Analysis of Artifacts from Marshall's Senior Capstone Courses

Academic Year 2019 – 2020

We dedicate this report to the memory of Professor Joan St. Germain, who was a dedicated member of this Team for seven years (from 2013-2019). We miss her!!

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Executive Summary

Background

In June 2017 the Assessment Team conducted a pilot assessment in which they scored a small sample of capstone project artifacts using the American Association of Colleges and Universities' (AAC&U's) *Critical Thinking* and *Written Communication* Value rubrics. Given the difficulty we have experienced over the years in drawing representative samples of seniors to complete either the *Collegiate Learning Assessment (CLA+)* or Marshall's Senior Assessment, we recommended that staff from the Office of Assessment and Quality Initiatives encourage degree programs' capstone instructors to align their capstone assignments to the "Capstone Critical Thinking" outcome in Blackboard and to require students to submit their final projects using Blackboard's assignment module. We recommended that these discussions be incorporated into larger

discussions regarding the process of creating assignments in Blackboard and aligning them to appropriate outcomes of Marshall's Baccalaureate Degree Profile (BDP). We felt that this had the potential to allow us to evaluate a truly random sample of artifacts from multiple degree programs and to apply validated rubrics to assess work that students complete as part of their degree programs. Staff from the Office of Assessment and Quality Initiatives and the Online Design Center met with chairs and deans in most of Marshall's academic colleges during academic year 2017-2018 to ask that they encourage capstone instructors to follow the instructions outlined above. This year marks our third summer (since the initial pilot project) to assess senior capstone projects. The number of senior capstone artifacts submitted during academic year 2019-2020 was 204 from ten academic disciplines. After reviewing sample artifacts from two disciplines, the Summer Assessment Team determined that they did not align to the AAC&U rubrics we planned to use for evaluation. Elimination of artifacts from these disciplines reduced the number of usable artifacts to 185 from eight disciplines. From these, we sampled 160 artifacts for assessment. During the assessment process, we discovered that one artifact would not open, thus reducing the number of scorable artifacts to 159. These artifacts came from the Colleges of Liberal Arts, Business, Health Professions, and Science.

Procedures for 2020 Assessment

General Procedures

Eight faculty representing the Colleges of Business, Liberal Arts, and Science served as the assessment team for this project. They evaluated each capstone artifact using the AAC&U's *Written Communication* Value rubric and either the AAC&U's *Critical Thinking* or the AAC&U's *Inquiry and Analysis* Value rubric. These rubrics are included in the supporting documentation. This project was coordinated by the Office of Assessment and Quality Initiatives. Instructors for two assignments indicated that their assignments did not ask students to address one trait (influence of context and assumptions) of the *Critical Thinking* rubric. Therefore, the 72 artifacts sampled from these assignments (plus six others that reviewers also deemed not to align to this trait) received scores of N/A as described in the next section.

Scoring Procedures

Evaluators assessed each artifact using the following scale:

Scoring Codes	
N/A	In the judgment of the evaluators (or at the request of the assignment creator), the artifact did not align with the specific trait of the outcome being assessed.
1	The artifact demonstrated Level 1 performance.
2	The artifact demonstrated Level 2 performance.
3	The artifact demonstrated Level 3 performance.
4	The artifact demonstrated Level 4 performance.

Please see the supporting information that follows this summary for a detailed explanation of scoring procedures.

General Information about the Sample

Of the 159 artifacts assessed, 36 were from the Lewis College of Business, 12 from the College of Health Professions, 43 from the College of Liberal Arts, and 68 from the College of Science.

Results and Analysis

One challenge in reporting results of the capstone assessment is that, although we assessed 159 artifacts for *Written Communication*, 135 for *Critical Thinking*, and 24 for *Inquiry and Analysis*, each was analyzed by rubric outcome trait. The total number of traits across the three outcome rubrics was 16 (five each for *Critical Thinking* and for *Written Communication* and six for *Inquiry and Analysis*), potentially resulting in a total of 675 total trait scores for *Critical Thinking*, 144 for *Inquiry and Analysis*, and 795 for *Written Communication*. However, in some instances, evaluators determined (or assignment instructors indicated) that some traits were not addressed in specific student artifacts. The chart below provides the total scorable traits for each outcome, along with mean scores, standard deviations, and frequency counts.

Outcome	**Trait (AAC&U rubric)**	**Total Traits Aligned**	**Mean Score (SD)**	**Number of Students Scoring 2.5 – 4**	**Number of Students Scoring 3.5 – 4**
Critical Thinking	Explanation of Issues	135	2.77 (0.56)	114 (85%)	28 (21%)
	Evidence	135	2.35 (0.58)	70 (52%)	9 (7%)
	Influence of Context and Assumptions	57	2.19 (0.77)	25 (44%)	8 (14%)
	Student's Position	135	2.37 (0.70)	76 (56%)	14 (10%)
	Conclusions and Related Outcomes	135	2.45 (.060)	88 (65%)	12 (9%)
Total for Critical Thinking		**597**		**373 (63%)**	**71 (12%)**
Inquiry and Analysis	Topic Selection	24	2.99 (0.40)	23 (96%)	6 (25%)
	Existing Knowledge, Research, and/or Viewpoints	24	2.65 (0.48)	23 (96%)	2 (8%)
	Design Process	23	3.39 (0.48)	23 (100%)	14 (61%)
	Analysis	24	3.00 (0.33)	24 (100%)	5 (21%)
	Conclusions	24	3.04 (0.36)	24 (100%)	7 (29%)

Outcome	Trait (AAC&U rubric)	Total Traits Aligned	Mean Score (SD)	Number of Students Scoring 2.5 – 4	Number of Students Scoring 3.5 – 4
	Limitations and Implications	24	2.50 (0.53)	19 (79%)	2 (8%)
Total for Inquiry and Analysis		**143**		**136 (95%)**	**36 (25%)**
Written Communication	Context of and Purpose for Writing	159	2.89 (0.60)	145 (91%)	46 (29%)
	Content Development	159	2.76 (0.65)	129 (81%)	41 (26%)
	Genre and Disciplinary Conventions	159	2.84 (0.65)	133 (83%)	45 (28%)
	Sources and Evidence	159	2.75 (0.61)	137 (86%)	31 (19%)
	Control of Syntax and Mechanics	159	2.60 (0.65)	118 (75%)	20 (13%)
Total for Written Communication		**795**		**662 (83%)**	**173 (23%)**

A series of paired-samples *t-tests* were used to determine whether there were significant differences among trait means for each outcome. We used Bonferroni adjusted alpha levels of .005 (for Critical Thinking and Written Communication) and .003 (for Inquiry and Analysis) to control for Type 1 error. These analyses showed the following results:

Critical Thinking: The mean for explanation of issues was significantly higher than means for evidence, influence of context and assumptions, student's position, and conclusions and related outcomes. The mean for conclusions and related outcomes was significantly higher than the mean for influence of context and assumptions.

