
AP[®] Psychology

Sample Student Responses and Scoring Commentary Set 2

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Free-Response Question 1

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FRQ 1: Article Analysis Question (AAQ)

7 Points

General Considerations

1.

Answers must be cogent enough for the meaning to come through. Spelling and grammatical mistakes do not reduce a score, but spelling must be close enough so that the reader is convinced of the word.
2.

A student can earn points only if the student is clearly addressing the topic of the source material in their response.
3.

The response must apply the concept to the prompt. A definition alone will not earn the point, but a clear definition can support the application.
4.

Examples provided in the Scoring Guidelines for each of the points are not to be considered exhaustive.
5.

Within a question part, a response will not be penalized for incorrect information unless it directly contradicts correct information that otherwise would have earned the point(s). For example, if a student applies a concept by defining it in two contradictory ways (such as applying proactive interference as both interference from older and newer information), the point is not earned.

Reporting Category	Scoring Criteria	
Part A Research Method (0–1 points)	0 points Does not accurately identify the research method used in the study	1 point Accurately identifies the research method used in the study
	Decision Rules and Scoring Notes	
	Responses that do not earn this point: <ul style="list-style-type: none">The response does not accurately identify the research method used in the study.The response includes no identification of the research method used in the study.	Responses that earn this point: <ul style="list-style-type: none">The response accurately identifies the research method used in the study as an experiment.
	Examples that do not earn this point: <ul style="list-style-type: none"><i>“The research method used in the study is a case study since the researchers are examining a dog’s reactions to a person’s emotions.”</i> [Incorrect research method.]<i>“The researchers studied whether a dog’s reaction to a person’s emotions differ based on the dog’s experience with the person.”</i><i>“The research method in this study is the experimental method, but they were specifically using a naturalistic observation.”</i> [Direct contradiction.]	Examples that earn this point: <ul style="list-style-type: none"><i>“The researchers used an experiment.”</i><i>“The researchers used a within-subject experiment.”</i>

Reporting Category	Scoring Criteria	
Part B Research Variable (0–1 points)	0 points Does not state a measurable or quantifiable definition of the identified variable used in the study	1 point States a measurable or quantifiable definition of the identified variable as used in the study
	Decision Rules and Scoring Notes	
	Responses that do not earn this point: <ul style="list-style-type: none"> • The response states a definition of person-oriented dog behaviors in the study that is not measurable or quantifiable. • The response does not state a measurable or quantifiable definition of person-oriented dog behaviors as used in the study. 	Responses that earn this point: <ul style="list-style-type: none"> • The response states that person-oriented dog behaviors are defined as the number of times a dog looked at a person, contacted a person, approached a person, and/or vocalized at a person in the study. • The response states researchers measured person-oriented dog behaviors as the dog looking at, making contact, approaching, or vocalizing at the people.
	Examples that do not earn this point: <ul style="list-style-type: none"> • <i>“The researchers studied how emotionally close the dogs were to their owners.”</i> • <i>“The operational definition of person-oriented dog behavior is the 2-minute lighthearted conversation the stranger-researcher and the owner had.”</i> • <i>“The operational definition of person-oriented dog behaviors includes passive behavior like lying down or sitting.”</i> 	Examples that earn this point: <ul style="list-style-type: none"> • <i>“The researchers operationally defined person-oriented dog behaviors as the number of times they looked at the person or barked at the person.”</i> • <i>“The researchers defined person-oriented dog behaviors as making contact or approaching the people.”</i>

