2023 Science NSCAS Standards Validation Report for the Nebraska Department of Education

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Contents

1. Study Overview and Preparation

In 2023, NWEA contracted with ACS Ventures, LLC (ACS) to conduct a standards validation for the Nebraska Student-Centered Assessment System (NSCAS) for grades 5 and 8 in science.

The plan for the standards validation activities was developed through collaborative efforts between ACS, NWEA, the statewide assessment team at the Nebraska Department of Education (NDE), and the Nebraska Technical Advisory Committee (TAC).

This report documents the preparation for, execution of, and results from the standards validation activities.

1.1. NSCAS Assessments

The NSCAS in science are designed to measure and report Nebraska students' depth of achievement regarding the Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs) and Crosscutting Concepts (CCCs) elements present within the Nebraska College and Career Ready Standards for Science (NCCRS-S) as represented by the range achievement level descriptors (RALDs) for all students and subgroups of students (NDE, 2022)[1] (Blueprints and RALDs can be found in Appendix A). These assessments are administered online via fixed forms where items are presented as a part of larger tasks. Each item is scored as incorrect (0 points) correct (1 or 2 points depending on the item) or partially correct (earning 1 point out of 2 possible) and the total score represents the number of items answered correctly. Total scores are used to classify students into one of the following achievement levels:

- *Developing* - Developing learners do not yet demonstrate proficiency in the knowledge and skills necessary at this grade level, as specified in the assessed Nebraska College and Career Ready Standards. These results provide evidence that the student may need additional support for academic success at the next grade level.
- *On Track* - On Track learners demonstrate proficiency in the knowledge and skills necessary at this grade level, as specified in the assessed Nebraska College and Career Ready Standards. These results provide evidence that the student will likely be ready for academic success at the next grade level.
- *Advanced* - Advanced learners demonstrate advanced proficiency in the knowledge and skills necessary at this grade level, as specified in the assessed Nebraska College and Career Ready Standards. These results provide evidence that the student will likely be ready for academic success at the next grade level.

NSCAS assessments in science consist of operational (OP) and field test (FT) items from a variety of item types, such as multiple-choice, multiselect, and technology-enhanced items (i.e., hot text, text entry, composite, drag & drop, gap match, and graphic gap match). Table 1 shows a summary of the items included in the assessments for each grade level in science and a description of each item type is shown Table 2.

Table 1. NSCAS Assessments in Science

NSCAS Spring 2023 Online Form				
Content / Grade	**Total Items**	**FT Items**	**OP Items**	**OP Points**
Grade 5	37-41	6-10	31	33
Grade 8	38-41	8-11	30	33

[1] 2022-NSCAS-Growth-Technical-Report.pdf (ne.gov)

Table 2. Description of Item Types

Online Item Types	
Item Type	**Description**
Multiple-Choice (Choice)	Students select one response from multiple options.
Multiselect (Choice Multiple)	Students select two or more responses from multiple options. Some multiselect items are also two-point items for which students can earn partial credit.
Hot Text	Students select a response from within a piece of text or a table of information (e.g., word, section of a passage, number, symbol, or equation), which highlights the selected text. Some hot text items are also two-point items for which students can earn partial credit.
Text Entry	Students input answers using a keyboard.
Composite	Students interact with multiple interaction types included within a single item. Students may receive partial credit for composite items.
Drag & Drop	Students select an option or options in an area called the toolbar and move or "drag" these options (e.g., words, phrases, symbols, numbers, or graphic elements) to designated containers on the screen. Drag-and-drop items can include a click and click functionality in which students select the option and select the container it goes into instead of physically dragging it.
Gap Match	A type of drag-and-drop item in which students select one or more answer options from the item toolbox and populate a defined area, or "gap."
Graphic Gap Match	A type of drag-and-drop item in which students move one or more answer options from the toolbox and populate a defined area, or "gap," that has been embedded within an image in the item response area.

1.2. Methodology

Given the design of the assessment and how students navigate each task, ACS designed a process that paralleled how the standards were set in 2022 to guide panels of Nebraska educators through the process of validating the two cut scores that the 2022 standard setting panels recommended to be used to distinguish the three achievement levels (i.e., *Developing*, *On-Track*, *Advanced*) described within the RALDs:

1. The cut score that differentiates *Developing* performance from *On-Track* performance (i.e., threshold *On-Track*)
2. The cut score that differentiates *On-Track* performance from *Advanced* performance (i.e., threshold *Advanced*)

Specifically, NWEA applied the cut scores (set in 2022) to the 2023 test forms and provided ACS with the draft cut and item level difficulty. ACS then identified which items each threshold student will likely answer correctly (i.e., they would answer the easiest items correctly up to the cut score). This identification was designed to help the panelists understand how students will meet the cut scores through their item-level performance. The panelists were then asked to judge if these performance expectations are reasonable or should be adjusted.