Inquiry and Analysis: The mean for design process was significantly higher than those for topic selection, existing knowledge, research, and/or viewpoints, and limitations and implications. The mean for topic selection was significantly higher than the mean for limitations and implications. The mean for conclusions was significantly higher than those for existing knowledge, research, and/or viewpoints and limitations and implications. The mean for analysis was significantly higher than the mean for limitations and implications.

Written Communication: The mean for context and purpose of writing was significantly higher than those for content development, sources and evidence, and control of syntax and mechanics. The mean for content development was significantly higher than the mean for control of syntax and mechanics. The mean for genre and disciplinary conventions was significantly higher than the mean for control of syntax and mechanics.

Conclusion

These results provide evidence that the majority of artifacts in this sample of Marshall's capstone courses achieved expected levels of performance in *Critical Thinking*, *Inquiry and Analysis*, and in *Written Communication*, with 63%, 95%, and 83% of artifacts scoring between 2.5 and 4.0, respectively, for these outcomes. We note that a final score of 2.5 indicates that one reviewer scored the artifact at Level 3, but the other reviewer scored the artifact at level 2. Percentages of artifacts receiving scores of 3.5 or 4.0 were much lower (12% for *Critical Thinking*, 25% for *Inquiry and Analysis*, and 23% for *Written Communication*). Final scores of 3.5 indicate that one reviewer awarded the artifact a score of 4, while the second reviewer awarded a score of 3.

Within *Critical Thinking*, explanation of issues emerged as a relative strength, while influence of context and assumptions emerged as a relative weakness. These results mirror those found in 2019.

Within *Inquiry and Analysis*, design process emerged as a relative strength, while limitations and implications emerged as a relative weakness.

Within *Written Communication*, context of and purpose of writing emerged as a relative strength, while control of syntax and mechanics was a relative weakness. As with *Critical Thinking* these results are identical to those found in 2019.

Recommendations from the 2020 Summer Assessment Team

The Sumer Assessment Team made the following recommendations:

1. That we reconsider using the *Inquiry and Analysis* rubric in addition to the *Critical Thinking* rubric. The reason for this recommendation was that, although the *Inquiry and Analysis* rubric may align more closely with some capstone projects than does the *Critical Thinking* rubric, the major difference between the two is the presence of the trait influence of context and assumptions, which appears on the *Critical Thinking* rubric. There was discussion that, if the university deems it important that students who earn degrees from Marshall University develop critical thinking skills or, as one Team member put it, learn to "think like a critic," then it is important that they complete projects that allow all of the traits of the *Critical Thinking* rubric (including the influence of context and assumptions) to be evaluated. Another Team member noted that critical thinking is central to every discipline and suggested that we think of critical thinking as "having a questioning mindset." It is important that the foundation laid in First Year Seminar in Critical Thinking and in Critical Thinking courses at the 100/200 levels be reinforced and enhanced in program-level courses at the 300/400 levels. The project chosen for university-level assessment should be embedded in a 400-level course, but it does not have to be the capstone project. The Team recommended further discussions regarding this point with Marshall's Provost, the Councils of Deans and Chairs, and with the General Education Council.

2. That we share results of the past three years of capstone project assessments with the constituencies named in recommendation 1. Given that the main findings regarding relative strengths and weaknesses have remained consistent over three years of assessment, it is important that we expand conversations regarding how we can use this information to make meaningful changes in curricula or pedagogy to effect improvements in student learning. We have established a team within Microsoft Teams for the purpose of communicating assessment results and the Office of Assessment and Quality Initiatives will condense this report to a shorter, more digestible format, for widespread dissemination.

3. That we make the AAC&U rubrics we are using widely available and, for applied disciplines, provide a suggested outline that follows the AAC&U's *Critical Thinking* rubric as a guide for students to develop process papers outlining and reflecting on how they have used the specified critical thinking skills in developing and completing their projects. We recommend that we work with the Center for Teaching and Learning to continue these conversations.

4. That we continue to work closely with the Online Design Center. As more faculty use Blackboard, the Design Center staff are in a unique position to help faculty make appropriate assignment alignments that make student artifacts accessible for university-wide assessment.

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Supporting Documentation

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Capstone
Artifact Assessment

Academic Year 2019 – 2020

Outcomes Assessed: AAC&U Rubrics

Outcome	Abbreviation	Traits	Abbreviations
Critical Thinking	**CT**	Explanation of Issues	Issues
		Evidence	Evidence
		Influence of Context and Assumptions	Context/Assumptions
		Student's Position	Position
		Conclusions and Related Outcomes	Conclusions
Inquiry and Analysis	**I & A**	Topic Selection	Topic
		Existing Knowledge, Research, and/or Viewpoints	Knowledge
		Design Process	Design
		Analysis	Analysis
		Conclusions	Conclusions
		Limitations and Implications	Limitations
Written Communication	**WC**	Context and Purpose of Writing	Purpose
		Content Development	Content
		Genre and Disciplinary Conventions	Genre
		Sources and Evidence	Evidence
		Control of Syntax and Mechanics	Syntax/Mechanics

Review Procedures

- Each artifact had two independent raters and usable scores on the 1 – 4 scale were determined in the following manner:
  - If raters assigned the same score, that became the score for the artifact.
  - If raters' scores differed by one point, e.g. Rater 1 assigned a score of 1 and Rater 2 a score of 2, the final score was the mean, i.e. 1.5.
  - If raters' scores differed by more than one point, e.g. Rater 1 assigned a score of 1 and Rater 2 a score of 3, the raters met to discuss the rationale for their scores to see if they could agree on a score or, at minimum, scores that differed by no more than one point.
  - If raters' scores differed by more than one point and, after discussion, they were not able to resolve the differences, a third rater was assigned to review the artifact. (For this review, all raters were able to come to agreement, so third raters were not needed).