Reporting Category	Scoring Criteria	
Part C Statistic Interpretation (0–1 points)	0 points Does not accurately describe what the identified statistic indicates in relation to the study	1 point Accurately describes what the identified statistic indicates in relation to the study
	Decision Rules and Scoring Notes	
	Responses that do not earn this point: <ul style="list-style-type: none"> • The response restates the mean of the person-oriented behaviors for the laughing group as compared to the talking group without directly relating them to the study. • The response does not accurately describe what the mean of the person-oriented behaviors for the laughing group as compared to the talking group indicates in relation to the study. • The response provides a definition of the mean of the person-oriented behaviors for the laughing group as compared to the talking group but does not accurately describe what it indicates in relation to the study. 	Responses that earn this point: <ul style="list-style-type: none"> • The response accurately describes the mean of the person-oriented behaviors for the laughing trials as being larger than the mean of the talking trials, which indicates that the dogs showed more person-oriented behaviors when the people laughed than when they were just talking. • The response accurately describes the means for the laughing and talking trials as not significantly different from each other, meaning that the difference in means between the talking trial and the laughing trial was likely due to chance or not due to the emotion.
	Examples that do not earn this point: <ul style="list-style-type: none"> • <i>“The mean of the laughing group is 1.3 and the mean for the talking group is .75.”</i> • <i>“The mean of the laughing group is significantly more than the mean of the talking group.”</i> [No explanation of what that indicates in the study.] • <i>“The mean is the average of the responses in the study. The dogs in the laughing group had a mean of 1.4 person-oriented behaviors.”</i> 	Examples that earn this point: <ul style="list-style-type: none"> • <i>“The dogs showed more person-oriented behaviors to people who were laughing than those who were just talking.”</i> • <i>“The dogs responded more to laughing than to talking.”</i> • <i>“Since the difference between the means of the laughing and talking trials was not significant, this means that the difference in means was probably due to chance.”</i> • <i>“There was not a significant difference between the two. This just indicates that the animal’s response was not due to laughing or talking.”</i>

Reporting Category	Scoring Criteria	
Part D Ethical Guidelines (0–1 points)	0 points Does not accurately identify at least one ethical guideline applied by researchers in the study	1 point Accurately identifies at least one ethical guideline applied by researchers in the study
	Decision Rules and Scoring Notes	
	Responses that do not earn this point: <ul style="list-style-type: none"> • The response does not identify an ethical guideline applied by researchers in the study. • The response identifies an ethical guideline that researchers should have applied but was not mentioned in the study. • The response identifies an ethical guideline not applied by the researchers in the study. • The response identifies other features of the study that are not ethical guidelines. 	Responses that earn this point: <ul style="list-style-type: none"> • The response identifies informed consent as an ethical guideline applied by researchers in the study. • The response identifies doing no unnecessary harm to the animals as an ethical guideline applied by the researchers in the study.
	Examples that do not earn this point: <ul style="list-style-type: none"> • <i>“It’s important to researchers to act ethically when conducting a study.”</i> • <i>“The researchers should have obtained the dog’s consent.”</i> • <i>“The researchers protected the confidentiality of the participants in the study.”</i> • <i>“The researchers gave dog biscuits as compensation, which is unethical.”</i> 	Examples that earn this point: <ul style="list-style-type: none"> • <i>“The researchers obtained informed consent from the dog owners.”</i> • <i>“The researchers made sure they did no harm to the animals, who could not give consent to be studied.”</i> • <i>“The researchers had the stranger and the dog owner have a cheerful conversation between trials to reset the emotional tone of the experience for both the dogs and the owners. This demonstrates that the researchers took steps to protect the participants from harm.”</i>

