

Chief Reader Report on Student Responses: 2021 AP[®] Psychology Free-Response Questions

• Number of Students Scored	288,511			
• Number of Readers	761			
• Score Distribution		Exam Score	N	%At
		5	40,693	14.1
		4	61,069	21.2
		3	51,987	18.0
		2	43,833	15.2
		1	90,929	31.5
• Global Mean	2.71			

The following comments on the 2021 free-response questions for AP[®] Psychology were written by the Chief Reader, Dr. Rik Seefeldt, UW River Falls. They give an overview of each free-response question and of how students performed on the question, 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.

What were the responses to this question expected to demonstrate?

This question asked students to apply concepts from several areas of psychology to a real-world scenario. These domains of psychology included physiological psychology, cognitive psychology, social psychology, perception, behavioral theory, and clinical psychology. The responses needed to show understanding of the concepts and how they apply to the scenario.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

The nature of the psychological concepts varied across points, so students had to show knowledge spanning different content areas. Because of the breadth of the concepts, students regularly responded correctly to some of the concepts, but there were some predictable gaps in student knowledge. Many students included accurate definitions of the relevant terms but were unable to apply them to the scenario.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

<i>Common Misconceptions/Knowledge Gaps</i>	<i>Responses that Demonstrate Understanding</i>
<ul style="list-style-type: none"> Some students assigned responsibilities, such as hearing or seeing, to the motor cortex indicating they were unsure of its role in initiating voluntary movement. 	<ul style="list-style-type: none"> Students demonstrated understanding by indicating that the motor cortex is responsible for voluntary movements, such as moving one's fingers, within the context of playing a video game.
<ul style="list-style-type: none"> Students often confused algorithms with heuristics. Other students demonstrated that they understood that using an algorithm guarantees a solution, but they neglected to demonstrate the step-by-step nature of this problem-solving strategy in their application. 	<ul style="list-style-type: none"> Students demonstrated understanding by focusing on the step-by-step procedure of an algorithm and correctly applying it to Damian's gaming.
<ul style="list-style-type: none"> Students often explained that a character was helped by another but failed to explain the pressure to return the favor. 	<ul style="list-style-type: none"> Students demonstrated understanding by indicating that a character in the scenario did something beneficial for another because they received or anticipated receiving something in return.
<ul style="list-style-type: none"> Students confused the monocular depth cue of interposition with other monocular cues, such as closure, or they applied a binocular cue, such as retinal disparity, to the scenario. 	<ul style="list-style-type: none"> Students demonstrated understanding by describing the cue of interposition within the context of gaming and explaining that the cue allows for depth perception.
<ul style="list-style-type: none"> Students were often not specific enough in explaining how a mental set would affect the strategies used in gaming. 	<ul style="list-style-type: none"> Students demonstrated understanding by recognizing that having a mental set is an obstacle to problem-solving within the context of strategies used in gaming.

<ul style="list-style-type: none"> Students confused the fixed-ratio schedule with a fixed-interval schedule. 	<ul style="list-style-type: none"> Students demonstrated understanding by indicating that Damian’s parents would reinforce him after he performed a specific number of application-related behaviors.
<ul style="list-style-type: none"> Free association was often confused with other forms of talk therapy. Students also incorrectly described stimulus-related psychoanalytic techniques, such as a Thematic Apperception Test when applying the concept to the scenario. 	<ul style="list-style-type: none"> Students demonstrated understanding by explaining that during free association Damian says whatever comes to mind without censoring himself. Students could also explain the motivation behind the use of this technique by explaining that Damian would be encouraged to speak freely as a way to reveal unconscious emotions or motives.

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

Teachers can encourage students to apply the terms to novel situations and go beyond simply defining terms. In every unit, they can assign student work that provides them with practice of this skill. In addition, teachers should give students many opportunities to write and practice free-response questions. When doing so, they should use AP style questions, such as those found on AP Classroom, and give students a time limit so they can prepare for the AP testing environment.

