write

WRITING & REVISING INTERVENTIONS TO EXCEL

FINAL REPORT

Writing & Revising Interventions to Excel (WRITE)

Prepared for

Arctic Slope Community Foundation (ASCF)

ARCTIC SLOPE COMMUNITY FOUNDATION

Prepared by

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Table of Contents

Executive Summary

Writing and Revising Interventions to Excel (WRITE) was a targeted initiative aimed at enhancing the skills and confidence of secondary-level teachers in teaching argumentative writing. WRITE was funded by a U.S. Department of Education Alaska Native Education program discretionary grant awarded to the Arctic Slope Community Foundation (S356A210063) from 2021 to 2024. Project partners included educators from nine school districts in Alaska, the Alaska Department of Education and Early Development Career and Technical Education (CTE), and CTE leaders from across the state. The initial intended audience was CTE teachers, but in implementation, the program was found to be valuable for all subject area teachers.

Goals and Objectives

The WRITE project aimed to enhance students' ability to write commonly needed workplace texts, primarily argumentative writing. This goal was supported by three objectives: 1) the creation of three neighborhood learning maps that included six Alaska language arts standards (ELA.W.11-12.1.a, b, & d; ELA.W.11-12.4; ELA.W.11-12.5; and L.11-12.6); 2) development of a sequence of five professional learning modules and coaching to support classroom implementation of the neighborhood maps and resources by teachers; and 3) teacher use of the writing learning maps and resources with students using authentic opportunities to introduce argumentation.

Key Activities and Achievements

Over three years, the WRITE project met all objectives. This included creating three learning maps, nine professional learning modules, and three instructional resources aligned with the six Alaska student writing standards. The argumentative writing learning maps were developed in year one and systematically reviewed by expert practitioners and curriculum administrators. The learning maps informed the design of the professional learning modules and supporting resources for teachers that occurred in the second year of the project. In the final year of the WRITE project, the training and resources were piloted with 23 educators from nine school districts in Alaska, who collected pre- and post-writing samples from students to measure the impact of the project. Classroom implementation in year three also included regular and on-demand hands-on coaching to educators, which was highly valued and seen as a critical component of the program's success.

Outcomes and Evaluation

The WRITE project demonstrated significant positive outcomes. Teachers reported increased confidence and understanding in teaching argumentative writing, with 95-100%

of participants valuing the professional development and coaching provided. Teachers appreciated the project's focus on real-world topics that engaged students and aligned with workplace writing expectations. The professional development enhanced teachers' understanding of argumentation as a writing form.

During the project, participating teachers collected pre- and post-writing samples and a survey from their students to help measure growth in argumentative writing skills. Student writing samples showed improvement in writing quality, with a statistically significant increase in argumentative writing skills. Additionally, student surveys indicated high levels of engagement and perceived relevance of writing skills to future career goals. Since the teacher participation took place over one semester in the spring, many participating teachers concluded the project eager to incorporate argumentative writing into their courses for the following year.

Dissemination and Conclusions

The argumentative writing learning maps, professional learning modules, and teacher resources will be disseminated and available for future use through the Alaska Education Exchange. WRITE researchers presented a poster session describing the project and outcomes in April 2025 at the American Educational Research Association conference.

The WRITE project's success in aligning with educator and community needs and improving educational outcomes sets a precedent for similar initiatives in other regions and disciplines. WRITE highlighted the importance of targeted professional development and resource alignment in improving educational practices and student outcomes in writing instruction.

Background

The Writing and Revising Interventions to Excel (WRITE) project stemmed from a U.S. Department of Education discretionary grant awarded to the Arctic Slope Community Foundation. Project partners included Accessible Teaching, Learning, and Assessment Systems (ATLAS) at the University of Kansas, the Alaska Department of Education and Early Development Career and Technical Education, and curriculum experts from rural Alaska school districts.

The broad goal of the project was to increase the skills and confidence of secondary-level teachers in teaching argumentative writing, the most common type of writing used in the workplace. The expectation was that, by increasing teacher knowledge and ability, students would produce high-quality writing for college and career purposes.

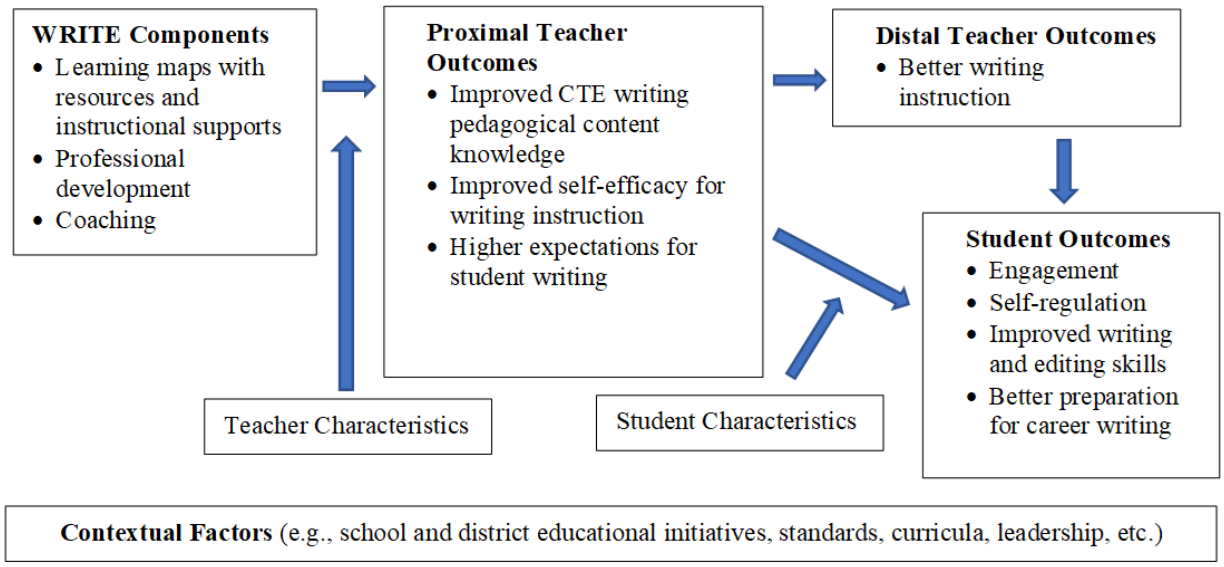
The WRITE project was guided by a theory of change (Figure 1). WRITE addressed the gaps in current writing instruction by developing a series of learning map model neighborhoods. The maps combined empirical research on writing skill development and evidence-based practices in writing instruction for Career Technical Education students. These maps formed the basis of instructional materials, assessments, and online professional development.

We provided teachers with a coherent instructional framework that improved their writing instruction and the writing products of students at all ability levels. The learning map model neighborhoods and aligned instructional resources supported that goal.

WRITE incorporated the self-regulated strategy development framework (Graham & Perin, 2007). This approach engaged students in their own writing assessment. In doing so, students developed engagement and self-regulation (Heritage, 2013).

As a result of increased educator knowledge and skills about writing, as well as more intentional writing instruction and involvement of students in their own assessment, students improved their writing skills. Providing an instructional framework and engaging students in their own assessment supported improvements in student writing skills. Students will graduate from high school better prepared for career writing. This work addressed employer and industry need for better writing skills in job candidates.

Figure 1 *Theory of change for the WRITE Project*



Several driving factors supported the belief that the WRITE project was needed and would be useful. One contextual factor was the placement of argumentative writing in the progression of the skills students learn in school. Students learn expository writing and narrative in elementary grades, followed by persuasive writing, and finally argumentative writing in grades 10–12. Argumentative writing is different from persuasive writing in that it requires analysis of two points of view and includes an expectation that the writer will support a chosen viewpoint with convincing evidence. In the student learning standards, argumentation is the culmination of all of the earlier writing skills. The WRITE project focused on specific writing standards and incorporated research on how students develop writing skills.

Another factor that pointed to the need for the WRITE project was research and evidence that most teachers receive no training for teaching sophisticated writing skills such as argumentation (Newell et al., 2011). Teachers of subjects like social studies, science, and career and technical education instead rely on what they know or have experienced themselves as students, or they avoid the opportunity to teach argumentative writing in their content area. The WRITE project capitalized on the missed opportunity by training teachers to use evident subject-related scenarios as argumentative writing prompts without replacing important content area instruction.