Interrater Reliability

- We conducted interrater reliability analyses using the Cohen's Kappa statistical procedure. In so doing, we used the following rules, similar to those suggested Stellmack, Kohneim-Kalkstein, Manor, Massey, & Schmitz (2009):
  - Since our scoring procedure was to average final scores between two raters when scores differed by only one point, we used that averaged score (e.g. 1.5) as the score for both raters, counting it as an agreement in the interrater reliability analysis.
  - For scores that were two or more points apart, the original score of each reviewer was used in the analysis. Therefore, these scores were counted as disagreements.

Artifacts Excluded from Analysis of Means Due to Issues that prevented assessors from evaluating the artifacts.

Outcome	Total Artifacts	Total Artifacts Eliminated due to Misalignment with Rubric	Total Artifacts Eliminated due to Upload Error	Total Used for Analysis
Critical Thinking	136	0	1	135
Inquiry and Analysis	24	0	0	24
Written Communication	160	0	1	159

Critical Thinking AAC&U Value Rubric

AAC&U Critical Thinking Value Rubric

Traits	N/A	Level 1	Level 2	Level 3	Level 4
Explanation of issues	Does not apply to this assignment.	Issue/problem to be considered critically is stated without clarification or description.	Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.	Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.
Evidence *Selecting and using information to investigate a point of view or conclusion*	Does not apply to this assignment.	Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.	Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.	Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.	Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.
Influence of context and assumptions	Does not apply to this assignment.	Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.
Student's position (perspective, thesis/hypothesis)	Does not apply to this assignment.	Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.	Specific position (perspective, thesis/hypothesis) acknowledges different sides of an issue.	Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position (perspective, thesis/hypothesis).	Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/hypothesis) are acknowledged. Others' points of view are synthesized within position (perspective, thesis/hypothesis).
Conclusions and related outcomes (implications and consequences)	Does not apply to this assignment.	Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.	Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.	Conclusions and related outcomes (consequences and implications) are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order.

Inquiry and Analysis AAC&U Value Rubric

AAC&U Inquiry and Analysis Value Rubric

Traits	N/A	Level 1	Level 2	Level 3	Level 4
Topic Selection (I&A)	Does not apply to this assignment.	Identifies a topic that is far too general and wide-ranging as to be manageable and doable.	Identifies a topic that while manageable/doable, is too narrowly focused and leaves out relevant aspects of the topic.	Identifies a focused and manageable/doable topic that appropriately addresses relevant aspects of the topic.	Identifies a creative, focused, and manageable topic that addresses potentially significant yet previously less-explored aspects of the topic.
Existing Knowledge, Research, and/or Views (I&A)	Does not apply to this assignment.	Presents information from irrelevant sources representing limited points of view/approaches.	Presents information from relevant sources representing limited points of view/approaches.	Presents in-depth information from relevant sources representing various points of view/approaches.	Synthesizes in-depth information from relevant sources representing various points of view/approaches.
Design Process (I&A)	Does not apply to this assignment.	Inquiry design demonstrates a misunderstanding of the methodology or theoretical framework.	Critical elements of the methodology or theoretical framework are missing, incorrectly developed, or unfocused.	Critical elements of the methodology or theoretical framework are appropriately developed, however, more subtle elements are ignored or unaccounted for.	All elements of the methodology or theoretical framework are skillfully developed. Appropriate methodology or theoretical frameworks may be synthesized from across disciplines or from relevant subdisciplines.
Analysis (I&A)	Does not apply to this assignment.	Lists evidence, but it is not organized and/or is unrelated to focus.	Organizes evidence, but the organization is not effective in revealing important patterns, differences, or similarities.	Organizes evidence to reveal important patterns, differences, or similarities related to focus.	Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus.
Conclusions (I&A)	Does not apply to this assignment.	States an ambiguous, illogical, or unsupportable conclusion from inquiry findings.	States a general conclusion that, because it is so general, also applies beyond the scope of the inquiry findings.	States a conclusion focused solely on the inquiry findings. The conclusion arises specifically from and responds specifically to the inquiry findings.	States a conclusion that is a logical extrapolation from the inquiry findings.
Limitations and Implications (I&A)	Does not apply to this assignment.	Presents limitations and implications, but they are possibly irrelevant and unsupported.	Presents relevant and supported limitations and implications.	Discusses relevant and supported limitations and implications.	Insightfully discusses in detail relevant and supported limitations and implications.