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

Teachers can help prepare students for this question by giving students opportunities to practice with FRQs found in AP Classroom that require application. Teachers should remind students repeatedly that definitions alone do not score. Rather, students need to provide the relevant application of the concept to the scenario. AP Daily instructors often highlight these types of questions to model the skill for students.

Teachers can also use past AP Exam student samples and scoring guidelines to show students how actual FRQs are scored. Teachers may have students use a scoring guideline to score a sample on their own and then work with a partner to compare their scoring decisions and come to consensus. Teachers can then lead a class discussion about what wording scored and what did not to help students learn how to write more successful FRQ responses.

What were the responses to this question expected to demonstrate?

The responses were expected to demonstrate an understanding of characteristics of an experiment and to show how specific psychological terminology applies to the scenario. The responses needed to address a psychologist's research project on memory. They also needed to demonstrate understanding of the independent variable, the control group in an experiment, that experiments can result in causal conclusions, the spread of scores in a distribution, and ethical considerations in research participation. Additionally, the responses needed to demonstrate knowledge of specific concepts within memory, primacy effect and depth of processing.

How well did the responses address the course content related to this question? How well did the responses integrate the skills required on this question?

Responses demonstrated understanding of concepts in research design and statistics and learning and cognition when students applied these concepts to the scenario described in the prompt.

Responses scored points by clearly applying concepts of the independent variable, control groups, strength of the experimental method, ethics in conducting research, and the standard deviations of sets of scores; conceptual content involved the primacy effect and depth of processing.

What common student misconceptions or gaps in knowledge were seen in the responses to this question?

Commonly missed points in this question included the misidentification of the independent variable, as responses often referred to the stimuli in the research rather than to the manipulated variable. In addition, students frequently failed to note that experiments are useful for generating causal conclusions. Additionally, responses often missed the correct application of the primacy effect, confusing it with priming, and depth of processing, failing to identify deep and shallow processing.

<i>Common Misconceptions/Knowledge Gaps</i>	<i>Responses that Demonstrate Understanding</i>
<ul style="list-style-type: none"> The independent variable was often incorrectly identified as the stimulus materials. 	<ul style="list-style-type: none"> "The independent variable was whether the participant received instructions to form mental images in learning or was given no specific instructions."
<ul style="list-style-type: none"> Responses frequently failed to specify that experiments can lead to cause-and-effect statements. 	<ul style="list-style-type: none"> "The experimental design is appropriate because the experiments permit the research to identify the effect of forming mental images versus not forming such images on memory."
<ul style="list-style-type: none"> Responses often identified serial position effect rather than the primacy effect specifically or confused primacy effect with the effects of priming. 	<ul style="list-style-type: none"> "The primacy effect could be relevant in the memory task because stimuli appearing early in the list would be recalled better than stimuli appearing in the middle of the list."

<ul style="list-style-type: none">• Responses often referred to higher levels of learning rather than depth of processing or depth of encoding.	<ul style="list-style-type: none">• Depth of processing could be important in this experiment because forming mental images would lead to deeper processing and higher levels of recall, whereas not forming images would lead to shallow processing and lower levels of recall.
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Based on your experience at the AP® Reading with student responses, what advice would you offer teachers to help them improve the student performance on the exam?

To help students respond more completely, teachers could emphasize characteristics of experiments in contrast to nonexperimental methods. Teachers could also explain to students the importance of responding specifically to the prompt so the context of the response is clear.

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

Teachers can help prepare students for this question by giving them opportunities to practice with FRQs found in AP Classroom that require application of concepts and analysis of data and research design. Teachers should remind students repeatedly that definitions alone do not score. Rather, students need to provide the relevant application of the concept to the scenario. Students also need to familiarize themselves with various research designs and statistical analysis techniques so they can identify and interpret elements of those designs and techniques correctly. AP Daily instructors often highlight these types of questions to model the skill for students.

Teachers can also use past AP Exam student samples and scoring guidelines to show students how actual FRQs are scored. Teachers may have students use a scoring guideline to score a sample on their own and then work with a partner to compare their scoring decisions and come to consensus. Teachers can then lead a class discussion about what wording scored and what did not to help students learn how to write more successful FRQ responses.