenue reductions. The annual cost to fully serve all of Alaska's ECTs requires an annual operating budget of $4 million. The *STARR* team will build a portfolio of revenue sources upon the existing funding streams to meet this target across three categories of revenue: 1) 40% district cost-share or fee-for-service; 2) 40% state funding sources; and 3), 20% grant funding.

D.4.1. District Cost-sharing. In 2018, ASMP began to pilot a fee-for-service model where 11 districts paid for half of their mentoring costs ($170,000). These districts leveraged their existing structures and monies, such as Title I or Title II funding under ESSA and bond levies to share mentoring costs. Mentors can be hired at the district and ASMP staff provide program support and mentor training.

D.4.2. State funding. Prior to the 2016-17 fiscal year, ASMP was a line item in the state budget. After this date, partial funding was provided by the University (where ASMP is housed) and the state education department. In the last two years, these state sources have dwindled. To re-build ASMP as a state resource, the *STARR* project will advocate with policymakers to allocate legislative and state Department of Education & Early Development (DEED) funding for ASMP.

D.4.3. Additional Grant Funding. To sustain ASMP during the grant period and beyond, *STARR* will develop competitive proposals to federal agency programs to support and advance programmatic goals and innovation.[5] The ASMP team will also seek out funding from foundations exhibiting education support within Alaska (e.g., Rasmussen) and nationally (e.g., the Bill and Melinda Gates Foundation).

D.5. Project Implementation Plan

Figure 3 provides a high-level of *STARR* project activities. A detailed timeline is in Appendix I, Table I.1.

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[5]Potential federal funding sources include Department of Education's Alaska Native and Native Hawaiian-Serving Institutions Program Title III Part A and F, Teacher Quality Partnership (TQP) Program and Supporting Effective Educator Development (SEED) programs; National Science Foundation's Innovative Technology Experiences for Students and Teachers (ITEST) and Discovery Research PreK-12 (DRK-12) programs, and USDA NIFA Alaska Native and Native Hawaiian-Serving Institutions Program.

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Figure 3. STARR Project Activities Timeline

STARR Activity	Year 1 (2021)				Year 2 (2022)				Year 3 (2023)				Year 4 (2024)				Year 5 (2025)			
	School Year 21-22				School Year 22-23				School Year 23-24											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Project Planning and Management																				
Advisory & Leadership Teams form, meet, learning debriefs	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
MOUs with districts, recruit regional liaisons		■				■				■										
Project Implementation																				
Recruit & randomly assign schools	■	■			■	■			■	■										
Mentors recruited, trained & work with ECTs	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
Conduct mediational analysis and case studies of CC-SEL			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Conduct RCT, implementation, and cost-effectiveness evaluations			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Scale STARR																				
Technology supports to ECTs				■	■	■	■	■	■	■	■	■	■	■	■	■				
Supports to schools and districts				■	■	■	■	■	■	■	■	■	■	■	■	■				
Create stakeholder buy-in				■		■			■			■			■					
Share CC-SEL resources for ECTs											■	■	■	■	■	■	■	■	■	■
Conduct mixed methods evaluation of scaling strategies											■	■	■	■	■	■				
Sustainability																				
Build legislative partnerships	■				■				■			■			■					
Focus on funding mechanisms	■						▤	■	■	■	▤	■	■	■	▤	■			▤	■
Strategic communication, outreach, dissemination		■	■		■	■	■	■	■	■	■	■	■	■	■	■		■	■	■

■ Assigning schools to treatments   ▤ Advocate for state funding

SECTION E: PROJECT EVALUATION

The external evaluation of the *STARR* project is designed to assess progress and outcomes on our four project objectives (see Table 1) and will focus on three sets of high-level evaluation questions corresponding to each project objective as shown in Table 4.