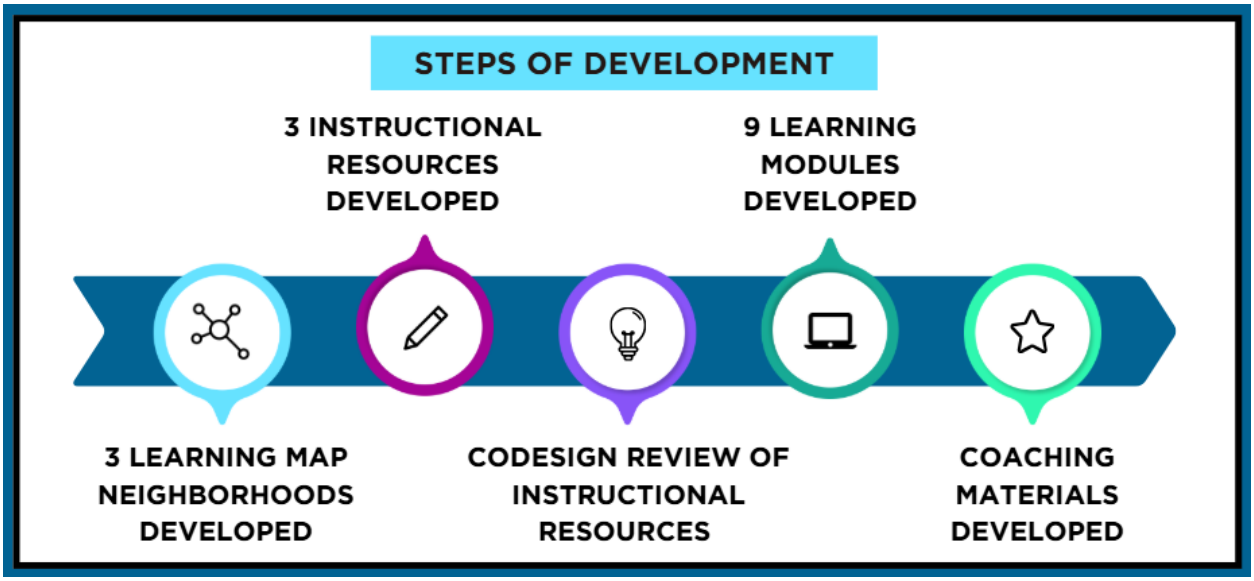
Project Overview

The overall goal of WRITE was operationalized by activities associated with three objectives:

1. The creation of three argumentative writing map "neighborhoods" with supporting resources for six Alaska student writing standards
2. The creation and implementation of professional development for teachers who used the learning maps and resources created in objective 1
3. Teacher use of the resources and application of professional development to teach argumentative writing in the classroom. Samples of student writing were collected to help determine the impact of the teacher training.

The overall progression of project activities is shown in the timeline in Figure 2.

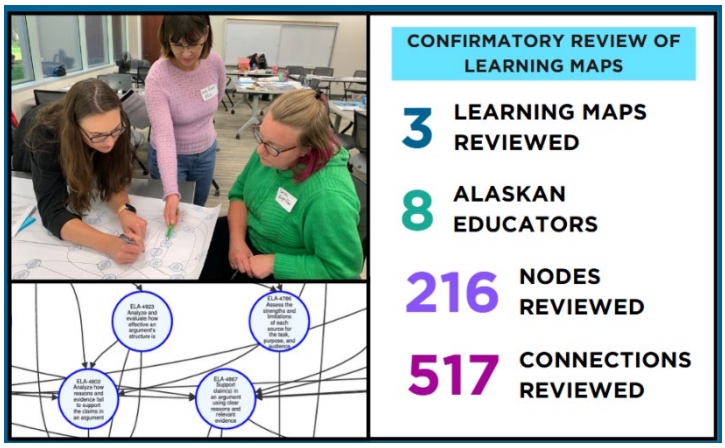
Figure 2 *Steps of development for the WRITE project*



Learning Maps

The project activities in year one focused primarily on creating sound, research-based, and standards-aligned learning maps as the basis for teacher training (Figure 3). Learning maps describe the progression in student learning. Learning maps represent the many-to-many relationships among skills within a content area, providing alternate pathways for students of diverse ability levels (Kingston et al., 2016). Learning maps are distinguished from learning progressions because they are not as discretely linear as learning progressions. Learning maps are the basis for dynamic learning and assessment because they account for differences in the ways students acquire knowledge and skills. Not every student learns the same skills in the same way or timeline as another student.

Figure 3 *Learning Maps Review by the numbers*

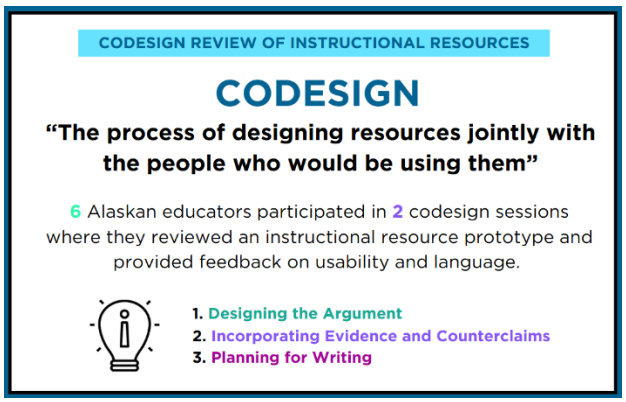


A learning map neighborhood describes a region of a learning map that focuses on a standard or set of related standards, including the precursor skills needed to achieve the targets of the standards. Learning map neighborhoods support planning and monitoring instruction, designing assessments, and organizing student data over time by highlighting how students acquire interconnected knowledge, skills, and understandings on pathways to grade-level learning targets in a domain (Cope, et al, 2019; Bechard et al., 2012; Kingston et al., 2016; Wilson, 2009). Learning map neighborhoods can put teachers in a better position to personalize learning by suggesting activities that are appropriate for students at different points in their learning. This makes learning maps an important instructional planning tool for teachers as well as a useful visual for students to see where they've been and where they need to go related to their learning. The three learning map neighborhoods described in the WRITE project proposal were completed by the summer of 2022.

Instructional Resources

Year two of the WRITE project included the development of a prototype for the instructional resource document that accompanies each learning map. Because the learning maps are very large with many individual nodes (pieces of knowledge or skills), the resource documents are designed to show a smaller progression within the map. The resource documents contain a narrative description of the information on the map, specific writing prompts, and some suggested activities or ways a teacher could incorporate instruction to teach the skills. Significantly, the WRITE learning maps are aligned with the best practices for teaching CTE that are outlined by Southern Regional Education Board, the national center for CTE research.

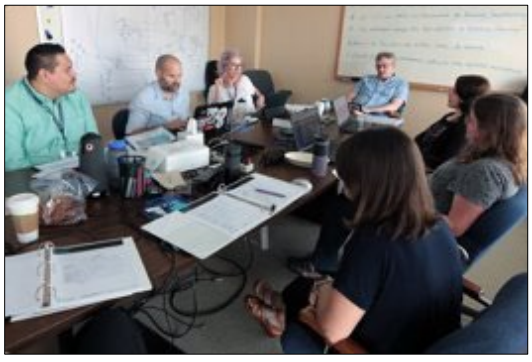
Figure 4 *Codesign Review of Instructional Resources*



Codesign Review

In spring 2023, two codesign sessions were held to collect valuable feedback to incorporate into subsequent iterations (Figure 4). In June 2023, Arctic Slope Community Foundation (ASCF) project managers made a site visit to the University of Kansas to hear more about the progress of the project (Figure 5). The meeting was a success and included suggestions and outcomes that were used in the development of the teacher training.

