Chief Reader Report on Student Responses:

2017 AP® Research Performance Assessment: Academic Paper

- Number of Students Scored   5,787
- Number of Readers   72
- Score Distribution

Exam Score	N	%At
5	971	16.8
4	1,049	18.1
3	2,046	35.4
2	1,578	27.3
1	143	2.5

- Global Mean   3.19

The following comments on the assessment of the 2017 academic papers for AP® Research were written by the Chief Reader, Matthew Krain of The College of Wooster. They give an overview the performance tasks and provide insights into how students performed, including typical student errors. General comments regarding the skills and content that students frequently have the most problems with are included. Some suggestions for improving student preparation in these areas are also provided. Teachers are encouraged to attend a College Board workshop to learn strategies for improving student performance in specific areas.

Performance Assessment Task: Academic Paper **Topic:** Varied by student
Max. Points: 50 **Mean Score:** 35

What were students expected to demonstrate in this performance assessment task?

This performance task was intended to assess students' ability to conduct scholarly and responsible research and articulate an evidence-based argument that clearly communicates the conclusion, solution, or answer to their stated research question. More specifically, this performance task was intended to assess students' ability to:

- Generate a focused research question that is situated within or connected to a larger scholarly context or community;
- Explore relationships between and among multiple works representing multiple perspectives within the scholarly literature related to the topic of inquiry;
- Articulate what approach, method, or process they have chosen to use to address their research question, why they have chosen that approach to answering their question, and how they employed it;
- Develop and present their own argument, conclusion, or new understanding while acknowledging its limitations and discussing implications;
- Support their conclusion through the compilation, use, and synthesis of relevant and significant evidence generated by their research;
- Use organizational and design elements to effectively convey the paper's message;
- Consistently and accurately cite, attribute, and integrate the knowledge and work of others, while distinguishing between the student's voice and that of others;
- Generate a paper in which word choice and syntax enhance communication by adhering to established conventions of grammar, usage, and mechanics.

How well did students address the course content related to this performance assessment task? How well did students perform on the skills required on this performance assessment task?

- The mean score on *Understanding and Analyzing Context* was 4.62 out of a possible 6 points. In *Understanding and Analyzing Context*, most students developed interesting research questions with an appropriate degree of focus, and situated their research questions within a broader context. Many students effectively argued why their question required additional research or examination. Some students developed carefully crafted and well-reasoned questions that were clearly linked to a broader context or gap in our understanding.

- The mean score on *Understanding and Analyzing Arguments* was 4.44 out of a possible 6 points. In *Understanding and Analyzing Arguments*, most students effectively reviewed scholarly literature relevant to their inquiry. Many students were able to summarize multiple perspectives within the relevant scholarly literature on their research question or topic of inquiry.

- The mean score on *Evaluating Sources and Evidence* was 4.61 out of a possible 6 points. In *Evaluating Sources and Evidence*, students mostly drew upon credible and relevant sources in situating their question within a larger context and in developing their argument.

- The mean score on *Research Design* was 4.77 out of a possible 7 points. In *Research Design*, many students were good at describing procedures followed in the chosen method or approach. Some students effectively explained the link between the approach and their question. Some students linked the approaches used in the literature they reviewed to their own study, or adapted approaches used in the literature to their own research. Some students were good at describing limitations of the method or approach chosen.

- The mean score on *Establishing* (Their Own) *Argument* was 4.73 out of a possible 7 points. In *Establishing* (Their Own) *Argument*, many students stated a clear argument or claim. Many students recognized and acknowledged limitations on their ability to extrapolate conclusions from their evidence.

- The mean score on *Selecting and Using Evidence* was 3.63 out of a possible 6 points. In *Selecting and Using Evidence*, many students were able to provide some evidence from their research to speak to their question of interest. Some students were able to support their conclusion using relevant and sufficient evidence from their own research. Some students provided evidence to speak to their conclusion, but it was evidence from other studies in the academic literature, or other already existing information.

- The mean score on *Engaging the Audience* was 2.06 out of a possible 3 points. In *Engaging the Audience*, most students organized their paper in a manner that made it easy for the reader to follow the argument, the method/approach, and the examination of the evidence. Many used organizational and/or design elements effectively. Most students demonstrated the ability to organize their information to convey meaning (a skill initially developed in AP Seminar and built upon in AP Research). Many students wrote in a style that was easily accessible to an intelligent non-expert reader.

- The mean score on *Applying (Academic) Conventions* was 4.10 out of a possible 6 points. In *Applying (Academic) Conventions*, most students used a consistent citation style throughout the body of their paper and in their works cited or bibliography section.

- The mean score on *Applying (Grammatical and Stylistic) Conventions* was 2.14 out of a possible 3 points. In *Applying (Grammatical and Stylistic) Conventions*, **most** students used established conventions of grammar, usage, and style. Some students did so with variety, emphasis, and precision, thereby enhancing communication.

What common student misconceptions or gaps in knowledge were seen on this question?