Written Communication AAC&U Value Rubric

AAC & U Written Communication Value Rubric

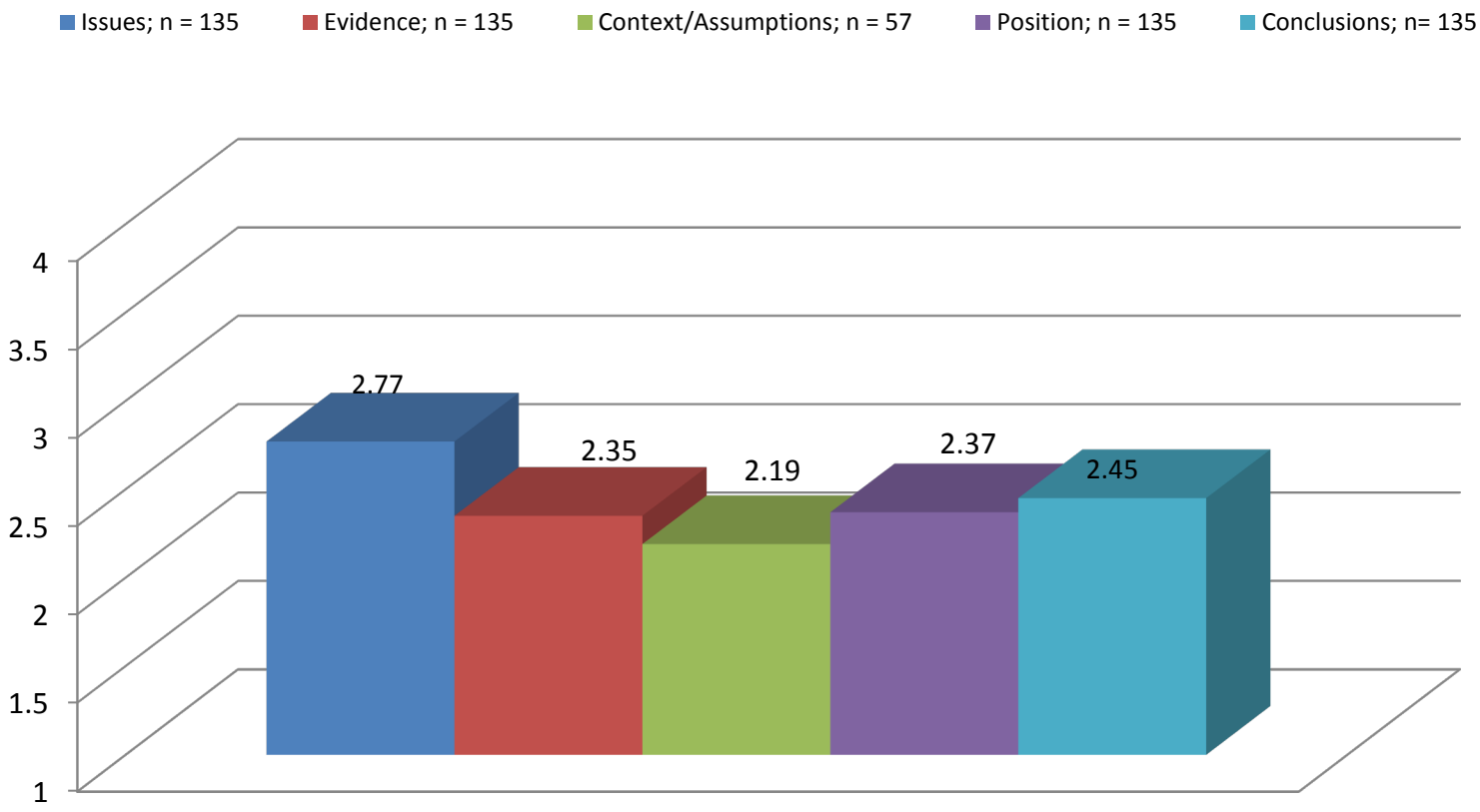
Traits	N/A	Level 1	Level 2	Level 3	Level 4
Context of and Purpose for Writing *Includes considerations of audience, purpose, and the circumstances surrounding the writing task(s).*	Does not apply to this assignment.	Demonstrates minimal attention to context, audience, purpose, and to the assigned tasks(s) (e.g., expectation of instructor or self as audience).	Demonstrates awareness of context, audience, purpose, and to the assigned tasks(s) (e.g., begins to show awareness of audience's perceptions and assumptions).	Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).	Demonstrates a thorough understanding of context, audience, and purpose that is responsive to the assigned task(s) and focuses all elements of the work.
Content Development	Does not apply to this assignment.	Uses appropriate and relevant content to develop simple ideas in some parts of the work.	Uses appropriate and relevant content to develop and explore ideas through most of the work.	Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.	Uses appropriate, relevant, and compelling content to illustrate mastery of the subject, conveying the writer's understanding, and shaping the whole work.
Genre and Disciplinary Conventions *Formal and informal rules inherent in the expectations for writing in particular forms and/or academic fields (please see glossary).*	Does not apply to this assignment.	Attempts to use a consistent system for basic organization and presentation.	Follows expectations appropriate to a specific discipline and/or writing task(s) for basic organization, content, and presentation	Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices	Demonstrates detailed attention to and successful execution of a wide range of conventions particular to a specific discipline and/or writing task (s) including organization, content, presentation, formatting, and stylistic choices
Sources and Evidence	Does not apply to this assignment.	Demonstrates an attempt to use sources to support ideas in the writing.	Demonstrates an attempt to use credible and/or relevant sources to support ideas that are appropriate for the discipline and genre of the writing.	Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.	Demonstrates skillful use of high-quality, credible, relevant sources to develop ideas that are appropriate for the discipline and genre of the writing
Control of Syntax and Mechanics	Does not apply to this assignment.	Uses language that sometimes impedes meaning because of errors in usage.	Uses language that generally conveys meaning to readers with clarity, although writing may include some errors.	Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.	Uses graceful language that skillfully communicates meaning to readers with clarity and fluency, and is virtually error-free.

Critical Thinking: Overall Analysis

Mean Scores on a scale of 1 – 4, with 4 being the highest possible score.

Please note that, while 135 artifacts in this sample aligned to *Critical Thinking* , two assignments that included 72 artifacts and an additional six artifacts did not align to the trait context/assumptions.