Figure 5 *Arctic Slope visit to ATLAS*

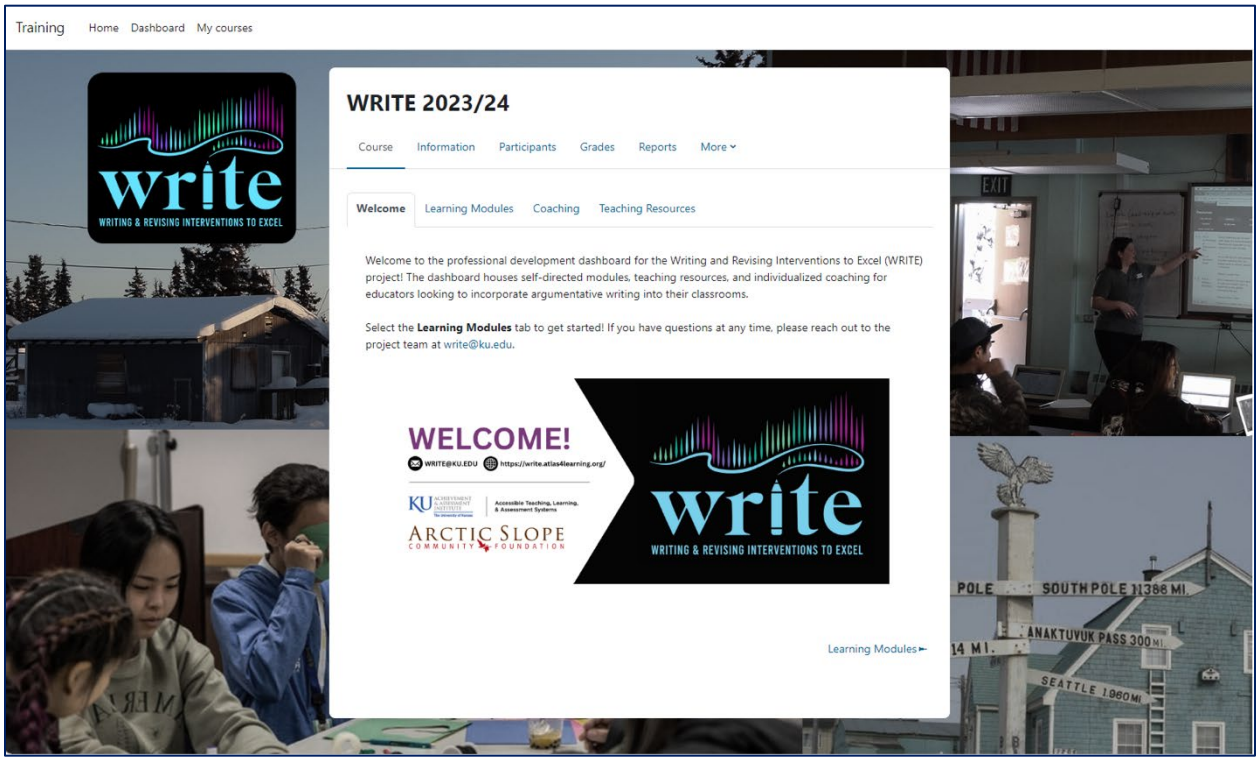


Professional Development

From summer 2023 through winter 2023, five professional development modules were created along with a dashboard to house the modules and supporting resources (Figure 6). The module objectives and content were refined to ensure that teachers could successfully enact changes in their instruction. The following modules were developed to support teachers and achieve the WRITE project goals.

- **Art of Argumentation and Connecting CTE and Argumentation**: Argumentation techniques and how CTE teachers can incorporate argumentative writing prompts
- **WRITE Learning Maps**: Supporting student writers using knowledge of how they develop writing skills
- **Feedback and Assessment and Best Practices for Teaching Writing**: Incorporating writing instruction in the classroom

Figure 6 *WRITE dashboard where participants accessed modules and other project resources*



The professional development was initially presented at the Alaska CTE conference in October 2023. Due to low attendance and time remaining to implement writing in the classroom, we determined that all future professional development should be provided

online with guidance from the writing coach. Most teachers completed the online training between November 2023 and January 2024.

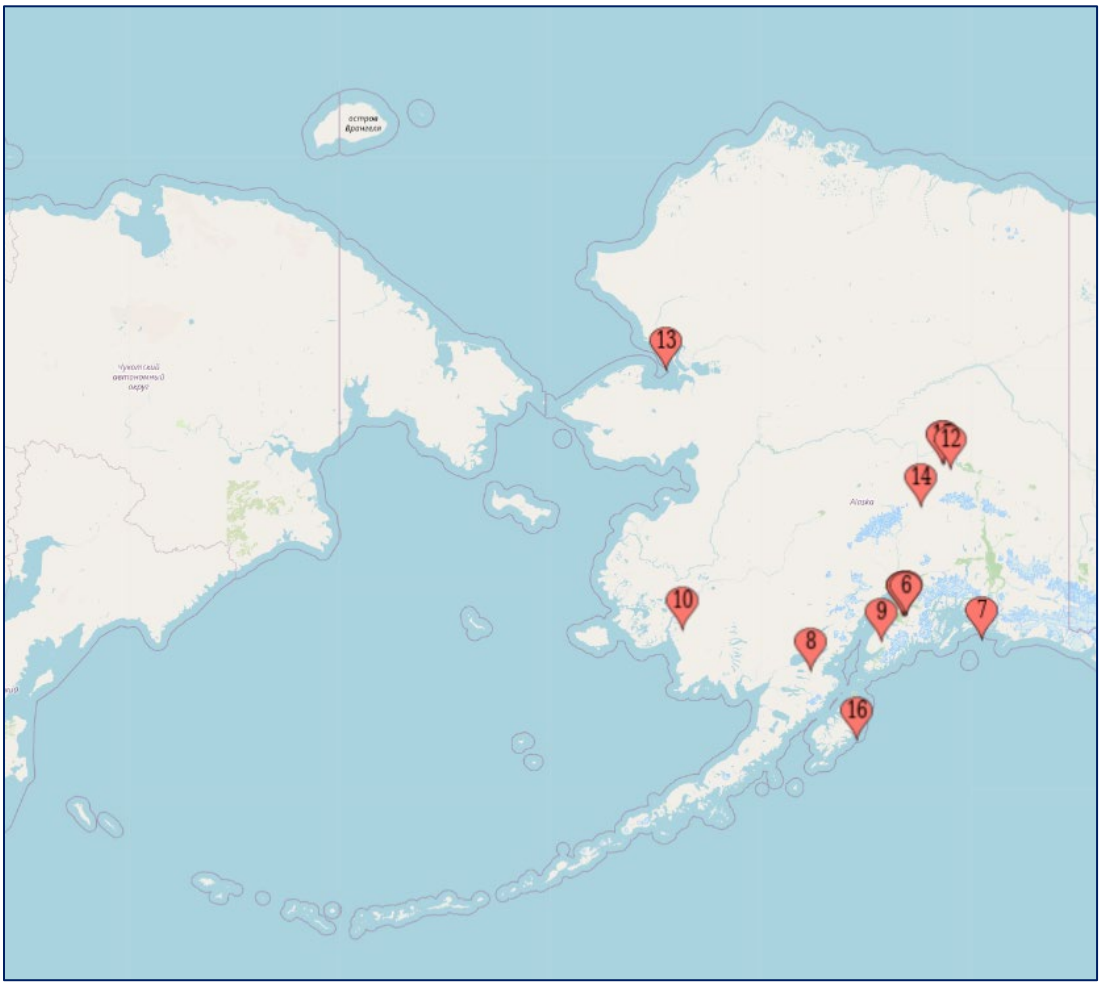
Pilot Study

Recruitment for the pilot study occurred from the winter of 2023 through the spring of 2024. In total, **25 participants** consented to the project and submitted pre-measures. Participants were recruited using the WRITE Project Advisory Committee (PAC) and personal contacts with districts and CTE leaders, which resulted in participants that came from nine districts around the state of Alaska (Figure 7).

Districts

1. Anchorage
2. Cordova City
3. Lake and Peninsula
4. Kenai Peninsula Borough
5. Lower Kuskokwim
6. Fairbanks North Star Borough
7. Northwest Arctic Borough
8. Denali Borough
9. Kodiak Island Borough

Figure 7 *Locations of schools that participated in WRITE*



Project activities from July 2024 through November 2024 included data analysis for all measures and module updates using feedback from project participants and updated instructional design standards. Following the completion of the professional development, WRITE staff reviewed the module objectives and content, revised them to address feedback, and edited the modules before providing teachers with access.

Final Set of Modules

- Connecting Argumentation to CTE
- The Art of Argumentation
- Providing Feedback and Assessing Writing
- Introduction to Teaching the Writing Process Module Series
- Teaching the Writing Process: Phase 1 – Prewriting
- Teaching the Writing Process: Phase 2 – Drafting
- Teaching the Writing Process: Phase 3 – Revising
- Teaching the Writing Process: Phase 4 – Editing and Publishing
- Conclusion of Teaching the Writing Process Module Series

In November 2024, a paper titled, **"The WRITE Project: An Intervention to Improve Writing Skills Among Alaskan High School Students,"** was accepted to the American Educational Research Association conference which was presented in Denver, CO from April 23-27, 2025, in the form of a poster presentation.

Resources produced during the WRITE Project are posted on the Alaska Education Exchange and on the WRITE Project website and are available to teachers at no cost.

"Thank you for helping me understand these concepts. I am looking forward to applying this information to my other classes next year." – from a high school social studies teacher