At the end of the study, the panelists participated in a vertical review where the recommended cut scores at the two grades were collectively reviewed to ensure coherence with expected student performance. The performance of students at the high school level (on the Science ACT) will also be considered during this discussion.

1.3. Project Participants and Staff

1.3.1. ACS Staff

ACS staff led the preparation activities for the standard validation, led the facilitation of the standard validation, and presented the results to NDE and their stakeholders.

ACS provided two facilitators experienced in conducting standard validation meetings to facilitate the panels. The facilitator of each panel served the following functions:

- Guided the panelists through the standard validation process.
- Provided feedback and answer questions from panelists.
- Analyzed data at the end of each round to prepare for the next round.
- Provided feedback data to panelists and facilitated discussions.

The facilitators used the same study resources to ensure all panels received the same instructions and followed the same processes.

1.3.2. NWEA Staff

NWEA staff were involved in the preparation and execution of the standard validation activities. This included:

- Managing the logistics for the study (e.g., meeting space, technology)
- Providing ACS with information about each assessment (detailed in next section)
- Providing access for panelists to the online system for accessing the 2023 test forms
- Providing technical assistance and addressing content questions during the standard setting

1.3.3. NDE Staff

NDE staff were involved in the preparation and execution of the standard validation. This included:

- Recruitment and selection of panelists
- Providing ACS with information about the assessment programs as needed
- Answering policy questions related to standard validation.

1.3.4. Nebraska Educators

Two standard setting panels were recruited by NWEA and NDE as shown in Table 3. Panels were recruited by NDE to ensure that the sample represents the diversity of Nebraska educators and possess the content area expertise necessary to provide the cut score recommendations.

Table 3. Standard Setting Panels

Panel #	Grade	# Panelists	Facilitator
1	5	5	Teresa Wanser-Ernst
2	8	4	Susan Davis-Becker

1.4. Security

There were several necessary security measures involved in the study given the need to maintain the confidentiality of the test content, the cut score discussions, and the standard validation results.

NWEA created non-disclosure agreements (NDA) for panelists to sign before participating in the workshop and again after they complete their study activities. ACS facilitators continually reminded panelists about the security policies throughout the meeting, emphasizing that the security of testing materials should be maintained at all times.

Panelists were permitted to access test material on their own device but will be reminded of the security requirements throughout the study and excluded from using cell phones near the test materials. All paper notes and documentation were collected at the end of the study.

2. Standards validation Process

The standards validation study occurred on July 27, 2023. Table 4 shows the study agenda, and each step is described in the following section.

Table 4. Study Agenda

Day/Time	Key Activities	Materials
8-8:45	General Orientation	• Training Presentation
9-11:30	Panel Orientation and Training *(Break included)* • Review assessment (purpose, blueprint, form) • Review range ALDs and threshold ALDs • Overview of standards validation process • Evaluation #1	• Training Presentation • Panelist Resource List • Range ALDs • Threshold ALDs • Readiness Evaluation
11:30-12:00	Round 1 judgments	• Training Presentation • Panelist Resource List • Threshold ALDs • Operational test form • Scoring Rubrics • Judgment Form
12:00-12:45	Lunch	
12:45-1:30	Round 1 judgments (continued)	*Same as above*
1:30 – 2:30	Discuss Round 1 judgments	• Training Presentation • Panelist Resource List • Threshold ALDs • Operational test form • Scoring Rubrics • Judgment Form • Analysis tool
2:30 – 3:15	Round 2 judgments *(Break included)*	• Training Presentation • Panelist Resource List • Threshold ALDs • Operational test form • Scoring Rubrics • Judgment Form
3:15 – 3:30	Presentation of Round 2 results Evaluation #2	• Training Presentation • Analysis Tool • Results Evaluation
3:30 – 3:45	Break, transition to vertical articulation	

3:45 – 4:30	Vertical articulation discussion Evaluation #3	• Vertical Articulation Presentation • Vertical Articulation Evaluation

2.1. General Orientation

The first part of the meeting served as an introduction to the general standards validation process. It began with a large-group general session with a welcome and introductions from NDE. The ACS lead facilitator provided a high-level orientation and training on the standard setting process that occurred in 2022 and methodology to be followed for the validation. The overview also included a brief review of the assessments, the RALDs and threshold ALDs, and how the panelists will make their judgments.