AAC&U Rubric

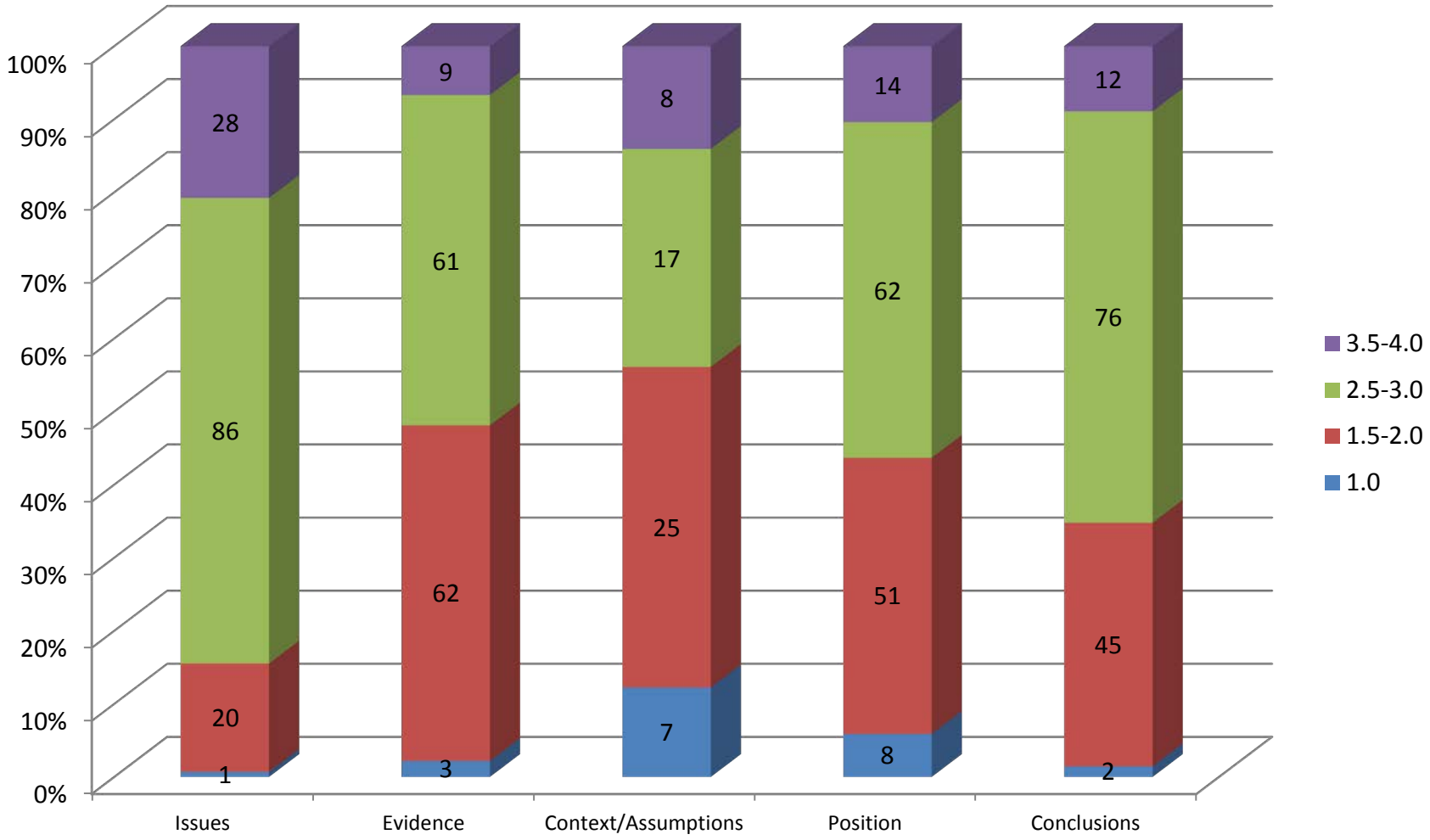


Critical Thinking

Number of artifacts (with usable scores) scoring at each performance level

Trait/ Performance Level	Issues	Evidence	Context/ Assumptions	Position	Conclusions	Total
1.0	1 (1%)	3 (2%)	7 (12%)	8 (6%)	2 (1%)	21 (4%)
1.5 – 2.0	20 (15%)	62 (46%)	25 (44%)	51 (38%)	45 (33%)	203 (34%)
2.5 – 3.0	86 (64%)	61 (45%)	17 (30%)	62 (46%)	76 (56%)	302 (51%)
3.5 – 4.0	28 (21%)	9 (7%)	8 (14%)	14 (10%)	12 (9%)	71 (12%)
Totals	135 (100%)	135 (100%)	57 (100%)	135 (100%)	135 (100%)	597 (100%)

Critical Thinking



Critical Thinking

Inter-Rater Agreement Results (Based on 135 artifacts assessed)

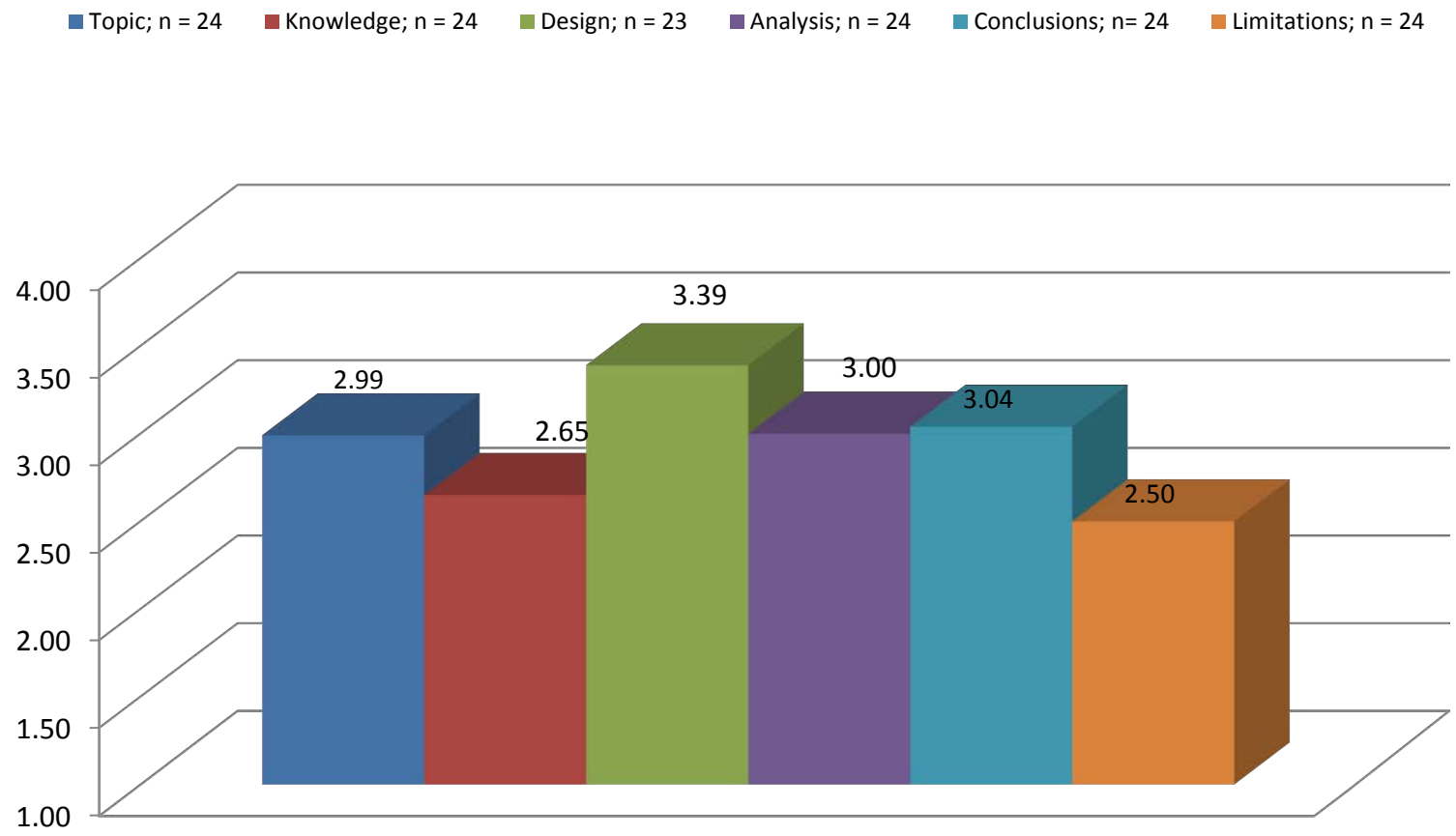
Trait/ Performance Level	Issues Kappa Liberal = .895	Evidence Kappa Liberal = .855	Context/Assumptions Kappa Liberal = .858	Position Kappa Liberal = .749	Conclusions Kappa Liberal = .839
Agree on Usable Score	55 (41%)	70 (52%)	20 (15%)	52 (39%)	52 (39%)
Difference = 1 point	69 (51%)	50 (37%)	29 (21%)	55 (41%)	66 (49%)
Difference = 2 points	10 (7%)	13 (10%)	1 (1%)	23 (17%)	6 (4%)
Difference = 3 points	1 (1%)	1 (1%)	1 (1%)	1 (1%)	0
Agree on Not Aligned	0	0	75 (56%)	0	0
Difference = Usable Score/Not Aligned	0	1 (1%)	9 (7%)	4 (3%)	11 (8%)
Total	135 (100%)	135 (100%)	135 (100%)	135 (100%)	135 (100%)