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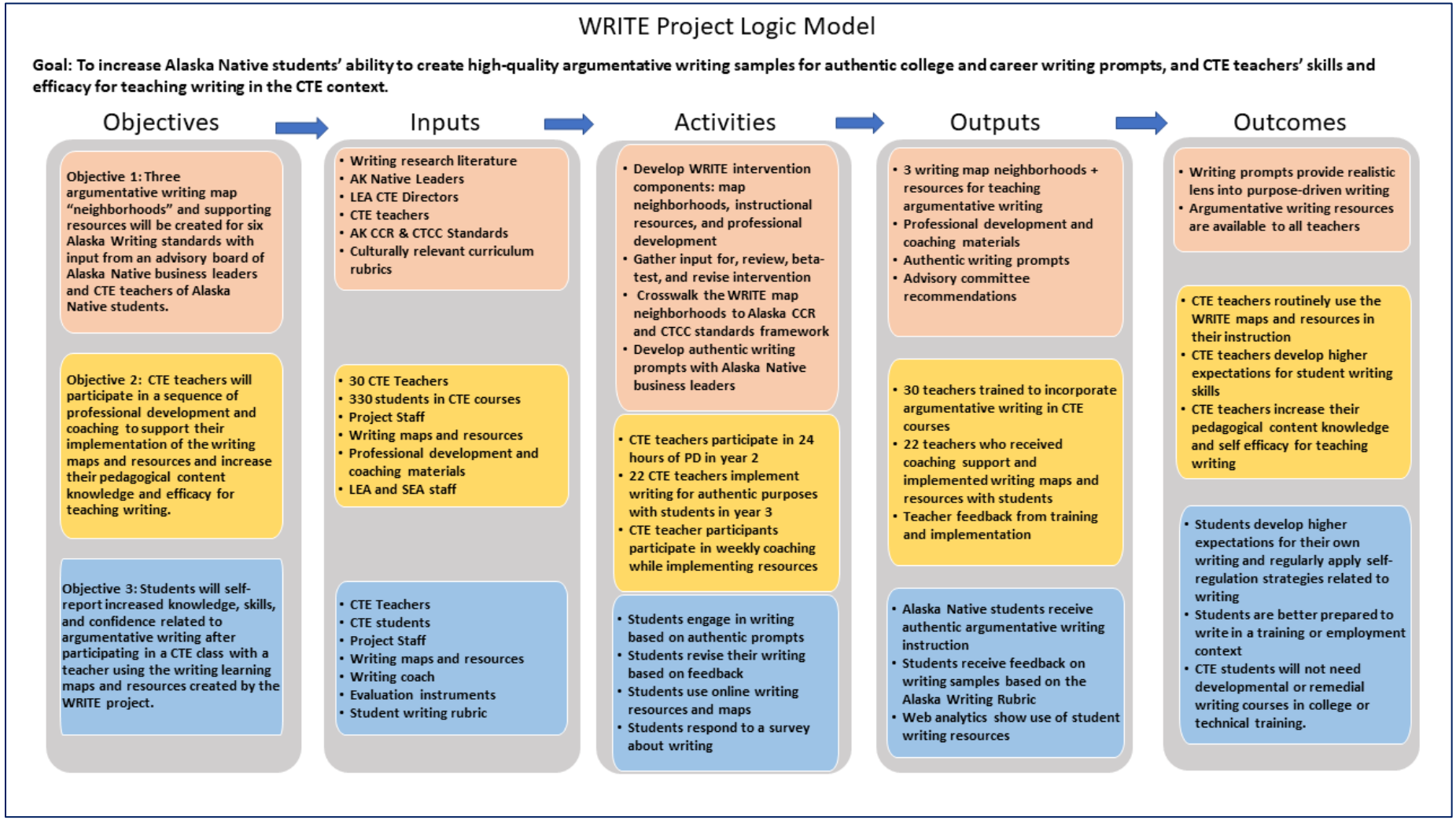
Anticipated Outcomes

The WRITE project aimed to boost teacher confidence in teaching argumentative writing and increase awareness of various opportunities to incorporate argumentation into their content areas (Figure 8). Achievement of the project outcomes was measured using both qualitative and quantitative data. Much of the qualitative data came from teacher coaching logs. The WRITE project included a thorough research and evaluation design.

Figure 8 *WRITE project logic model*



Evaluation

During the WRITE project evaluation phase, we examined changes in the following areas.

- Teachers' pedagogical content knowledge (PCK)
- Self-efficacy and outcome expectancy for teaching argumentative writing
- Student perceptions of their writing engagement and preparation for post-secondary writing demands
- Student writing performance

The WRITE evaluation was aligned with the principles of community-based participatory research and was conducted in close collaboration with members of the Alaska Native business community, CTE educators, and experts in writing instruction. To be successful, the WRITE intervention needed to address the needs of those stakeholders, and so it was on that metric that the project was evaluated. The WRITE intervention was designed to be aligned with the needs identified within the community served, and the evaluation focuses on evaluating the degree to which that goal was achieved.

The following questions guided the evaluation of the WRITE project.

1. To what extent did participating teachers increase their PCK for argumentative writing?
2. To what extent did participating teachers increase their self-efficacy and outcome expectancy for teaching argumentative writing?
3. What are participating students' perceptions of their writing engagement and preparation for post-secondary writing demands?
4. To what extent did participating students increase their skills in argumentative writing?
5. To what extent do participants and community members feel that the WRITE project has met their needs?

Measures

Background Survey

Participating teachers completed a background survey to provide demographic information and answer questions on their CTE area, teaching experience, certifications, and the nature of their writing instruction.

Professional Development and Coaching Satisfaction Survey

Participating teachers completed a survey at the end of the project to evaluate the professional development and coaching they received during the project. Teachers rated the professional development and coaching using a four-point scale (1=strongly disagree to 4=strongly agree).

Learning Map and Instructional Resources Satisfaction Survey

Participating teachers completed a survey at the end of the project to evaluate the learning maps and instructional resources designed to support their writing instruction. Teachers rated the learning maps and instructional resources using a four-point scale (1=strongly disagree to 4=strongly agree).

Pedagogical Content Knowledge (PCK) Survey

Participating teachers completed pre-test and post-test surveys on their PCK, self-efficacy and outcome expectancy related to argumentative writing instruction. The 14-item survey was developed based on recommendations in the What Works Clearinghouse Practice Guide, Teaching Secondary Students to Write Effectively (Graham, et al., 2016; Heritage et al., 2009; Supovitz et al., 2013). Teachers rated their level of knowledge of instructional strategies (e.g., providing specific feedback to students throughout the writing process, individualizing writing goals for students) using a four-point scale (1=not at all knowledgeable to 4=very knowledgeable).

Self-Efficacy Survey

Participating teachers completed pre-test and post-test surveys on their self-efficacy for teaching writing. The 15-item self-efficacy survey was adapted from Riggs and Enochs (1990) and produced sub-scores for self-efficacy and outcome expectancy. Self-efficacy is defined as one's perceptions of their ability to teach successfully, and outcome expectancy is defined as the belief that specific teaching strategies will produce desired educational outcomes. Teachers rated their level of agreement to statements regarding their writing instruction using a four-point scale (1=strongly disagree to 4=strongly agree).

Student Survey

Students of participating teachers completed a survey at the end of the WRITE project to share their perceptions of their engagement in writing instruction, knowledge of how their writing is assessed, and writing ability and preparation for college and career writing using a five-point scale (1 = strongly disagree, 2 = disagree, 3=agree, 4=strongly agree, and 5=not sure).

Student Writing Samples

Participating teachers submitted their students' writing samples at the beginning (pre-test) and end (post-test) of the WRITE project. The teachers wrote their own prompts for students to respond to. In total, the teachers submitted 242 complete pairs of pre-test and post-test writing samples.

Project staff scored the student writing samples using a rubric. Staff started with an existing rubric and then adapted it to align with elements of the WRITE project (Lottridge et al, 2003; Lottridge et al, 2023). To test the revised rubric, three WRITE staff applied the rubric to four writing samples, discussed and compared results, and then made minor revisions based on their discussion.

Staff selected two ATLAS researchers who were familiar with writing and argumentation to score the writing samples. WRITE staff held a training session with the scorers to familiarize them with the project's purpose, the components of argumentative writing, the rubric, and avoiding bias while scoring. The scorers practiced identifying claims, evidence, counterclaims, and reasoning during a practice activity. They then practiced applying the rubric to the same four writing samples that the WRITE staff had reviewed, comparing their results to the WRITE staff results, and resolving differences.

Once the scorers were ready, WRITE staff selected a subset of 38 writing samples (19 matched pre-post-test pairs) by randomly selecting one pair per teacher. The scorers each applied the rubric to the samples and then met, along with a WRITE subject matter expert (SME), to compare results and resolve differences.

During the first round of scoring, WRITE staff and the scorers noticed that some of the writing prompts and student samples did not require argumentation as a response. Staff decided to remove these samples from the sub-set, since the argumentation-based rubric would be difficult to use with informational samples.

In a second round of scoring, WRITE staff selected an additional 38 writing samples (19 matched pre-post-test pairs) by again randomly selecting one pair per teacher. The scorers applied the rubric and then met, along with the WRITE SME, to compare results and resolve most of the scoring differences. The WRITE SME reviewed the remaining scoring differences independently and recommended a final score. WRITE staff removed from the pool any samples where the WRITE SME did not agree with either scorer. Also, the scorers and SME removed some second-round writing samples that were not argumentative. In total, 21 matched pre-post-test samples were scored, and the results were analyzed.

Results

Twenty-five participants completed the WRITE pre-measures. These pre-measures consisted of a Teacher Background Survey and a PCK Survey. All parts of the classroom implementation and coaching were completed by 22 participants, who also completed post-measures. The post-measures included a Pedagogical Content Knowledge Survey, a Teacher Satisfaction and Usability of Learning Maps and Instructional Resources Survey, and a Satisfaction with WRITE Professional Development and Coaching Survey.

Two hundred and sixty-seven matched pre- and post-student writing samples (534 samples in total) were collected from participants. Pre-student writing samples were collected from students prior to any writing instruction using WRITE professional development. Post-writing samples were collected following the completion of the modules and several meetings with the WRITE coach. Following completion of classroom implementation, participants were then asked to have their students complete a survey about their experience with their teacher's recent writing instruction. In total, 252 student surveys were collected.

