2022-2023 Quantitative Literacy Assessment Report - Faculty Summary

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Students will apply relevant scientific, mathematical, and logical methods to analyze and solve problems effectively and be able to utilize the results appropriately when making decisions. (Westmont Quantitative Literacy ILO and Quantitative and Analytical Reasoning GELO)

In 2022-2023 Westmont assessed the Quantitative and Analytical Reasoning General Education Learning Outcome and Quantitative Literacy Institutional Learning Outcome using the novel approach of evaluating quantitative literacy through student writing across all disciplines. In May 2023 a team of 13 faculty/staff reviewers assessed 186 samples of student writing from the graduating senior class. The key takeaways and action items listed below are generated from the numerical results of the assessment as well as the valuable reflections and insights of the reviewer team. For full context for these items please see the complete 2022-2023 Quantitative Literacy Assessment Report.

Key Takeaways

1. Quantitative Reasoning (QR) is relevant for students within all disciplines at Westmont. QR is centrally relevant to thinking and arguing well within the Natural, Behavioral, and Social Sciences. QR is peripherally relevant to all disciplines at times and there are significant negative consequences when students are not able to use QR well. The review team believes all Westmont faculty are interested in helping our students make better arguments and write more clearly. Furthermore, there is a simple path to improvement in this area through relatively low effort and high impact actions.

2. Westmont students are performing poorly in QR. Students performed slightly better in contexts where the need for QR is more apparent (lab reports, quantitative research studies, etc.). They were worse at recognizing and using QR as a rhetorical tool in peripheral contexts. As both Central and Peripheral QR are vital tools for sophisticated and ethical consumption and production of information, this is quite concerning. Students may benefit from clearer expectations in this area both in terms of assignment descriptions and rubric items.

3. Students are performing comparably across all considered demographic groups with no statistically significant differences in mean performance scores. It is worth noting that some demographic groups had no samples.

4. The review team worked with a list of "Problematic Characteristics" in student writing which can hinder the effective use of QR. The most prevalent of these for Westmont students were: 1) Using ambiguous words rather than numbers; 2) Failure to provide numbers that would contextualize an argument; and 3) No evaluation of source or method credibility or limitations. Note that each Problematic Characteristic was only marked as present when it weakened the writer's argument. The review team posited that many majors/departments may not have structures in place to specifically target these characteristics. Providing resources and time for developing these structures could be a helpful support for faculty.

5. There were distinctive trends regarding the types of effective and ineffective QR used within major. To interpret these trends, more context is needed for majors where no faculty member was represented in the reviewer team. Conversations with individual departments are encouraged to 1) provide departments with more individualized and nuanced information about the state of their students in this area and 2) gain information about discipline norms which may lend insight to the assessment process.

The goal of this assessment is to positively impact student outcomes in QR. The assessment team believes this goal will be most effectively accomplished at the faculty level. To achieve this end, the faculty must be aware of the deficit in this area, see the value of fostering effective QR within their discipline, and be provided with easily implemented and time-efficient paths for addressing these deficits. Most of the action items listed below contribute to this effort.

Action Items

1. Faculty Meeting Report – In the December 8, 2023, faculty meeting the Lead Assessment Specialist will remind faculty of the assessment structure (and the rationale behind it) and share student performance on the assessment.

2. Faculty Forum Workshop – In the January 11 faculty forum, the Lead Assessment Specialist will help faculty see the relevance of this skill for their students by presenting writing samples within a few different disciplines utilizing progressively more advanced levels of QR. Faculty will then be given time and structure to jumpstart their efforts in this area by making a list of assignments from their classes this and next semester where students may find QR helpful.

3. Faculty Professional Development Workshop – In Spring 2024 or Summer 2024 the assessment team hopes to partner with the Writing Center to run a workshop helping faculty to: 1) develop and integrate discipline-appropriate QR prompt paragraphs into their assignment descriptions 2) create QR rubric line items that fit into their preexisting rubrics. After the workshop the team plans to share these resources with the wider faculty, creating a repository of discipline-specific QR prompts and rubric line items. These items would particularly target the QR problematic characteristics identified in this assessment.

4. Departmental Discussions – The Lead Assessment Specialist extends an invitation to each department on campus to discuss the results of their assessment. The assessment team can provide major-specific numerical results, share insights gathered by the faculty reviewer team, and open a conversation about what effective faculty supports in this area may look like.

5. Collaborations with the Writing Center and Library – Over the next year the assessment team plans to have multiple conversations with the Writing Center and Library Staff concerning possible synergistic efforts. One initial idea is to provide short training sessions and resources to Writing Center Tutors in this area. Another is to develop short class presentations that faculty could request for their courses (perhaps integrated with the presentations given by the Library Staff which support the Information Literacy ILO). Both ideas would focus interventions on the top issues identified in the Problematic Characteristics list.