2.2. Panel Orientation and Training

After the general orientation session, panelists began their work within the grade-level panels. Each panel was managed by one of the ACS facilitators, with NDE and NWEA staff available to address specific questions that arise specific to content, administration, or policy. The ACS facilitator welcomed the panel to the meeting and began the panel-specific orientation.

2.2.1. Review Assessment

First, the facilitator reviewed the purpose of the assessment, the format (e.g., item types), and the blueprint guiding the assessment development. After this introduction, the panelists had the opportunity to review the 2023 form of the assessment. This review afforded the panelists the opportunity to see what the student experience is like interacting with the assessment. The review was limited to 30 minutes so that the panelists did not focus on determining each correct answer but rather on getting a general sense of the assessment.

2.2.2. Review Threshold ALDs

Panelists were then asked to review the RALDs which describe the knowledge, skills, and ability expectations for each achievement level that are tied to the grade-level content standards for an assessment. After the review, the panelists were able to review the threshold ALDs created during the 2022 standard setting (see Appendix A). These describe the knowledge and skills they expected of students at the *threshold* of each achievement level. The panelists were able to review and discuss the expectations outlined in the threshold ALDs.

2.2.3. Standard Validation

Next, the facilitator provided additional training on the standard validation process. This began with a review of how the cut score expectations were translated into item-level performance. Specifically, ACS provided the panelists with a standards validation form that identified which items each threshold student would likely answer correctly under the current cut scores and which items they will not likely answer correctly. Panelists then reviewed the test form with this form and either agree with each expectation or note they disagree.

2.2.4. Readiness Evaluation

After panelists completed the orientation and training, they were asked to complete *Evaluation 1: Readiness* form which asked them to indicate how ready they felt to proceed into operational standard validation

judgments. Prior to moving on to the next activity, the facilitator responded to any remaining questions panelists might have regarding the process.

2.3. Operational Judgments

Operational judgments began once all panelists indicated that they understand the procedures and are prepared to make their Round 1 judgments. Following that confirmation, panelists made their judgments for all items.

After Round 1, feedback was provided which included a summary of the panelist recommendations, the difficulty of each item on the test form, the impact of the current cut scores as well as the recommended changes to the cut score. The facilitators led a discussion of the feedback with the whole panel and discussed items where multiple panelists disagreed with the expectations for each threshold student.

Panelists then had the opportunity to make a second (and final) round of judgments that indicated any recommended changes to the cut scores in consideration of the feedback they received. Following Round 2, panelists heard the results from their panel and completed an evaluation of the results.

3. Vertical Articulation

After the final round of standard validation, the panelists participated in a vertical articulation meeting. During this meeting, panelists evaluated whether the cross-grade impact represented a reasonable set of expectations from grade 5 and grade 8. The vertical articulation process was anchored on two underlying principles:

- Achievement level expectations should be coherent across grades.
- The judgments of earlier standard setting panels should be honored, unless doing so would clearly violate the above principle.

The vertical articulation began with the facilitator explaining the purpose and process of vertical review to the panelists. Panelists were given an opportunity to ask questions about the purpose and to fully understand how they are to review the results. After reviewing the performance expectations across grades, panelists were asked for their perceptions and allowed an opportunity to identify any unexpected patterns in the results.

4. Reporting

Immediately following the standard setting meeting, ACS presented the results to the AAAC for review. ACS captured the feedback from this group for inclusion in this report. The recommendations from the standard setting panels, the standards articulation panel, and the AAAC committee are included in the following section of this report.

5. Results

This section presents the resulting cut score recommendations that were generated from this standards validation study, as well as an evaluation of the standards validation activities and results according to the sources of evidence described within Kane's (1994; 2001) framework.

5.1. Cut Score Recommendations

5.1.1. Panel Results

Prior to making any operational judgments, the panelists were provided training on the standards validation process and then were asked to respond to a *Readiness Evaluation* form (Appendix C) to provide feedback on the training and to report whether they felt ready to proceed with the process. The results of the evaluations are shown in Table 5 below.