- In *Understanding and Analyzing Context*, some students developed broad or exploratory topics that lacked a pointed research question or a clear focus. Many claims made in the introduction in order to situate the question in a context were overly broad and uncited or otherwise unsubstantiated. Many students used hyperbole in discussing the importance of their topic or the novelty and significance of their findings. Some students employed multiple questions, or changed their main question throughout the paper, making it difficult for them to focus their inquiry. A few students presented a position on a topic rather than develop a research question that could be explored though the process or inquiry. A few students used an abstract (which is neither required nor evaluated) as the paper's introduction rather than as a way to summarize the research process and outcome.

- In *Understanding and Analyzing Argument*, many students did not firmly establish their research within a scholarly community. Some students provided background information about the topic of inquiry rather than a review of the scholarly literature. Many students discussed multiple works in their review of the literature, but did not explicitly relate these works to one another or to their own argument or perspective. Some students discussed a single perspective within the literature on their research question (even if it was via discussing multiple authors with a similar perspective). A few students had difficulty discussing and/or incorporating perspectives different from their own.

- In *Evaluate Sources and Evidence*, some students focused too much on discussing the credibility of individual sources rather than establishing their own credibility through the use of sources that are relevant and credible in context, and clearly connected to their inquiry. Some students relied heavily on sources that were less than relevant or credible given the context of their inquiry.

- In *Research Design*, while most students identified which method or approach they were using, many either did not address why they chose this approach to answer their question, or did not describe in sufficient detail how they employed it. In many cases, a student's method did not align with the question they were trying to answer or the evidence they needed to collect in order to test their argument. Some students claimed to be using one method while actually using a different method. In particular, most students who described their approach as a meta-analysis did not actually conduct a meta-analysis, but rather engaged in an extended literature review. Some students who claimed to be using content analysis did not engage in systematic analysis of texts based on clear decision rules. Many students who chose to analyze quantitate data provided incomplete statistical information. Some students used multiple methods

in a less structured and focused manner, rather than using one method effectively. Some students justified methodological choices based on convenience or feasibility rather than on what would be most appropriate or necessary to address the research question or project goal. Many students did not provide enough detail so that their method or approach could be reproduced. Many students who used surveys in their research did not include the actual survey in the paper. Students were not always clear as to how and why they chose the sample they used. Frequently, that sample was too small to draw meaningful inferences from it. A few students who worked with human subjects did not indicate that they had pursued institutional review board (or human subjects research board) authorization, nor did they have a section in their paper that addressed ethical issues.

- In *Establishing (Their Own) Argument*, some papers were unclear on the distinction between the literature, the student's specific argument, the method used, and the evidence. Where relevant, students occasionally conflated correlation and causation.

- In *Select and Use Evidence*, some students did not substantiate links between their own claims and the evidence they presented from their own original research. Some students attempted to link their own claims to evidence from the literature, but did not provide their evidence from their own original research.

- In *Engaging the Audience*, some students had issues with organization of the paper that made it difficult for the reader to follow the thread of the argument or the layout of the project design. A few students submitted papers/PDFs that were incomplete, missing pages, or in some other way were not a final version.

- In *Applying (Academic) Conventions*, some students did not appropriately cite images, tables, graphs, or figures in their papers. Some students did not cite major works of music, art, or literature that were central to their research. Many did not label images, tables, graphs, or figures appropriately, or the labels or other text in images were difficult to read. Some used but did not describe or analyze images/figures. Many students did not clearly, consistently, and accurately cite claims or information of others in text. Some students did not clearly differentiate between the voice of others and their own voice. Some students employed quotations or summaries of sources without integrating them into the paper in a cohesive way. Some students engaged in sloppy scholarship, and in very rare cases overt "cut and paste" plagiarism.

- In *Applying (Grammatical and Stylistic) Conventions*, a few students did not proofread their papers carefully, and/or did not correct errors of grammar, style, or mechanics that interfered with communication.

Based on your experience of student responses at the AP® Reading, what advice would you offer to teachers to help them improve the performance of their students on the exam?

- Emphasize that research is a process, one that requires time, reflection, problem solving, and revision. Teach students that the research process is a social and community-based endeavor, where researchers are in conversation with other scholars, and learn from others comments, ideas, and findings. Encourage students to find peers to share ideas and drafts with, and to find expert advisors with whom to discuss their projects. Encourage students to use the PReP to document and reflect upon the process, and to help stimulate their own creative thinking. Use the PReP to make that process visible, to prompt student reflection, and to enable you to provide both positive and constructive feedback.

- Make sure students know that just writing a paper on a topic is not enough for AP Research. The task requires an original research project that develops a new understanding, uncovers new information, or develops a new synthesis of existing information.

- Emphasize the importance of developing one explicit, precise, focused research question that is narrow enough to be studied within the scope of the project but broad enough to develop a new understanding. Doing so affects the rest of the research project, and thus is essential. Remind students that all elements of the research paper should relate to their research question and should speak back to their argument.

Remind students to state their research question early and clearly to help the reader understand the direction and focus of the research project.