Inquiry and Analysis: Overall Analysis

Mean Scores on a scale of 1 – 4, with 4 being the highest possible score.

Please note that, while 24 artifacts in this sample aligned to *Inquiry and Analysis*, one artifact was judged not to align to the trait design.

AAC&U Rubric

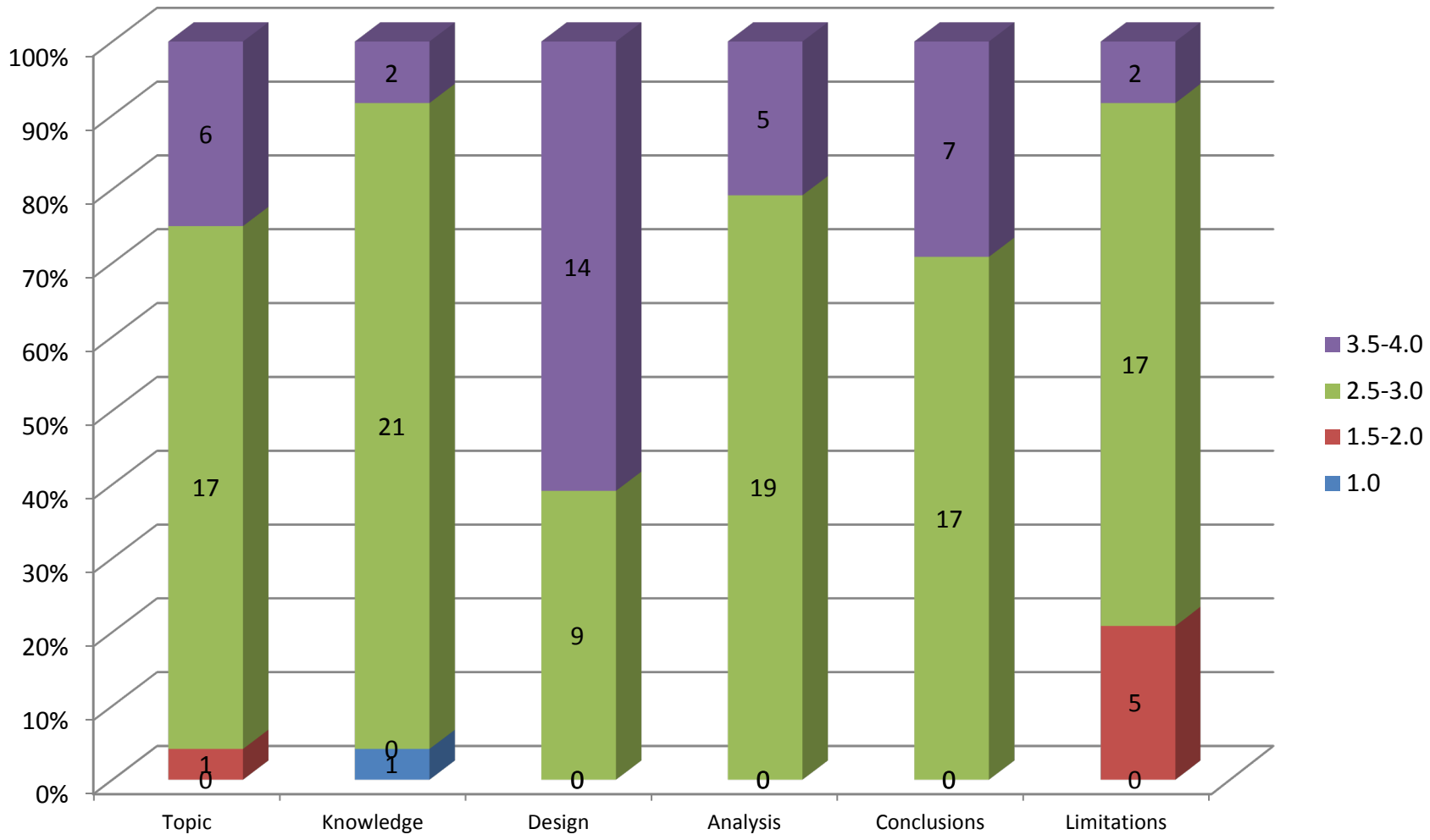


Inquiry and Analysis

Number of artifacts (with usable scores) scoring at each performance level

Trait/ Performance Level	Topic	Knowledge	Design	Analysis	Conclusions	Limitations	Total
1.0	0	1 (4%)	0	0	0	0	1 (1%)
1.5 – 2.0	1 (4%)	0	0	0	0	5 (21%)	6 (4%)
2.5 – 3.0	17 (71%)	21 (88%)	9 (39%)	19 (79%)	17 (71%)	17 (71%)	100 (70%)
3.5 – 4.0	6 (25%)	2 (8%)	14 (61%)	5 (21%)	7 (29%)	2 (8%)	36 (25%)
Totals	24 (100%)	24 (100%)	23 (100%)	24 (100%)	24 (100%)	24 (100%)	143 (100%)

Inquiry and Analysis



Inquiry and Analysis