Table 5. Readiness Evaluation Results

Readiness Evaluation	Grade 5		Grade 8	
General Session	***N***	***%***	***N***	***%***
Very good	5	100%	2	50%
Good	0	0%	2	50%
Inadequate	0	0%	0	0%
Reviewing Threshold ALDs	***N***	***%***	***N***	***%***
Very good	5	100%	3	75%
Good	0	0%	1	25%
Inadequate	0	0%	0	0%
Evaluating 2022 expectations	***N***	***%***	***N***	***%***
Very good	5	100%	2	50%
Good	0	0%	2	50%
Inadequate	0	0%	0	0%
Prepared to review the 2022 Science cut scores	***N***	***%***	***N***	***%***
Yes	5	100%	4	100%
No	0	0%	0	0%

The results of the evaluation demonstrate that the panelists across all panels felt that the training and preparation was appropriate to prepare them for making judgements. Evidence to support this includes all panelists rating each training component as either "Very good" or "Good" and by all panelists responding "Yes" to the question asking if they felt prepared to review the 2022 Science cut scores.

The results of the panel-level cut score recommendations are shown in Tables 6 and 7 for grades 5 and 8, respectively. Specifically, the table includes the cut scores based on the 2022 standard setting (see row labeled *2022 cut*), the cut score recommendations by round (minimum recommendation, maximum recommendation, median recommendation) and an estimate of the variability among the recommendations (standard error of the median). The Round 2 results indicate that only the fifth grade panel recommended a change to the cut scores set the previous year. Specifically, they recommended lowering the *On-Track* cut score by one point.

Table 6. Science Grade 5 Standards Validation Results

	On-Track Cut Score				Advanced Cut Score			
	Min	Max	Median	SE_{Median}	Min	Max	Median	SE_{Median}
2022 Cut			15				27	
Round 1	13	17	14	0.678	25	29	27	0.748
Round 2	13	15	14	0.374	27	29	27	0.489

Table 7. Science Grade 8 Standards Validation Results

	On-Track Cut Score				Advanced Cut Score			
	Min	Max	Median	SE_{Median}	Min	Max	Median	SE_{Median}
2022 Cut			17				28	
Round 1	17	19	17.5	0.478	26	28	28	0.500
Round 2	16	19	17	0.629	27	28	28	0.250

The median recommended cut scores were used to calculate the impact (% of students in each achievement level) and these results were shown to panelists as part of the feedback. The impact of the 2022 cut scores (applied to the 2023 forms), the Round 1 recommendations, and the Round 2 recommendations are shown in Table 8 below.

Table 8. Cut Score Impact

Grade / Round	% Developing	% On Track	% Advanced
Grade 5			
2022 Cut	27%	57%	16%
Round 1	23%	61%	16%
Round 2	23%	61%	16%
Grade 8			
2022 Cut	35%	57%	9%
Round 1	35%	57%	9%
Round 2	35%	57%	9%

Following the standards validation process for each grade level, the panelists completed a *Results Evaluation* (Appendix C) where they were asked to provide feedback on the time allocated to each component of the standards validation process, as well as their confidence in the panel's recommendations. The results of this evaluation are summarized in Table 9 below.

Table 9. Results Evaluation

	Grade 5		Grade 8	
Training	***N***	***%***	***N***	***%***
More than enough time	3	60%	0	0%
Sufficient time	2	40%	4	100%
Not enough time	0	0%	0	0%
Round 1 Judgments	***N***	***%***	***N***	***%***
More than enough time	2	40%	0	0%
Sufficient time	3	60%	4	100%

Not enough time	0	0%	0	0%
Discussion	***N***	***%***	***N***	***%***
More than enough time	2	40%	0	0%
Sufficient time	3	60%	3	75%
Not enough time	0	0%	1	25%
Round 2 Judgments	***N***	***%***	***N***	***%***
More than enough time	3	60%	0	0%
Sufficient time	2	40%	4	100%
Not enough time	0	0%	0	0%
***On Track* Confidence**	***N***	***%***	***N***	***%***
Confident	5	100%	3	75%
Somewhat Confident	0	0%	0	0%
Somewhat not confident	0	0%	0	0%
Not Confident	0	0%	1	25%
***Advanced* Confidence**	***N***	***%***	***N***	***%***
Confident	3	60%	4	100%
Somewhat Confident	2	40%	0	0%
Somewhat not confident	0	0%	0	0%
Not Confident	0	0%	0	0%

The results of these evaluations demonstrate that the panelists felt there was sufficient time allocated to each component of the standards validation process and that the panelists generally had confidence in the cut score recommendations. One panelist indicated they were "not confident" in the grade 8 *On-Track* cut score which may be reflected in the higher amount of variability in the Round 2 judgments for this cut score (see standard error values in Table 7).