- Emphasize revising the paper's introduction near the end of the research process, so as to clearly identify the question that guides the project and situates the question within a broader context. Remind students that introductions need to avoid broad generalizations and should also be informed by sources and evidence. Remind students that statements of fact or argument need to be cited, even in the introduction. Remind students that research yields new understanding incrementally, and credible researchers moderate their claims. This means that hyperbolic language regarding what they will do or what new understanding they have generated should be discouraged.

- Remind students that abstracts are useful organizational tools, but that they will not be scored as part of the paper. Have students verify that anything that appears in the abstract (if they choose to write one) also appears in the appropriate place in the body of the paper. Encourage students that want to write an abstract to do so after their research paper is complete, and to do so as a summary of the paper, so that no new information not already in the body of the paper shows up in the abstract.

- Remind students to write as if the audience for the paper is an intelligent non-expert who does not know anything about this specific area. Remind students that as the author and researcher, it is their job to clearly convey what they did, why the approach they took is appropriate given the topic of inquiry, what they found, and what implications their conclusions have for our understanding of the question. It is not the reader's job to infer any of this from the paper. It is the student's job to be clear and explicit.

- Remind students that while the credibility of sources is important, the sources' credentials should not be explicitly stated in a research paper. Encourage students to leave that practice, held over from AP Seminar, behind them, and to save that word count for the development of a credible and compelling argument.

- Explicitly teach the concept of multiple perspectives and how multiple perspectives are integrated in a research paper. Students should be able to recognize and acknowledge perspectives that do not align with their own initial assumptions on a topic. Teach students the technique of placing these perspectives in conversation through transitions that indicate agreement and opposition, exemplar and corroboration, or consequence or sequence. Have students practice explaining how various authors' ideas connect to one another, and to the argument that the student is developing in the paper.

- Have students think about a literature review as a conversation that they are listening in to and reporting back about. Emphasize that they should think about reporting back about that conversation by organizing that section by the ideas or perspectives, rather than by authors.

- Review key (but often misunderstood) concepts in research design and analysis, such as independent and dependent variables, and differences between correlation and causation,

- Help students understand that specific methods have specific requirements. For example, methods such as meta-analysis, content analysis, and hermeneutics have particular guidelines and procedures that must be followed. Encourage students to read within their area to better understand appropriate methodology choices. Allow for time to teach deeply about different research methods (including modeling, building together, and peer review).

- If students are using a methodology with which the teacher is unfamiliar, the teacher is encouraged to recommend that the student find an outside expert who can review and comment on that approach.

- Remind students that they need to explain explicitly which research design, method of analysis, or approach they have chosen, how it will be carried out, and why it is the appropriate method to address the student's research question. A reader who is an intelligent non-expert should be able to easily understand that description and rationale and be able to replicate the approach. Clearly message the need to address ethical issues proactively, fully, and appropriately, particularly when dealing with human or animal subjects.

- Emphasize the importance of starting to collect the evidence or data as early as possible in the year, so as to leave enough time to carry out the study, complete the analysis, and leave time to write up and revise the paper.

- Remind students about what they learned in AP Seminar about connecting evidence to claims in writing, and help them see how they need to do so differently in AP Research – this time in connecting evidence produced from their own research to their argument (and also speaking back to the arguments made in the literature).

- If students wish to use an appendix, remind them to discuss the most pertinent material or evidence in the body of the paper, and to explicitly reference (and direct the reader to) the appendix in the main text of the paper.

- Help students to think about how to distinguish their own voice and observations from those of the sources used, and how to integrate their own voice into the discussion of the literature and the development of their argument.

- Make sure students know the writing style and citation style expected in their discipline. Spend time emphasizing proper and consistent citation techniques, including the need to cite works of art, images, tables, or figures used in the paper, and the need to cite fully all online sources (not just the URL/web address). Explicitly teach, model, discuss, and work with students throughout the year regarding the mechanics of citations.

- Remind students that it is their responsibility to act in an ethical manner with regard to appropriate citation and attribution, in carrying out their study responsibly, and in presenting the data honestly and accurately. Use Turnitin.com to ensure that students are complying with AP Research course guidelines regarding plagiarism.

- Remind students that research papers require multiple, large-scale revisions, often with input from peers. Have them give special attention to voice, clarity, grammar, and appropriate word choice. These can have a significant impact on how the paper is read, whether the argument, approach, or analysis is understood, and even the reader's perception of the student's credibility.

- Remind students that prior to their final submission they should proofread their work carefully, and should remove identifying information such as their name, and the name of the school and/or teacher.

- Remind students to make certain that the PDF they are about to submit is absolutely their final paper and the one that they intend to be scored.

What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?

- Use the rubric as a teaching tool and a guide for the students throughout the course. Periodically have students review the rubric and ask themselves (perhaps in the PReP – Process and Reflection Portfolio) whether the elements of their academic paper have met the criteria in the rubric.

- Use the Student Workbook and associated PowerPoint presentations from the AP Research Teacher Community to help students focus their research questions, align their chosen method to the purpose of their inquiry, and to ensure they are addressing ethical research practices in writing and in the implementation of their method.