E.1. Evaluate the Impact of Virtual Versus In-person Delivery of ASMP (Objective 1)

To address our first objective related to expanding the reach of ASMP to rural/remote schools, we will conduct three sub-studies: (1) impact of different ASMP delivery methods; (2) fidelity of implementation; and (3) cost-effectiveness.

Table 4. STARR Evaluation Questions and Design Aligned to Project Objectives

Evaluation Component and Study Design	Evaluation Questions
E1. Evaluate the Impact of Virtual Versus In-Person Delivery of ASMP (Program Goal 1: Expansion)	
Obj 1: Determine the efficacy and cost-effectiveness of ASMP mentoring through virtual vs. in-person delivery using a school-level cluster randomized control trial	
1.1 *School-level cluster randomized controlled trial to assess the impact of virtual and in-person delivery on ECT and student outcomes; program moderators and mediators*	• <u>Impact</u>: What is the impact of delivery method (virtual and in-person) on ECT retention and student SEL and academic outcomes? • <u>Moderators</u>: Do the effects of virtual and in-person mentoring vary according to school, ECT and/or student characteristics? • <u>Mediators</u>: To what extent do ECT cultural competence, instructional skills, sense of isolation, and teaching confidence influence student outcomes? To what extent do these variables plus job satisfaction influence ECT retention in their first 2 to 3 years of teaching?
1.2 *Study of implementation and relationship to ECT and student outcomes*	• To what degree are the core components of ASMP implemented with fidelity in the two treatment conditions? • How is implementation fidelity related to ECT and student outcomes?
1.3 *Cost-effectiveness of the virtual delivery method*	• Is the virtual delivery method cost-effective when compared to in-person delivery in their impact on teacher retention and student achievement?
E2. Evaluate Expansion Scaling Strategies (Program Goal 1: Expansion)	
Obj. 2: Create and implement a scaling plan to expand ASMP implementation in additional rural/remote schools *Obj. 3: Increase ASMP's long-term sustainability to serve ECTs statewide*	
2.1 *Mixed methods evaluation of scaling strategies (Obj. 2)*	• What program, ECT, student, and school factors support or hinder implementation of the virtual delivery method? • How do the scaling strategies of technology support, building school and district capacity, creating buy-in, and aligning teacher CC with student SEL help rural/remote schools' ability and commitment to implement *STARR* with fidelity?
2.2 *Cost analyses of scaling strategies (Obj. 3)*	• What are costs for scaling *STARR* into Alaska's rural/remote communities? • What strategies are most effective at increasing ASMP's sustainability?
E3. Evaluate the Relationship Between ECT Cultural Competence and Student Social Emotional Learning (Program Goal 2: Enhancement)	
Obj. 4: Engage in a line of inquiry examining how strengthening the cultural competence of teachers facilitates students' sense of belonging, sense of recognition, and sense of identity as a learner.	
3.1 *Mediational analyses (follow-up to E.1.3)*	• What is the relationship between ECTs' cultural competence and students' sense of identity as a learner, belonging and recognition? • What aspects of ASMP contribute to ECT cultural competence?
3.2 *Case studies*	• What aspects of students' experience are associated with these outcomes? • What aspects of cultural competence are most important to promote student social emotional learning?

E.1.1. Impact Study Design to Meet WWC Standards Without Reservations. To meet **WWC group design standards without reservations**, we will conduct a multisite cluster randomized control design to assign schools within each district to either virtual or in-person mentoring across two cohorts of ECTs.[6] Using district as a block will help to ensure comparability between schools on district and region characteristics. The random assignment of schools as clusters will minimize the potential treatment contamination between ECTs within the same schools and will control for mentor effects across the two

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[6]ASMP is a two-year program, therefore ECTs in each Cohort will be followed across their first two years.

conditions (in-person and virtual).[7]