5.1.2. Articulation Panel Results

The panelists did not recommend any changes to the results based on the vertical articulation review. Therefore, the final standards validation results (see Table 10) are the same as those from round 2. Table 10 also shows the most recent ACT results which were provided as part of the vertical articulation review.

Table 4. Cut Score Recommendations: Vertical Articulation Panel Results

	Recommended Cut Score	Impact
Grade 5		
Developing	--	23%
On-Track	14	61%
Advanced	27	16%
Grade 8		
Developing	--	35%
On-Track	17	57%
Advanced	28	9%
High School (ACT -2022)		
Developing		50%
On-Track		23%

Advanced	26%

5.1.3. AAAC Results

The AAAC did not recommend any changes to the results from the standards validation. The results shown in Table 11 are the same as those from Round 2 and the vertical articulation review.

Table 11. Cut Score Recommendations: AAAC Results

	Recommended Cut Score	Impact
Grade 5		
Developing	--	23%
On-Track	14	61%
Advanced	27	16%
Grade 8		
Developing	--	35%
On-Track	17	57%
Advanced	28	9%

5.2. Evaluation of Standards Validation Activities

The standards validation activities and resulting cut score recommendations that were produced from this study were evaluated using the following three sources of validity evidence as recommended by Kane (1994; 2001):

- Procedural evidence
- Internal evidence
- External evidence

The following sections summarize the results of this evaluation according to each source of validity evidence.

5.2.1. Procedural Evidence

Procedural validity is evaluated based on evidence related to the selection and execution of the standards validation methodology used in the study (Kane, 1994; 2001). The approach used for this study mirrored the approach used in the 2022 standard setting and allowed panelists to consider the difficulty of each item as part of the item set as students would experience the assessment.

Evidence supporting the execution of the method is demonstrated through the following sources (Kane, 1994; 2001):

1. Definition of goals for the decision procedure
2. Selection of panelists
3. Training of panelists
4. Definition of performance standard
5. Data collection procedures

Table 12 shows evidence to support the procedural validity of the study organized by the sources listed above.

Table 12. Evidence of Procedural Validity

Source	Evaluation Criteria (Kane, 1994; 2001)	Evidence Presented
1. Definition of goals for the decision procedure	The general purpose of the use of the passing score should be defined before the standards validation process begins.	The panel used both the Range ALDs (developed by the state) and the Threshold ALDs developed by the original standard setting panel (see Appendix A).
2. Selection of judges	The panelists selected should be both technical experts in the material and familiar with the population.	The average years of experience in the subject was 13.5. The panelists represented classroom teachers, curricular/instructional coaches, and teaching and learning specialists (see Appendix B).
	The number of panelists should be large enough to achieve an acceptable standard error of measurement for the recommended cut score.	The panel size in this study ranged from 4 to 5 panelists (see Table 5) and resulted in Round 3 standard errors ranging from 0.25 to 0.63 (see Tables 6 and 7).
3. Training of judges	The panelists should be oriented to the goals of the study, be trained on the steps of the rating process, and have an opportunity to practice the steps before making operation ratings.	In the *Readiness Evaluation,* 100% of panelists across both panels rated all components of the training as either being "Very good" or "Good". Additionally, 100% of panelists also reported feeling prepared to make operational Bookmark judgments (see Table 5).
4. Definition of performance standard	The panelists were given the opportunity to develop a definition of the standard of performance they consider adequate for the intended purposes of the decision process.	A large portion of the study preparation was dedicated to reviewing the threshold ALDs (see Appendix A). The whole panel had to discuss each element within the Threshold ALDs before they were to be used in the rating process. Additionally, in the *Readiness Evaluation* 100% of panelists across both panels rated the training on threshold ALD development as either being "Very good" or "Good" (see Table 5).
5. Data collection procedures	The procedures to collect data allow panelists multiple opportunities to review their decisions before the passing score is finalized.	The panelists provided two rounds of judgments and were allowed to review their individual item ratings prior to the second round (see Agenda).
	The panelists were allotted ample time to discuss ratings and results.	The panelists were allotted time dedicated to discussing the individual item ratings following Round 1 of the study (see Agenda). Additionally, the panelists were asked rate the amount of time allocated to each activity in the *Results Evaluation* and almost all ratings indicated there was "Sufficient time" or "More than enough time" for discussion (see Table 5).