Reporting Category	Scoring Criteria	
Part E Generalizability (0–1 points)	0 points Does not propose a claim regarding the generalizability of the study to a population (general or specific) OR Does not use specific and relevant evidence that references participant variables that would impact the generalizability of the study	1 point Explains the extent to which the study is generalizable using specific and relevant evidence referencing participant variables from the study
	Decision Rules and Scoring Notes	
	Responses that do not earn this point: <ul style="list-style-type: none"> • The response proposes no claim regarding the generalizability of the conclusion of the study. • The response proposes a claim regarding the generalizability of the conclusion of the study but makes no reference to a population (general or specific). • The response uses evidence that does not apply to the generalizability of the conclusion of the study (e.g., reliability, validity, sample size). 	Responses that earn this point: <ul style="list-style-type: none"> • The response proposes a claim about generalizability that references a population (the “larger population” or a population relevant to the study’s participants) to explain the extent of the generalizability of the study. • The response proposes that the study is or is not generalizable to the population relevant to the study because of specific and relevant evidence derived from the participant information from the study.
	Examples that do not earn this point: <ul style="list-style-type: none"> • <i>“The study yielded some good results.”</i> • <i>“The study is generalizable.”</i> • <i>“The study is generalizable because they had a large sample size.”</i> 	Examples that earn this point: <ul style="list-style-type: none"> • <i>“The study is generalizable to dogs of all kinds because they used several different kinds of dogs in the study.”</i> • <i>“The study is only generalizable to nonaggressive dog breeds because although they used a variety of dogs, they recruited only nonaggressive dogs for their sample.”</i> • <i>“The study is not generalizable to dog owners younger than 25 or older than 60.”</i>
	Additional Note: <ul style="list-style-type: none"> • If students assert the study is “partly” generalizable or asserts the study is both generalizable and not generalizable, their evidence must support their assertion by showing ways the study is generalizable and is not generalizable to earn the point. 	

Reporting Category	Scoring Criteria		
Part F Argumentation (0–2 points)	0 points Does not accurately explain how the results of the study support or refute the psychological concept or hypothesis presented in the question	1 point Uses the results of the study but does not explain how the psychological concept or hypothesis is supported or refuted OR Explains that the psychological concept or hypothesis is supported or refuted but does not use any results from the study	2 points Uses a specific result from the study to explain how the results support or refute the psychological concept or hypothesis presented in the question. The results are accurately interpreted.
	Decision Rules and Scoring Notes		
	Responses that earn 0 points: <ul style="list-style-type: none"> The response does not explain how at least one of the research findings supports or refutes the idea that dogs' expression of person-oriented behaviors demonstrates stimulus discrimination in operant conditioning. The response does not accurately explain how at least one of the research findings supports or refutes the idea that dogs' expression of person-oriented behaviors demonstrates stimulus discrimination in operant conditioning. 	Responses that earn 1 point: <ul style="list-style-type: none"> The response proposes that the evidence alone is sufficient to demonstrate the idea that dogs' expression of person-oriented behaviors demonstrates stimulus discrimination in operant conditioning without additional explanation. The response uses at least one of the research findings to support or refute the idea that dogs' expression of person-oriented behaviors demonstrates stimulus discrimination in operant conditioning. However, the interpretation of the results of the study includes some inaccuracies. 	Responses that earn 2 points: <ul style="list-style-type: none"> The response accurately interprets at least one of the research findings to explain the idea that dogs' expression of person-oriented behaviors demonstrates stimulus discrimination in operant conditioning.
	Examples that earn 0 points: <ul style="list-style-type: none"> <i>"The study shows that stimulus discrimination happens in the study."</i> <i>"The dogs are demonstrating stimulus discrimination in how they respond to the people in the study."</i> 	Examples that earn 1 point: <ul style="list-style-type: none"> <i>"The study showed that dogs can tell the difference between the emotions their owners show."</i> [No evidence from the study.] <i>"The study shows that the dogs' responses to crying were significantly more than when the people were laughing or talking."</i> [No explanation.] <i>"The study shows the dogs responded to crying more than laughing or talking only to their owners, showing that they discriminate which type of emotion to respond to."</i> [Inaccurate interpretation of results.] <i>"This study showed that they did not discriminate between the owners and the strangers."</i> [No evidence from the study.] 	Examples that earn 2 points: <ul style="list-style-type: none"> <i>"The study shows that the dogs showed person-oriented behaviors more toward people who were crying than people who were laughing or talking, which supports the idea that dogs have learned to discriminate."</i> <i>"The dogs responded more to crying than laughing, so they discriminated between the emotions."</i> <i>"The study showed the dogs offered more person-oriented behaviors to the crying person than the laughing person, which means they had stimulus discrimination about the emotions that were being expressed."</i> <i>"The research findings refute the main hypothesis, as the hypothesis was that a dog's reaction would differ based on how well they knew the person, and while they did slightly differ, they stayed relatively the same throughout each test."</i>

			<ul style="list-style-type: none">• <i>“The difference between 75% and 73% is not a lot, which refutes that the dogs demonstrate stimulus discrimination, as they did not respond differently to who was crying, the owner or the stranger.”</i>
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Part A: Research Method

The research method used in this study is experimental.