E.1.1.1. Baseline equivalence and differential attrition. We assume a 20% attrition rate of the participating ECTs.[8] Following WWC guidelines, we will statistically assess the comparability between the two treatment groups regarding school and ECT characteristics annually at the beginning of school and baseline measures of ECT and student outcomes (e.g., student achievement scores, teacher retention). If group nonequivalence exists despite randomization, we will statistically adjust the analytic sample by including nonequivalent characteristics as predictors in the outcome models. Data for ECTs hired after randomization and baseline data collection will not be included in the impact analyses per WWC guidelines. We will minimize potential attrition of schools and teachers through ongoing, communication prior to randomization and providing stipends to participating ECTs and regional coordinators.[9]

E.1.1.2. Data collection: STARR outcomes, mediators, and moderators for impact analysis. The evaluation will collect and analyze qualitative and quantitative data on *STARR* program components and outcomes identified in the *STARR* TOC. Below we describe measures of ECT and student outcomes, mediators, and moderators. Figure 4 shows the data collection timing for the two cohorts.

Valid and reliable performance data on relevant outcomes. Three main outcomes that we will assess in this study include ECT retention, student social and emotional outcomes, and student achievement (see Table A.6 in Appendix I for a summary table of outcome measures and their psychometric properties). To reinforce the validity of findings, the evaluation will involve multiple data sources in each of these areas. We will also collect a variety of school, ECT, and student characteristics data, including demographics and grade levels as program moderators for statistical controls in our analyses and to conduct sensitivity analyses on impacts (see Appendix I).

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[7]All mentors will work with both in-person and virtual treatment schools to maximize efficiency in travel and time.
[8]Estimated attrition numbers are estimated based on teacher attrition findings in DeFeo et al., 2017
[9]Stipends will be provided to ECTs in both conditions and therefore we do not expect any differential attrition.

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Variable		Spring	School Year 2021-22		School Year 2022-23		School Year 2023-24		Fall	Spring	Fall
			Fall	Spring	Fall	Spring	Fall	Spring			
Outcomes	ECT retention (Cohort 1, Cohort 2)			C1		C1,C2		C1,C2			
	Student achievements & SEL		C1	C1	C1,C2	C1,C2	C2	C2			
Mediators	ECT perceived isolation, professional supports, cultural competence		C1	C1	C1,C2	C1,C2	C2	C2			
	Instructional practices (subset of ECTs only)		C1	C1	C1,C2	C1,C2	C2	C2			
	ECT teaching confidence, job satisfaction			C1		C1,C2		C1,C2			
Moderators	School, ECT, and student characteristics		C1		C1,C2		C2				

C1 Cohort 1   **C2** Cohort 2

To measure ECTs **retention** in the teaching profession in Alaska, *STARR* regional coordinators will secure agreements with participating districts to obtain teacher retention data for both ECT cohorts in their first and second years, and the third year for Cohort 1 only. We will supplement state and district data with data from mentors, who track retention of their ECTs.

To provide valid and reliable measures of **student achievement**, we will acquire MAP Growth[TM] assessments in grades K-12 in math, science and English language arts/reading (ELA)[10] in all randomized schools. Many districts eligible for this study currently administer MAP Growth[TM] in these subject areas. Schools will annually administer the assessments once in the fall and once in the spring. All participating schools will receive training and supports from NWEA to administer the assessments. NWEA will provide assessment ECT ID-linked data for participating students on an annual basis (see letter of support, Appendix C). Student assessment data collected in the fall will serve as baseline data, and subsequent spring data will serve as the outcome for each of the first and second years of teaching for each ECT.

Students' **(SEL)** outcomes in this study include a sense of belonging, sense of recognition, and sense of identity as a learner. Briefly, sense of belonging and recognition reflects student perceptions of being a valued part of the school community; that their teacher cares about them as a person and a learner; that they are listened to and their voice matters (e.g., "I feel important in my classroom"). Identity as a learner

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[10]MAP is an assessment suite offered by the not-for-profit organization NWEA, http://nwea.org

reflects student perceptions of being valued for the background they bring as a learner and belief in them as a capable learner (e.g., "Teachers believe in me and expect me to be successful"). We will measure these using the Quaglia Institute's Student Voice survey[63]. In Year 1, the *STARR* team will review and adapt the survey items to be culturally responsive by pilot testing in schools that serve Alaska Native communities across grade levels. Study ECTs will administer the revised surveys online to students in grades 3-12 at the beginning and end of each school year.[11]

Mediators and moderators. To better understand the ways in which virtual mentoring impacts student and ECT outcomes, we will conduct mediator analyses (Table 5) using multilevel structural equations models, based on the *STARR* theory of change (Section B.).