Background Survey

About half of the teachers (*n* = 13, 52%) reported teaching one CTE class, six teachers (*n* = 6, 38%) reported teaching two or more CTE classes, and three teachers (*n* = 3, 12%) reported that they do not teach any CTE classes. Teachers most commonly taught courses in technology (n = 6), health and medicine (*n* = 5 teachers), college and career exploration (*n* = 5 teachers), math and engineering (*n* = 4 teachers), or English language arts (*n* = 4 teachers). Most of the teachers have been teaching for between one and five years n = 6) or between six and 10 years (*n* = 9). 32% of the teachers had bachelor's degrees and 68% had master's degrees (*n* = 8, *n* = 17).

Most of the teachers felt that they were at least moderately well prepared to teach writing (*n* = 20, 80%). Only five teachers reported that they see their CTE students for less than one hour per week and the majority of teachers (*n* = 13, 52%) reported seeing them between one and five hours per week. The majority of teachers reported spending less than one hour (*n* = 8, 32%) or between one and five hours (*n* = 12, 48%) on writing activities in each course. Almost all teachers reported using at least one curriculum resource specific to writing (*n* = 16, 64%) and only six teachers (24%) reported that they do not use any resources for teaching writing. Among teachers who used curriculum resources for writing, the most common were books or textbooks (*n* = 8, 32%) or online resources (*n* = 6, 24%). Seven teachers reported using a specific curriculum (*n* = 4, 16%), a specific learning management system such as Canvas (*n* = 2, 8%), or a specific writing strategy (*n* = 1, 4%).

During writing instruction, almost all teachers reported that they have students revise and resubmit at least some of their writing assessments (*n* = 22, 88%). Most teachers also reported that they provide students with individual feedback (*n* = 24, 96%) and have students conduct self-assessments (*n* = 72%) on at least some assignments. Nearly half of teachers have peer assessment of writing assignments for at least some writing assignments (*n* = 12, 48%).

Coaching

Coaching was offered on an as-needed basis and helped support teachers as they completed the modules, implemented what they learned from the modules in the

classroom, and collected writing samples from students. Teachers met with the writing coach an average of four times during the pilot study.

The following items were discussed during coaching sessions.

- determining writing topics and creating prompts
- student's low motivation to write and how the teacher can make an impact
- student's low writing skills and how the teacher can provide support
- planning lessons using the writing process
- teaching strategies to facilitate writing activities

The major themes from the coaching log included ease of use (implementation) of the professional development provided to educators, adaptability to writing across subject areas, the importance of coaching, and a preliminary assessment that, even in the short implementation period, there was an impact on student writing skills. Several educators mentioned plans for incorporating more writing and the skills they had learned into their instructional planning for the next school year.

Usability and Accessibility of Resources

Teachers valued the clarity and user-friendliness of the WRITE modules, including graphic organizers and scaffolding techniques that made complex writing concepts more manageable. WRITE encouraged teachers to look at their existing instructional strategies and philosophy of student engagement first and provided additional tools that were easy to adapt and fit into routines already in use. Teachers found that encouraging and it created a willingness to participate in the project. For teachers with little or no previous instruction in teaching writing, WRITE provided foundational tools and structures that boosted their confidence in teaching writing.

Adaptability and Flexibility

The WRITE program's flexible design enabled teachers to adjust materials and prompts to meet specific classroom needs, allowing for differentiation and responsiveness to students' interests and abilities. One example was the yearbook advisor who asked his students to justify their semester grades in his class using evidence.

Integration and Relevance Across Curricula

Many teachers reported assigning writing tasks but not explicitly teaching writing. The WRITE program provided tools and strategies to bridge this gap, helping teachers integrate structured writing instruction into their content-specific curricula. Logs describe how the WRITE framework's versatility allowed teachers to apply its principles across various subjects, enhancing their existing curricula and making writing instruction relevant to students' lives and interests. One teacher said that in the next school year, he plans to

teach argumentation when students are working on their scholarship applications. He found that students could “argue” the reasons they should receive a scholarship. Other examples across subject areas included:

- **Engineering**: Teachers used argumentation techniques to help students articulate their designs and justify engineering choices, employing graphic organizers to structure their reasoning.
- **Social Studies**: In history classes, educators asked students to write argumentative essays about historical events, encouraging them to use evidence from primary and secondary sources to support their claims.
- **Career and Technical Education (CTE)**: In CTE courses, students practiced writing resumes and cover letters, utilizing the persuasive techniques taught in the WRITE modules to effectively communicate their skills and experiences.
- **Geography**: Teachers engaged students in debates about environmental issues, using the WRITE materials to guide students in constructing well-reasoned arguments that included counterclaims and evidence.

One teacher decided to address Senate Bill 144, which is an industry standard of charging a set number of billable hours for warranty work on an automobile. The teacher used a software program to explain to the students the difference in pay for doing the same job. For example, if an engine needs to be rebuilt for a car under warranty, they are only allowed to bill for 10 hours of work. If they use standard billing and the same job took 20 hours, they can charge for the 20 hours. This is a large difference in pay for a technician. Most students are in support of this bill and they have used sources provided by the teacher to write their paragraph. He had four students who were reluctant to write for this assignment. As a result, he made them take the opposing point of view. The students appeared more engaged because it was more challenging to argue the opposite point of view. He shared with them that this would be the work of an attorney for the auto industry.

Importance of Coaching

Coaching sessions were often described as a partnership, where teachers and coaches worked together to solve challenges and refine ideas. Teachers valued these collaborative discussions, which frequently involved co-creating solutions, sharing resources, and tailoring strategies to meet the needs of specific classrooms and students. A key element of coaching sessions was the emphasis on scaffolding strategies and the gradual release of responsibility. Teachers appreciated how these discussions provided tools to support students at various stages of the writing process, helping them build skills incrementally and fostering independence.

The coaching sessions were offered an opportunity for clarifying misunderstandings or knowledge gaps, such as differentiating argumentation from persuasion or using learning maps effectively. Teachers gained a deeper understanding of WRITE concepts and their applications. Teachers who reflected on their experience and sought coaching for specific concerns appeared to have greater success with the program. These teachers reflected on how the WRITE program aligned with their existing curriculum or teaching strategies, collaborated with the coach to develop a greater understanding of the WRITE program content and materials, and adjusted their instructional plans to include materials and strategies recommended by the coach.

One instructor reflected on the results of implementing writing in his Process Technology class. Having been an educator for more than 20 years, he considered himself a lifelong learner. He stated that he knew he wanted to add value to his curriculum but was not sure what that piece was until he participated in the WRITE project. This experience solidified for him the importance of infusing writing into his curriculum. He has been offered a chance to write a revised curriculum for Process Technology in his district. He

plans to use information that he obtained from the modules, especially Module 5 Best Practices for Teaching Writing, in the new district curriculum.

Challenges and Supports in Implementation

Teachers faced contextual challenges, such as time constraints and varying student engagement levels, which required them to adapt their instruction while utilizing collaborative and scaffolding strategies to support student learning. Time constraints due to spring break, standardized testing, and school schedules often made it difficult to implement the WRITE program. The coaching logs describe teachers compressing WRITE modules into shorter timeframes, occasionally limiting their effectiveness. A family and consumer science teacher noted the challenge and tradeoffs she had to negotiate to incorporate writing into her regular skills-based laboratory instruction. This teacher taught three writing lessons to her students each Monday after baking. She said that in hindsight, she found that squeezing in the writing after the cooking lab did not motivate her students. When she infuses argumentative writing into her classes next year, she will plan for more time. She plans to teach a writing lesson consecutively instead of each Monday because breaking it up became challenging for the students.

Impact on Student Writing Skills

Despite some challenges, teachers observed improvements in students' writing abilities, attributed to structured tools and collaborative learning strategies, though effectiveness varied based on student motivation and engagement levels. Students benefited from group discussions and peer feedback. Some teachers felt that these activities helped students generate claims, evidence, and counterclaims and revise their arguments. While peer feedback was intended to be a key strategy, other teachers noted that its effectiveness varied depending on students' ability levels, motivation, and their stage in the writing process. Collaborative work was also challenged by frequent absenteeism in some classrooms.

Professional Development and Coaching Satisfaction

Nearly all teachers highly valued the professional development and coaching provided through the WRITE project.