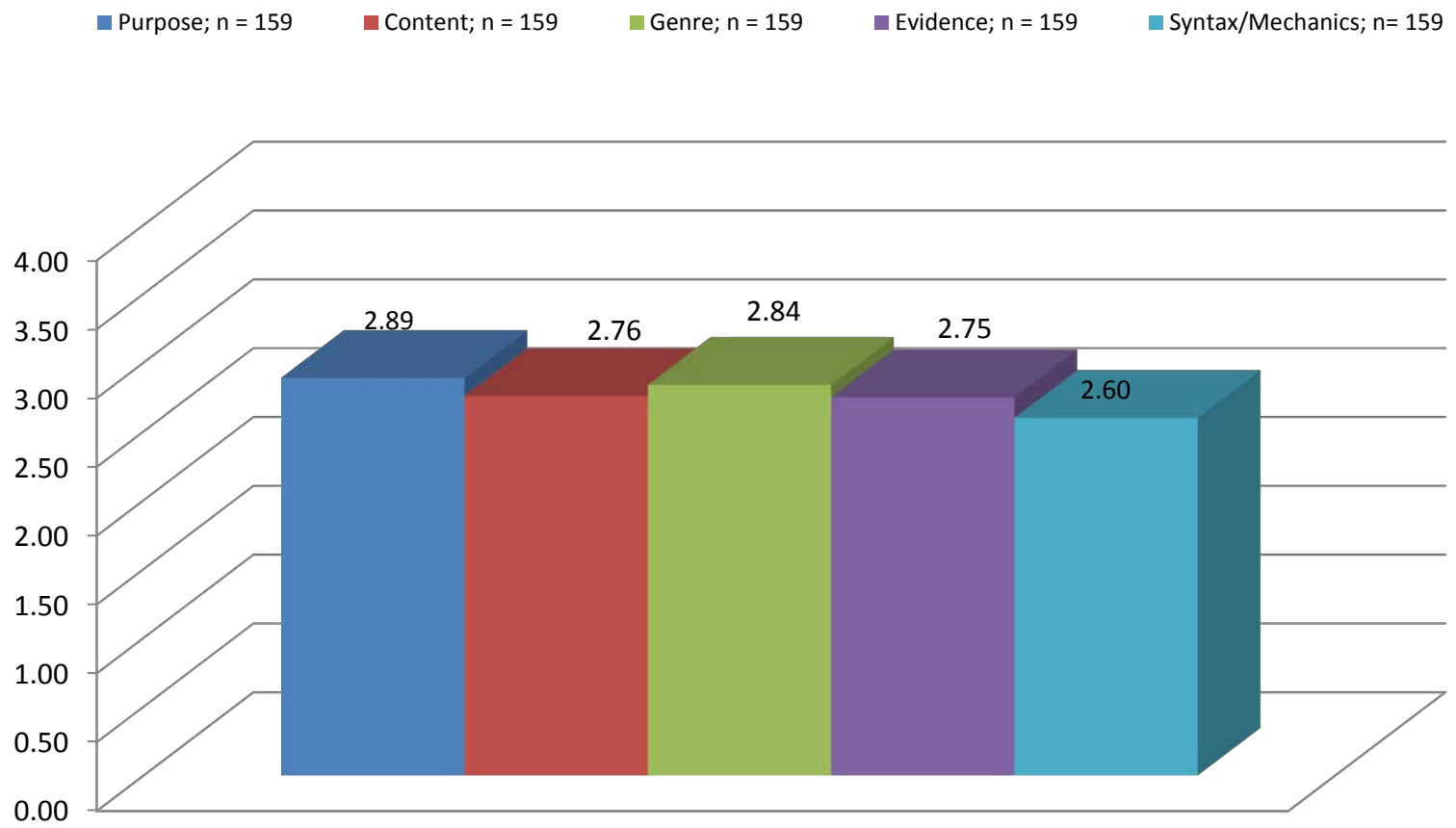
Inter-Rater Agreement Results (Based on 24 artifacts assessed)

Trait/ Performance Level	Topic Kappa Liberal = 1.00	Knowledge Kappa Liberal = .800	Design Kappa Liberal = .890	Analysis Kappa Liberal = .683	Conclusions Kappa Liberal = .872	Limitations Kappa Liberal = .728
Agree on Usable Score	13 (54%)	6 (25%)	12 (50%)	13 (54%)	12 (50%)	4 (17%)
Difference = 1 point	11 (46%)	15 (63%)	9 (38%)	6 (25%)	10 (42%)	15 (63%)
Difference = 2 points	0	2 (8%)	2 (8%)	5 (21%)	2 (8%)	4 (17%)
Difference = 3 points	0	0	0	0	0	0
Agree on Not Aligned	0	0	1 (4%)	0	0	0
Difference = Usable Score/Not Aligned	0	1 (4%)	0	0	0	1 (4%)
Total	24 (100%)	24 (100%)	24 (100%)	24 (100%)	24 (100%)	24 (100%)

Written Communication: Overall Analysis

Mean Scores on a scale of 1 – 4, with 4 being the highest possible score.