Table 5. STARR Mediators and Moderators of Impact

Mediator/Moderator	Measure	Data Collection Timing
Mediators		
ECT Perceived Isolation & Professional Supports	ASMP ECT survey	Fall & Spring, Years 1 & 2 of teaching, and Spring Year 3 (Cohort 1 only)
ECT Cultural Competence	Culturally Responsive Teaching Self-Efficacy Scale (CRTSE; Siwatu, 2007) Mentor Cultural Competency rubric (developed in Year 1 of study, see B.4.)	CRTSE and mentor ratings obtained in Fall and Spring of Years 1 & 2 of teaching
Classroom instructional practices	CLASS observation tool (Pianta et al., 2008; 2012)	3 observations in Fall and Spring of first year of teaching, 3 observations in Spring of second year
ECT Teaching Confidence	TEBS-Self (Dellinger et al., (2008)	Fall & Spring, Years 1 & 2 of teaching, and Spring Year 3 (Cohort 1 only)
ECT Job Satisfaction	Schools and Staffing Survey (SASS) Teacher Questionnaire (Perie, Baker & Whitener, 1997)	Spring of Years 1, 2 & 3 (Cohort 1 only) of teaching
Moderators		
School characteristics	Region; proportion English Language Learners; class size/no. of students (school administrative data)	Fall, Years 2 – 4 of the study
ECT characteristics	In vs. out-of-state hire; area(s) of certification; race/ethnicity; age (school administrative and ASMP portal data)	Fall, Years 2 – 4 of the study
Student characteristics	Race/ethnicity; English Learner status; Students with Disabilities status; Gifted status (school administrative data); Baseline achievement (MAPs math, science, ELA); Baseline SEL (Student Voice)	Fall, Years 2 – 4 of the study

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[11]Surveying young students can be difficult for obtaining valid responses; RTI will work with mentors to help ECTs administer the surveys in ways that enhance student engagement and help ensure valid responses (e.g., ensuring understanding of the purpose and instructions, reading questions aloud to struggling readers).

For student SEL and achievement outcomes, we will test ECT instructional practices, cultural competence, and teaching self-efficacy as mediators. For ECT retention, we will test ECTs' perceived isolation, professional support, teaching self-efficacy, cultural competence and job satisfaction.

To measure **instructional practices**, we will use the CLASS observation protocol[64,65,66] with a matched subset of 25 ECTs from the virtual and 25 from the in-person delivery conditions for each cohort for a total of 100 ECTs. ECTs will be observed using Swivl robot cameras and videos will be stored on the secure Cloud server. Teachstone, the developers of CLASS, will train raters to score the observations. During data collection, observers complete regular calibration and double coding. Reliability rates average 85% or above. ECT's perceived isolation, professional supports, teaching confidence, cultural competence, and job satisfaction will be measured via online surveys (Appendix I, Table A.5.)

E.1.1.3. Sample. *STARR* project staff will recruit rural/remote schools across the state to participate in this study in two cohorts (see Figure 4). Participating schools will be randomized into virtual or in-person delivery methods. There are over 250 rural/remote schools in the state within 49 districts.[67] We conservatively expect 200 first-year ECTs per year in these schools (for a total of 400 ECTs across the two cohorts). ASMP is a two-year mentoring program, so we will follow both cohorts during their first and second years of teaching. Cohort 1 will participate for an additional year beyond the mentoring to evaluate longer term outcomes on perceived teaching self-efficacy, job satisfaction and retention.