Part B: Research Variable

The operational definition of person-oriented dog behaviours is whether or not the dog looked at a person, made contact with a person, approaching a person, or vocalizing at a person.

Part C: Statistic Interpretation

Due to the fact that the mean of the person-oriented behaviours for the laughing trials is bigger than the mean of the person-oriented behaviours for the talking trials, this indicates that on average, the dogs exhibited person-oriented behaviours towards the person who was laughing more than the person who was talking.

Part D: Ethical Guidelines

The researchers obtained informed consent from the owners.

Part E: Generalizability

This study is not generalizable to all dog breeds as the majority of the dogs' breeds were either a Lab mix (3) or a corgi/corgi mix (3).

Part F: Argumentation

The results showed that the crying trial elicited significantly more person-oriented behaviours than the laughing and talking trials. This means that compared to the other two trials which had different emotions/actions shown, the crying trial showed the highest amount of person-oriented behaviours exhibited by the dogs. Therefore, the dogs noticed the difference between the actions and knew which one they needed help or comfort in. This supports the idea that dogs' expressions of the person-oriented behaviours demonstrate stimulus discrimination.

Part A: Research Method

The research method used in this study is correlational.

Part B: Research Variable

The operational definition of person-oriented dog behaviors is the dog demonstrating looking at a person, making contact with a person, approaching a person, and vocalizing at a person.

Part C: Statistic Interpretation

The mean of the person-oriented behaviors indicates a significantly larger difference (mean of 3.0) with crying than laughing (mean of est. 1.4). This concludes that the dog expressed more person-oriented behaviors when witnessing crying versus laughing.

Part D: Ethical Guidelines

An ethical guideline applied by the researchers is the obtaining of informed consent through a signed consent form from the participants.

Part E: Generalizability

The research findings may not be generalizable because the population size of participants is small, at only 16 dog/human pairs. Additionally, there were multiple of the same dog breed which might have influenced results from specific breeds and their traits. If the researchers had more participants and a larger variety of dog breeds, the findings would be more generalizable.

Part F: Argumentation

The research findings support the idea that dogs' expressions of person-oriented behaviors demonstrate stimulus discrimination in operant conditioning because there is a large difference in stimulus type (crying versus laughing). Taken from the research, there was a significant difference in the means of person-oriented behaviors from a dog between the crying and laughing of a human. Crying had a mean of 3.0 and laughing had a mean of 1.4 (est.). This means that the dogs were able to discriminate between two distinctive emotions and decide which needed more attention, therefore being able to demonstrate stimulus discrimination based off the behavior of the humans.

Part A: Research Method

The research method that is used in this dog research is experiment.

Part B: Research Variable

Person-oriented is when a dog reacts a certain way based on what the person might be feeling or doing. (Emotions)

Part C: Statistic Interpretation

The mean of the person - oriented behaviors differs between laughing and talking trials. The volume of your laugh might scare dogs and have them react a certain way. The volume of your voice won't really attract dog's attention unless you are calling them. (Talking)

Part D: Ethical Guidelines

One ethical guideline applied by the researcher is asking and receiving consent. Consent is an important component that one may receive, without consent, the research will be unethical.

Part E: Generalizability

The research findings may be generalizable due to the emotional difference. Dogs know that crying isn't a good thing and they are likely to comfort their owners during this time. For example, on the Mean of person-oriented behavior chart, the highest one was crying with almost a 3.0. In other words, based on the chart I know the highest is crying because that just automatically tells a dog that their owner might be lonely. Dogs also experience crying and they know that it's not a feeling of joy and happiness.

Part F: Argumentation

The research findings refute the idea of discrimination because all the dog is trying to do is comfort. The dog isn't discriminating nor judging, they are just trying to help the person.