95–100% of teachers agreed that

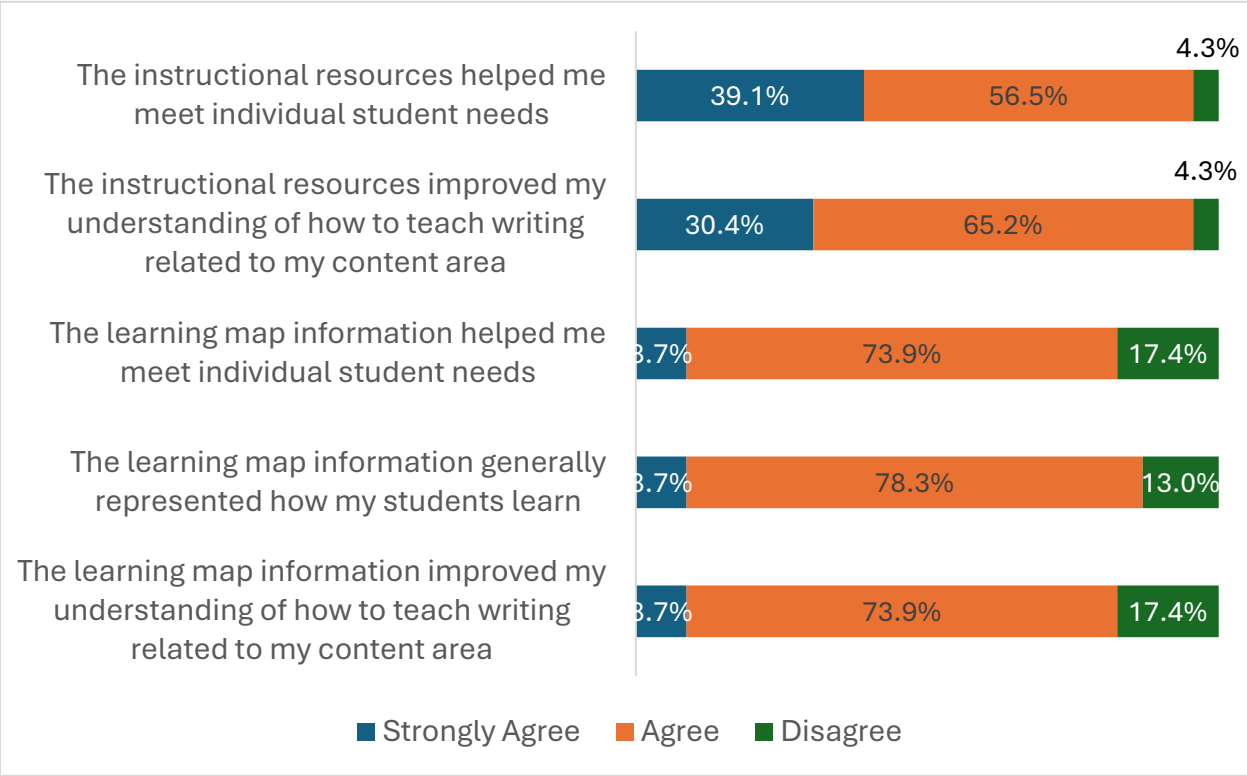
- the information presented in WRITE was directly relevant to teaching and learning in their school.
- the information presented in WRITE was directly applicable to CTE teachers' instruction
- the knowledge gained from WRITE will improve their teaching skills

- they planned to share the ideas they learned with colleagues
- the coach understood their goals, the coaching conversations addressed their needs and questions, and they trusted the coach
- the coach's feedback helped them improve their students' writing skills

Satisfaction with Learning Maps and Instructional Resources

Nearly all participating teachers (n=23) felt that the learning map and instructional resources supported their instruction to help meet individual student needs (Figure 9).

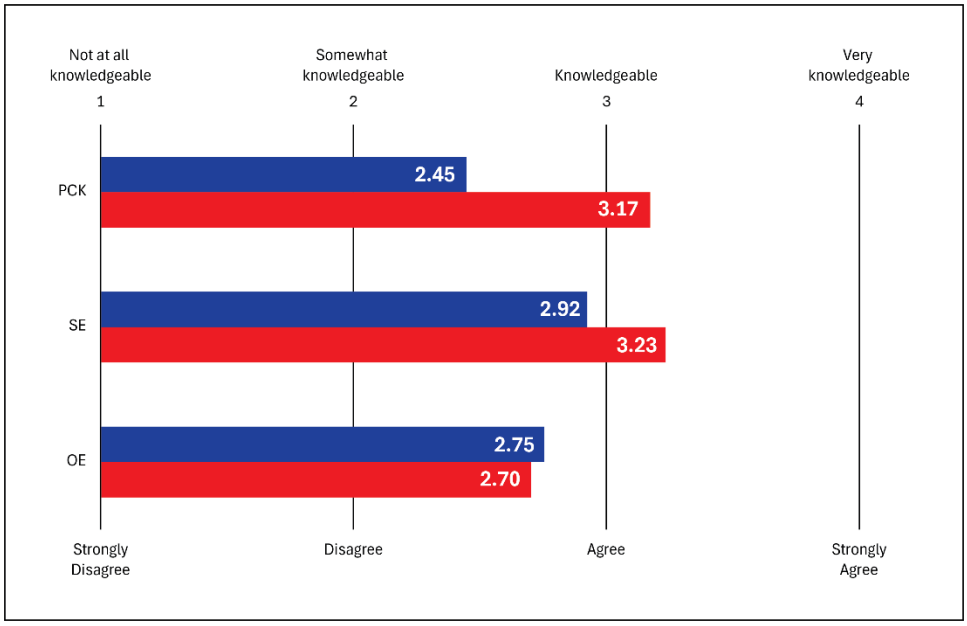
Figure 9 *Results from Satisfaction with Learning Maps and Instructional Resources Survey*



Pedagogical Content Knowledge, Self-Efficacy, and Outcome Expectancy

We examined changes in teachers' PCK, Self-Efficacy (SE), and Outcome Expectancy (OE) after participating in the WRITE project. All items were rated on a 1 to 4 scale, with 1 indicating the lowest levels of knowledge or agreement and 4 indicating the highest. More than three-quarters of the teachers showed an increase in their PCK (n=16, 76.2%), 71.4% (n=15) increased their self-efficacy, and 38.1% (n=8) increased their outcome expectancy regarding their argumentative writing instruction (Figure 10).

Figure 3 *Results from Pedagogical Content Knowledge, Self-Efficacy, and Outcome Expectancy survey*



Student Survey Results

A total of 275 students completed the student survey. Student responses indicated that they had positive feelings about their writing. Students took ownership of their work, with 86.6% reporting that they played an important role in their writing development. They felt that their teachers helped them improve their writing and that writing was important for their career goals. While the degree to which they agreed with each statement varied, even the least popular statement regarding the relevancy of their writing assignments to their future career was endorsed by more than half of the students (Table 1).

Table 1 *Student survey results*

Statement	**% agree + strongly agree**
I play an important role in my own writing skill development	86.6
I am involved in evaluating my own writing	84.4
The writing assignments/assessments in this class are graded fairly	84.0
My instructor helps me identify the writing skills that I need to work on	83.3
I understand how my writing is graded in this class	81.5
The writing assignments/assessments in this class provide me with feedback to help me improve my writing skills	74.6
I am confident in my writing skills	70.6
I am aware of the writing skills I will need for my future career	69.5
I am aware of the type of writing I will be required to do in my future career	66.9
I am prepared for the type of writing I will be required to do in my future career	64.0
Writing will be an important skill for my future career goals	56.7
The writing assignments/assessments in this class reflect the types of activities I will do in my future career	53.1

Student Writing Results

Teachers submitted pre- and post-writing samples for evaluation. Teachers who were unable to incorporate an argumentative writing prompt were encouraged to submit pre-writing samples. WRITE chose not to require argumentative writing for pre-writing samples since our teacher participants are new to that style of writing. Some of the

teachers asked students to respond to a persuasive writing prompt. WRITE chose to include those samples because there are similarities to argumentative writing techniques.

To support teachers, WRITE and ASCF compiled a list of argumentative writing prompts that are relevant to Alaska such as: 1) Rural school districts should adopt a subsistence calendar, and 2) Bureau of Indian Affairs blood quantum policies are a flawed measure of nativeness. Participants were encouraged to use the prompts with their students or tailor them to match the focus of their curriculum.

The average pre-test score for the 21 students whose writing samples were evaluated was 3.62 (sd = 1.36) and the average post-test score was 5.19 (sd = 1.75). A Wilcoxon Signed-Rank Test of the mean pre-test-post-test difference was statistically significant ($p < .01$) and had a large effect size (Rank Biserial Correlation [r] = 0.61). Overall, 14 students (67%) showed an increase in the quality of their argumentative writing from pre-test to post-test. Students showed improvement in the purpose and focus of their writing as well as use of evidence, analysis, and explanation.

Summary of Themes

Connections Between Writing and Other Subjects

Throughout the WRITE project, teachers discovered innovative ways to integrate writing into their subject area curriculum (CTE, science, social studies, etc.), thereby enhancing students' educational experience. By embedding argumentative writing tasks within the content, teachers not only improved students' writing skills but also deepened their students' understanding of the subject matter. This dual focus allowed students to engage more critically with the subject, reinforcing their knowledge through the process of articulating and defending arguments. Consequently, this approach not only supported the development of essential writing skills but also enriched students' comprehension and retention of the intended subject concepts.