E.1.1.4. Power analyses. We conducted power analyses setting statistical power at 0.80 and significance levels at 0.05. We assumed 30% of school-level variance is explained by the district and mentor blocks and by school-level covariates, 30% teacher-level variance is explained by teacher-level covariates, and there is a school-level intraclass correlation (ICC) of 0.15. Additionally, assuming 20% attrition of participating ECTs, power analysis for teacher retention suggests a minimum detectable effect size (MDES) of 0.20. For the analysis of student academic achievement and social emotional learning, we estimate data for an average of 25 students per ECT. By assuming a teacher-level ICC of 0.15 and 50% student-level variance explained by student pretest data, we will be able to detect a MDES of 0.18 for the study of student academic performance in each subject and SEL outcomes.

E.1.1.5. Analysis plan. Our analysis plan includes estimation of program impacts and mediator/moderator effects (see Appendix I). To estimate program impacts of *STARR* delivery methods

on ECTs and students, we will use multilevel models to account for the clustering of ECTs within schools and students within ECTs. We will employ a model-based multilevel imputation procedure to impute missing responses using relevant variables.[68] Analyses will focus on the overall impact of ASMP mentoring on ECT retention, student SEL and achievement, as well as differential moderator effects on ECTs, students and schools with different characteristics. For our mediator analysis, statistical models will examine the indirect effects of *STARR* mentoring on teacher retention, student SEL and achievement through each mediator as well as the direct program effects controlling for the mediators.

E.1.2. Implementation Study. Our implementation study focuses on assessing the degree to which ASMP is implemented with fidelity across the two delivery methods, and how levels of fidelity are related to ECT and student outcomes.

E.1.2.1. Implementation thresholds. ASMP's key program components have been validated using an implementation fidelity tool created for the i3 validation study[3] (see Table A.5, Appendix I for components and thresholds) that we will repurpose for this study. We will focus on two main program components: (1) high quality mentors, and (2) supportive interactions with ECTs. To evaluate implementation fidelity, we will use mentor completed FAS tools, participation data, ECT information, supplemented with surveys, interviews with ASMP staff, mentors, ECTs, and school district personnel.[12]

E.1.2.2. Threshold coding. We will apply thresholds (Table A.5, Appendix I) and create dummy codes for each component to model relationships between program components and outcomes. Following the i3 implementation fidelity protocol,[3] we will code numeric thresholds for low (0), adequate (1) and ideal (2) implementation for each mentor for their implementation of each indicator in each treatment condition (in-person and virtual). Indicator scores will be averaged for each mentor and key component.

E.1.2.3. Analysis Plan. We will statistically model relationships between each key component fidelity score and the main study outcomes (ECT retention, student achievement and student SEL). We will use multilevel models, like those used for the impact study, to account for clustering of ECTs within mentors and mentors within schools. Models will include program moderators (see Table 5) to evaluate

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[12]We will leverage existing ASMP implementation survey instruments and interview protocols from previous research supplemented with new items specific to *STARR*, developed in collaboration with project staff to ensure that findings can be used for program improvements and scaling efforts.

the extent to which school, mentor and ECT characteristics influence implementation. Results will indicate the extent to which the mentoring model was implemented with fidelity in the virtual and in-person conditions, and the effect of implementation fidelity on the three program outcomes.

E.1.3. Cost-Effectiveness Study. Drawing on the data and impact analyses described above in Section E1.1, we plan to conduct a cost-effectiveness study to assess whether the costs of providing high-quality mentoring to ECTs can be reduced by virtual delivery while maintaining the quality of support found in the in-person mentoring. To answer this question, we will take an ingredients approach to estimate costs. This approach involves semi-structured interviews with key stakeholders to inventory all resources used (e.g., technology, travel, trainings) for implementing key program components.[69] We will also collect unit costs (e.g., mentor hourly wage) and intensity of use (e.g., mentoring hours) for each resource. The results will inform the degree to which reduced costs through virtual mentoring are related to changes in effectiveness; the measures for effectiveness will be ECT retention and student achievement shown in Table 5 under E1.1. (Appendix I contains methodology and analysis plan.)