AAC&U Rubric

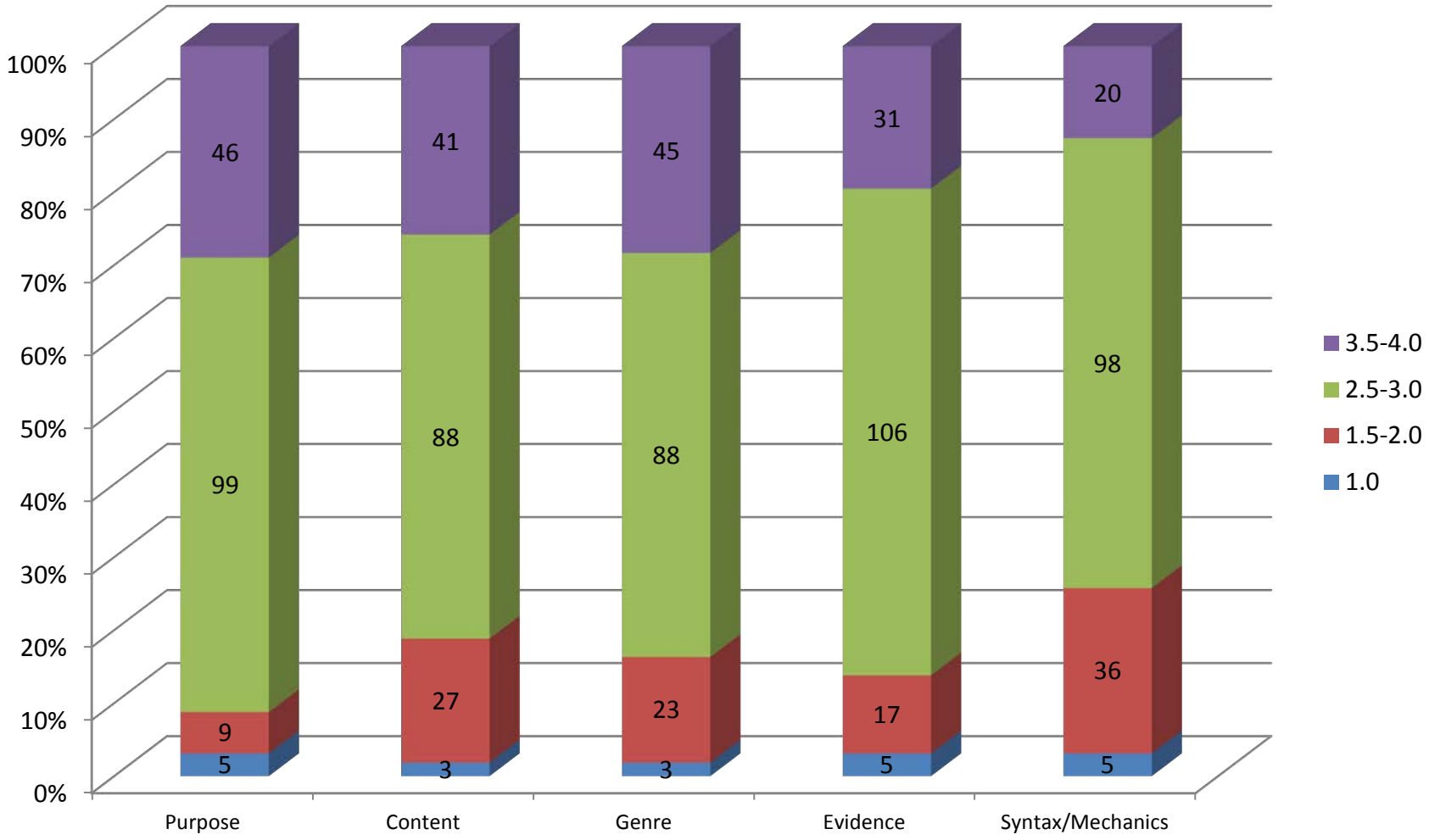


Written Communication

Number of artifacts (with usable scores) scoring at each performance level

Trait/ Performance Level	Purpose	Content	Genre	Evidence	Syntax/ Mechanics	Total
1.0	5 (3%)	3 (2%)	3 (2%)	5 (3%)	5 (3%)	21 (3%)
1.5 – 2.0	9 (6%)	27 (17%)	23 (14%)	17 (11%)	36 (23%)	112 (14%)
2.5 – 3.0	99 (62%)	88 (55%)	88 (55%)	106 (67%)	98 (62%)	479 (60%)
3.5 – 4 .0	46 (29%)	41 (26%)	45 (28%)	31 (19%)	20 (13%)	183 (23%)
Totals	159 (100%)	159 (100%)	159 (100%)	159 (100%)	159 (100%)	795 (100%)

Written Communication



Written Communication

Inter-Rater Agreement Results (Based on 159 artifacts assessed)

Trait/ Performance Level	Purpose Kappa Liberal = .830	Content Kappa Liberal = .820	Genre Kappa Liberal = .823	Evidence Kappa Liberal = .858	Syntax/Mechanics Kappa Liberal = .894
Agree on Usable Score	62 (39%)	58 (36%)	66 (42%)	63 (40%)	81 (51%)
Difference = 1 point	76 (48%)	78 (49%)	71 (45%)	79 (50%)	65 (41%)
Difference = 2 points	19 (12%)	22 (14%)	19 (12%)	15 (9%)	12 (8%)
Difference = 3 points	2 (1%)	1 (1%)	3 (2%)	0	1 (1%)
Agree on Not Aligned	0	0	0	0	0
Difference = Usable Score/Not Aligned	0	0	0	2 (1%)	0
Total	159 (100%)	159 (100%)	159 (100%)	159 (100%)	159 (100%)

Reference

Stellmack, M.A., Kohneim-Kalkstein, Y. L, Manor, J. E., Massey, A. R., & Schmitz, J. A. P. (2009). An assessment of reliability and validity of a rubric for grading APA-style introductions. *Teaching of Psychology*, *36*, 102-107.