5.2.2. Internal Evidence

Internal validity is evaluated based on evidence related to the consistency of the panelist judgments and the convergence of the resulting cut score recommendations (Kane, 1994; 2001).

Evidence supporting the claim that the panelist judgments are consistent and that the cut score recommendations are converging can be demonstrated by the overall low standard errors as well as a reduction in the standard error of the recommended cuts across rounds.

Table 13 shows evidence supporting the internal validity of the standards validation activities as 3 of the 4 recommended cut scores resulted in Round 2 standard errors that were less than or equal to the standard errors of the Round 1 recommendations. The one standard error that did increase (noted by an asterisk below) was due to most panelists agreeing on the recommended cut score except for one person.

Table 13. Cut Score Standard Errors

Grade / Round	On-Track SEM	Advanced SEM
Grade 5		
Round 1	0.678	0.748
Round 2	0.374	0.489
Grade 8		
Round 1	0.478	0.500
Round 2	0.629*	0.250

5.2.3. External Evidence

External validity is the most difficult to evaluate and is based on evidence that comes from triangulating the results of the standards validation process with some other indicator of examinee performance that is related but external to the process (Kane, 1994; 2001).

Evidence supporting external validity was collected through the cross-panel vertical articulation and policy review committee feedback. Results from all three sources should be considered in the final recommendation.

Table 14 shows the evidence organized by the method of collection.

Table 14. External Validity Evidence

Source	Evidence Presented
Vertical Articulation Panel	During the standards articulation panel, the panelists were presented with the results of both grade level results (5 and 8). Panelists were able to ask questions of the other panel about results that differed from expectations.
	Panelists were also provided the opportunity to compare the impact data of the results to that of the ACT in high school. The panelists were provided the opportunity to discuss whether their recommendations reflected comparable expectations and overall, the results did not affect their recommendations.
Policy Review Committee	Following the standards articulation, a policy review committee was presented with a summary of the study procedures and results. This committee reviewed the cut scores and impact data that resulted from the standards validation activities and supported the outcomes of the study.

6. References

Kane, M. (1994). Validating the performance standards associated with passing scores. *Review of Educational Research*, 64 (3), 425-461.

Kane, M. T. (2001). So much remains the same: Conception and status of validation in setting standards. In G.

Nebraska Department of Education (NDE). (2022). Spring 2022 NSCAS Growth ELA, Mathematics, and Science Technical Report. https://www.education.ne.gov/wp-content/uploads/2022/12/2022-NSCAS-Growth-Technical-Report.pdf

7. Appendices

7.1.1. Appendix A – Content Standards and RALDs

Science Standards

Nebraska_Science_Standards_Final_9-8-17

Science Range ALDs

NSCAS-Science-Summative-Achievement-

Science Threshold ALDs

5th grade Threshold ALDs.docx

8th grade Threshold ALDs.docx

7.1.2. Appendix B – Panelist Demographic Information

Table A. 1 Science Panel Demographic Information

	Science Grade 5	Science Gade 8
Current Job Title	***N***	***N***
Classroom teacher	4	1
Curriculum/Instructional coach	1	2
Teaching and Learning Specialist		1
Employer	***N***	***N***
Lincoln Public Schools	1	1
Columbus Middle School	1	
Fort Calhoun Community Schools	1	
Millard Public Schools	1	
Papillion LaVista Community Schools	1	
Holdredge Public Schools		1
Norfolk Public Schools		1
ESU #1		1
Highest Level of Education	***N***	***N***
Bachelor's degree	1	
Master's degree	3	4
Years of Experience in ELA	***N***	***N***
0 to 2 years		
3 to 5 years	1	
6 to 9 years	1	2
10 to 14 years		
15 to 19 years	2	1
20 or more years		1

* One panelist from the grade 5 panel did not complete the demographic form. Therefore, their information for the third and fourth questions is not included.

7.1.3. Appendix C – Study Materials


4 - Training Presentation Standarc


16 - Vertical Articulation Slides Sci


Results Evaluation.pdf


Readiness Evaluation.pdf