E.2. Evaluation of Expansion Scaling Strategies (Objectives 2 and 3). Objectives 2 and 3 (see Table 4) are focused on the scaling of ASMP and will be addressed through a mixed methods process evaluation. Assessment for scalability focuses specifically on assessing feasibility and impact. Evaluations examining scalability document the innovation or model's implementation; assess the credibility, buy-in and perceived value of the approach, and yield evidence of effectiveness, replicability, simplicity, and ease of adoption.

Evaluation of our *STARR* scaling strategies will consist of multiple approaches and data sources, including developmental evaluation of new and emerging innovations and models, formative evaluation of existing models, and outcomes evaluation assessing the efficacy and promise of impact of the strategy across the local school proof points. Data sources will include surveys and interviews with school administrators and boards, mentors, ECTs and other key partners; focus groups with ECTs, parents, and community members; analysis of existing ASMP program and financial data and school-based outcomes; and case studies to illustrate exemplar or innovative proof points. Table 6 shows the four scaling strategies, processes and outcomes, and data sources for the proposed evaluation. Below we briefly describe the different approaches and methods we intend to use.

Table 6. STARR Scaling Strategies

Scaling Strategy	Processes and Outcomes	Data Sources
Expanding ASMP support to ECTs in rural/remote schools by providing technology and coordination support to ECTs, mentors, and schools (SS1)	Mentor and school satisfaction with supports Reduction in "on-demand" technology needs	Mentor and administrator surveys Analysis of technology support requests Interviews with mentors and school/district administrators
Strengthening district and school capacity to support ECTs (SS2)	Level of school support perceived by ECT Mentor assessment of school capacity Administrator report of change in capacity	ECT, mentor and administrator surveys Interviews with mentors and administrators
Creating stakeholder buy-in (SS3)	Number of adopted or enacted policies to support high-quality teaching and learning Number and types of new connections, collaborations, and partnerships % of stakeholders reporting value for and knowledge of *STARR*	Review of district and state policies related to ECT support Analysis of number and type of ASMP partners over time Surveys/interviews with policymakers, school administrators, school boards, and community members
Sharing resources on teacher cultural competence connected to student SEL (SS4)	Number of resources shared, where, utilized, and by who	Surveys/interviews with users in AK Tracking counts on downloads

E.3. Evaluate the Relationship Between ECT Cultural Competence and Student SEL (Objective 4)

Evaluation of our fourth objective, understanding the relationship between ECTs cultural competence and students' social emotional learning, uses a mixed methods evaluation approach. Year 1 will validate and refine a cultural competence rubric to be used in the impact analysis (Table 6)—through vetting with Alaska Native educators, examining reliability of scales, and identifying how the rubric can be adapted to local settings. Existing cultural competence rubrics will be used as the foundation and adapted for the specific needs of *STARR* (see B.4.). Second, building on the mediational analyses (Section E.1.1.2), we will examine how different components of ECTs cultural competence (as measured by the rubric and CRTSE) are quantitatively related to different social emotional outcomes. Third, we plan to conduct a series of interviews with ECTs, mentors, and Alaska Native educators to surface conditions that support ECT cultural competence and what student outcomes are important to achieve. These findings will inform ASMP adaptations to the cultural competence components of the program, as well as the field. Finally, we plan to conduct up to four case studies with ECTs who exemplify high cultural competence. These case studies will include interviews with stakeholders, focus groups with students, community members, and parents, and observation of cultural competence in the classroom. We intend to work closely with the Internal Cultural Consultant and Regional Liaisons to ensure that our work is culturally sensitive and respectful to the local communities and reflects their unique values, norms, and heritage.

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