Growth in Teaching Pedagogy

The WRITE project's training modules and resources contributed to the broader professional development of teachers, extending beyond writing instruction. English language arts (ELA) teachers, among others, found the materials valuable for enhancing their pedagogical strategies generally. The incorporation of coaching sessions played a pivotal role in this development, providing teachers with personalized guidance and insights that fostered a deeper understanding of effective teaching methodologies. As a result, participants were equipped with versatile strategies applicable to a range of instructional activities, thereby increasing overall pedagogical skills.

Increased Teacher Confidence in Teaching Writing (or Teaching in General)

The WRITE project significantly bolstered teachers' confidence in teaching writing, as evidenced by survey results and observed improvements in student writing samples. Participants reported a heightened sense of self-efficacy in their ability to guide students through the complexities of argumentative writing. This increased confidence was reflected in the quality of writing prompts created by teachers and the corresponding growth seen in students' post-test writing samples. The structured support and resources provided by the WRITE project enabled teachers to approach writing instruction with greater assurance and effectiveness, leading to enhanced educational outcomes for their students.

Future Recommendations

The WRITE project outcomes and teacher feedback show that educators are eager for in-service professional development that fills the skills gap from their pre-service training related to pedagogy for writing instruction. Making the WRITE professional development modules available on other sites similar to the Alaska Education Exchange would promote on-demand access to training. Second, the importance of ongoing coaching and support cannot be overstated. The positive feedback from participants regarding the coaching component underscores the need for sustained, personalized support to facilitate the effective implementation of new instructional strategies. Future projects should ensure that coaching is an integral part of professional development programs, with mechanisms in place to provide continuous feedback and adaptation to the evolving needs of educators and students. Finally, WRITE demonstrated the potential for including writing in all content areas. The enthusiastic acknowledgment by teachers of the possibilities for embedding writing naturally within the curriculum suggests that writing training, if incorporated into other future projects, would be well-received and possibly well-aligned.

Appendix A: Teacher Surveys

write

Teacher Pedagogical Content Knowledge (PCK) for Argumentative Writing

Please rate your current level of knowledge about the following instructional strategies (Options: 1=Not at all knowledgeable to 4=Very knowledgeable)

Statements:	Not at all knowledgeable	Somewhat knowledgeable	Knowledgeable	Very Knowledgeable
Providing specific feedback to students throughout the writing process.	1	2	3	4
Individualizing writing goals for students.	1	2	3	4
Strategies for integrating argumentative writing into CTE content.	1	2	3	4
Modeling argumentative writing processes for students.	1	2	3	4
Organizing students to work collaboratively on writing.	1	2	3	4

Please rate your current level of knowledge on the following instructional strategies (Options: 1=Not at all knowledgeable to 4=Very knowledgeable)

Statements:	Not at all knowledgeable	Somewhat knowledgeable	Knowledgeable	Very Knowledgeable
Finding entry points for teaching argumentative writing in the content area.	1	2	3	4
Designing and using writing scoring rubrics.	1	2	3	4
Creating and using formative assessment questions when teaching writing.	1	2	3	4
Identifying and using exemplars of good writing with students	1	2	3	4
Differences between argumentative and other text types (e.g., informative or persuasive).	1	2	3	4
Components of the argumentative writing process.	1	2	3	4
Focusing students on audience and purpose in argumentative writing.	1	2	3	4

Knowledge of the state standards for argumentative writing.	1	2	3	4
Knowledge of college and career ready standards for argumentative writing.	1	2	3	4

Self-Efficacy for Teaching Writing

Please rate your current level of agreement with the following statements (Options: 1=Strongly disagree to 4=Strongly agree).

Statements:	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
When a student does better than usual on a writing assignment, it is often because the teacher exerted a little extra effort.	1	2	3	4
I am continually finding better ways to teach writing related to my content area.	1	2	3	4
Even when I try very hard, I don't teach writing in my content area very well.	1	2	3	4
I know the steps necessary to teach writing effectively.	1	2	3	4

I am not very effective in monitoring writing assignments.	1	2	3	4
If students are underachieving in writing skills, it is most likely due to ineffective writing instruction.	1	2	3	4
I generally teach writing ineffectively.	1	2	3	4
When a low-achieving student progresses in writing skills, it is usually due to extra attention given by the teacher.	1	2	3	4
I understand writing concepts well enough to be effective in teaching about writing.	1	2	3	4
Increased effort in writing instruction produces little change in some students' academic achievement.	1	2	3	4
Students' achievement in writing is directly related to their teacher's effectiveness in writing instruction.	1	2	3	4

If parents comment that their child is showing more interest in writing, it is probably due to the performance of the child's teacher.	1	2	3	4
I find it difficult to explain to students why writing is important.	1	2	3	4
I am typically able to answer students' writing questions.	1	2	3	4
I wonder if I have the necessary skills to teach writing.	1	2	3	4

Teacher Survey

Satisfaction/Usability of Learning Maps and Instructional Resources

Please rate your level of agreement with the following statements.

Statements:	Strongly Disagree	Disagree	Agree	Strongly Agree
The learning map information improved my understanding of how to teach writing related to my content area.	1	2	3	4
The learning map information generally represented how my students learn.	1	2	3	4
The learning map information helped me meet individual student needs.	1	2	3	4
The instructional resources improved my understanding of how to teach writing related to my content area	1	2	3	4
The instructional resources helped me meet individual student needs	1	2	3	4

1. In what ways did the learning maps and/or instructional resources impact your understanding of the writing process and how students learn writing skills?

2. In what ways did the learning maps and/or instructional resources change the way you address individual student needs?

3. How did you use the learning maps and/or instructional resources in your instruction? Select all that apply.

☐ Plan whole group instruction	☐ Establish learning goals	☐ Consider prerequisites
☐ Consider next steps in learning	☐ Interpret the meaning of student's responses	☐ Diagnose misconceptions
☐ Other (please describe)		

4. Which part(s) of the instructional resources were most useful in your instruction?

Satisfaction with WRITE Professional Development and Coaching

Please rate your level of agreement with the following statements.

Statements:	Strongly Disagree	Disagree	Agree	Strongly Agree
The WRITE professional development gave me more confidence in my ability to teach writing.	1	2	3	4
The knowledge I gained from the WRITE professional development will improve my teaching skills.	1	2	3	4
I look forward to trying out these new ideas in my teaching.	1	2	3	4
The WRITE professional development increased my knowledge of what can be done in my classroom.	1	2	3	4
I plan to share the ideas I learned with my colleagues.	1	2	3	4
The WRITE professional development gave me some useful ideas about how to improve student writing.	1	2	3	4
I think the ideas presented in the WRITE professional development will be too difficult to put into practice.	1	2	3	4
I did not find the WRITE professional development useful.	1	2	3	4

Information presented in the WRITE professional development is directly relevant to teaching and learning in my school.	1	2	3	4
Information presented in the WRITE professional development is directly applicable to CTE teachers' work in schools.	1	2	3	4
I felt prepared for each coaching session.	1	2	3	4
The coaching conversations addressed my needs and questions.	1	2	3	4
I knew what my goals were for each coaching conversation.	1	2	3	4
The coach understood my goals.	1	2	3	4
I was able to trust the coach.	1	2	3	4
The coach's feedback helped me improve my students' writing skills	1	2	3	4

The number of coaching sessions was:

□ Too few □ About the right number □ Too many

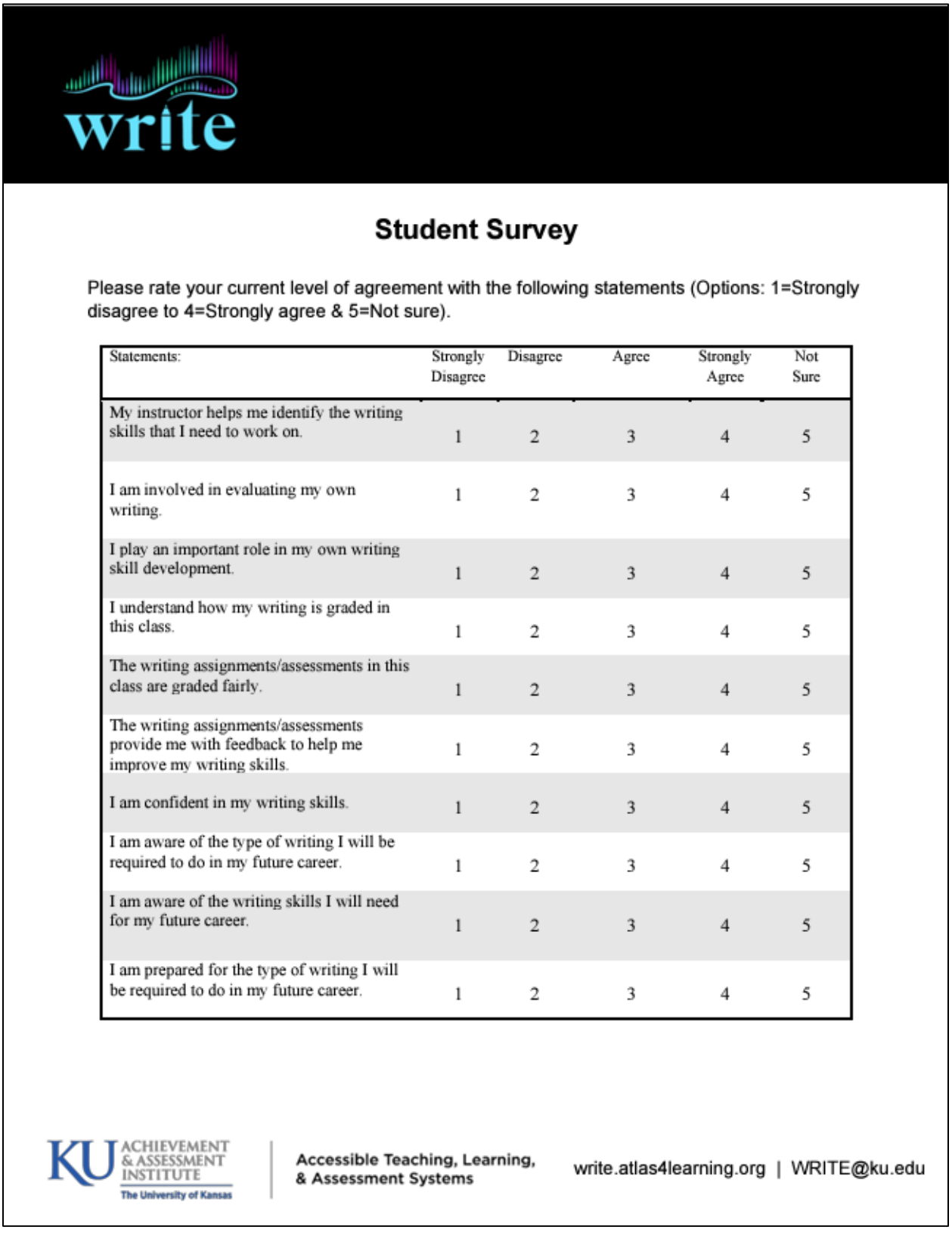
The length of the coaching sessions was:

□ Too short □ Just about right □ Too long

What worked particularly well in the coaching?

How could the coaching be improved?

Appendix B: Student Survey



write

Student Survey

Please rate your current level of agreement with the following statements (Options: 1=Strongly disagree to 4=Strongly agree & 5=Not sure).

Statements:	Strongly Disagree	Disagree	Agree	Strongly Agree	Not Sure
My instructor helps me identify the writing skills that I need to work on.	1	2	3	4	5
I am involved in evaluating my own writing.	1	2	3	4	5
I play an important role in my own writing skill development.	1	2	3	4	5
I understand how my writing is graded in this class.	1	2	3	4	5
The writing assignments/assessments in this class are graded fairly.	1	2	3	4	5
The writing assignments/assessments provide me with feedback to help me improve my writing skills.	1	2	3	4	5
I am confident in my writing skills.	1	2	3	4	5
I am aware of the type of writing I will be required to do in my future career.	1	2	3	4	5
I am aware of the writing skills I will need for my future career.	1	2	3	4	5
I am prepared for the type of writing I will be required to do in my future career.	1	2	3	4	5

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Writing will be an important skill for my future career goals.	1	2	3	4	5
The writing assignments/assessments in this class reflect the types of activities I will do in my future career.	1	2	3	4	5

Optional: provide comments about your writing instruction in this course.

Appendix C: Learning Map Neighborhood Example

Learning Map neighborhood #1 contains 95 nodes that address the following Alaska writing standards:

- ELA.W.11-12.1.a: Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
- ELA.W.11-12.1.b: Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate manner that anticipates the audience's values, possible biases, knowledge level, and concerns.

Key:

Red nodes depict the Alaska Writing Standards. Blue nodes indicate the knowledge, skills, or understandings supporting their development.

Appendix D: Instructional Resource Example

Designing the Argument

write

A successful argument relies on clear and precise communication that targets a specific audience. Communication involves not only the words chosen, but also the methods used to present information. This map neighborhood emphasizes the importance of paying attention to the way the argument is presented.

Instructional Focus

Once students have identified a topic and audience and gathered information and evidence for the argument, they craft their argument by determining the words, phrases, and organization that will enhance their claim. Provide opportunities for students to gather feedback about the use language, organization, and sentence construction. Feedback from peers and the teacher will provide a sounding board that helps them convey the argument with clarity for an identified audience.

Learning Outcomes

- Students will produce an argument that demonstrates their ability to accurately use specialized vocabulary and academic language.
- Students will tailor the argument to communicate information for a specific audience.
- Students will demonstrate clear communication skills through organization techniques and attention to style and purpose.

Strategies for Instruction

Students benefit from opportunities to talk about the writing task with others.

A. Provide opportunities for discussion of the target audience's beliefs, concerns, and potential questions about the writing task.

B. Provide opportunities for discussion about effective word choice.

C. Support students when using editing techniques and peer feedback to revise.

Visit the WRITE Professional Development Dashboard to find resources to support writing activities.

Standards and Career Technical Education (CTE) Practices

Student:

CRP-2: Apply appropriate academic and technical skills.

Applies appropriate literacy skills, including the reading, writing, speaking, and listening skills related to the career field.

Communicates workplace expectations and uses the language of the career field.

Teacher:

CRP-8: Utilize critical thinking to make sense of problems and persevere in solving them.

Career Readiness Practices

Plans and implements classroom scenarios that use literacy, math, and science skills in authentic situations found in the workplace.

Uses workplace expectations to demonstrate the knowledge and skills students will need to master in their CTE program.

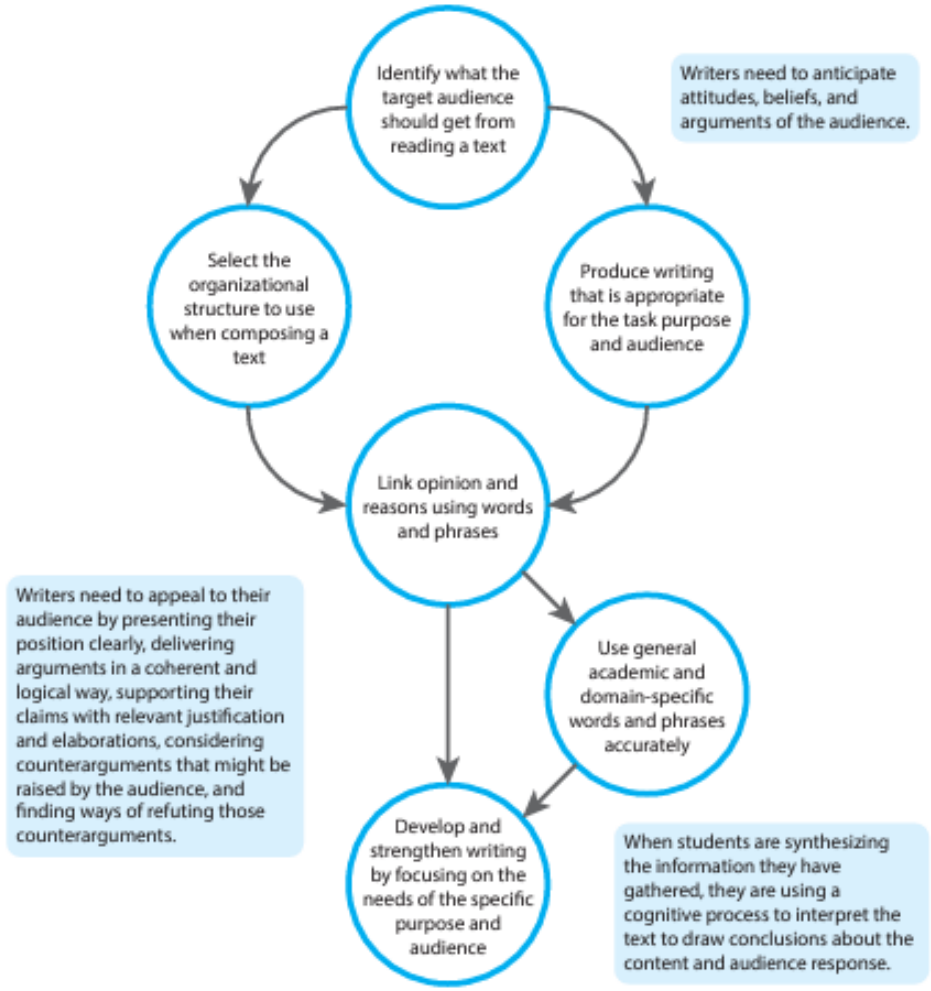
SREB Powerful CTE Instructional Practices

ELA.W.11 – 12.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

L.11 – 12.6: Acquire and use accurately general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase.

Designing the Argument

Map Skills Emphasis



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