Question 1

Note: Student samples are quoted verbatim and may contain spelling and grammatical errors.

Overview

NEW for 2025: The question overviews can be found in the *Chief Reader Report on Student Responses on AP Central*.

Sample: 1A

AAQ A Research Method Score: 1

AAQ B Research Variable Score: 1

AAQ C Statistic Interpretation Score: 1

AAQ D Ethical Guidelines Score: 1

AAQ E Generalizability Score: 1

AAQ F Argumentation Score: 2

Total Score: 7

Part A: Research Method (0–1 points): 1

The response earned the point because the research method is accurately identified as “experimental.”

Part B: Research Variable (0–1 points): 1

The response earned the point because a measurable or quantifiable definition of person-oriented behaviors is stated (“whether or not the dog looked at a person, made contact with a person”).

Part C: Statistic Interpretation (0–1 points): 1

The response earned the point because it accurately describes what the mean of the person-oriented behaviors indicates (“dogs exhibited person-oriented behaviours towards the person who was laughing more than the person who was talking”).

Part D: Ethical Guidelines (0–1 points): 1

The response earned the point because the ethical guideline applied by researchers is accurately identified as “informed consent.”

Part E: Generalizability (0–1 points): 1

The response earned the point because the claim concerning the lack of generalizability of the study references a population relevant to the study’s participants (“not generalizable to all dog breeds as the majority of the dogs’ breeds were either a Lab mix (3) or a corgi/corgi mix (3).”).

Part F: Argumentation (0–2 points): 2

The response earned the first point because one specific finding from the study is provided—(“crying trial elicited significantly more person-oriented behaviours”). The response earned the second point because it accurately explains how the finding “demonstrates stimulus discrimination” in operant conditioning (“the dogs noticed the difference between the actions”).

Question 1 (continued)**Sample: 1B****AAQ A Research Method Score: 0****AAQ B Research Variable Score: 1****AAQ C Statistic Interpretation Score: 0****AAQ D Ethical Guidelines Score: 1****AAQ E Generalizability Score: 1****AAQ F Argumentation Score: 2****Total Score: 5****Part A: Research Method (0–1 points): 0**

The response did not earn the point because the research method is inaccurately identified as a “correlation” instead of an experiment.

Part B: Research Variable (0–1 points): 1

The response earned the point because a measurable or quantifiable definition of person-oriented behaviors is stated (“looking at a person, making contact with a person”).

Part C: Statistic Interpretation (0–1 points): 0

The response did not earn the point because it does not accurately describe what the mean of the person-oriented behaviors indicates for the laughing compared to the talking trials in relation to the study (“witnessing crying versus laughing”).

Part D: Ethical Guidelines (0–1 points): 1

The response earned the point because the ethical guideline applied by researchers is accurately identified as “informed consent.”

Part E: Generalizability (0–1 points): 1

The response earned the point because the claim concerning the lack of generalizability of the study references specific and relevant evidence derived from the study’s participants (“there were multiple of the same dog breed which might have influenced results”). The reference to sample size is not considered contradictory information in this response. A study can have a large sample but not a representative sample. The representativeness of the sample, not the sample size, helps determine the generalizability of the results.

Part F: Argumentation (0–2 points): 2

The response earned the first point because one specific research finding is provided (“significant difference in the means of person-oriented behaviors from a dog between the crying and laughing”). The response earns the second point by accurately explaining how the evidence supports stimulus discrimination in operant conditioning (“discriminate between two distinctive emotions”).

Question 1 (continued)**Sample: 1C****AAQ A Research Method Score: 1****AAQ B Research Variable Score: 0****AAQ C Statistic Interpretation Score: 0****AAQ D Ethical Guidelines Score: 1****AAQ E Generalizability Score: 0****AAQ F Argumentation Score: 0****Total Score: 2****Part A: Research Method (0–1 points): 1**

The response earned the point because the research method is accurately identified as an “experiment.”

Part B: Research Variable (0–1 points): 0

The response did not earn the point because the definition of person-oriented behaviors is not measurable or quantifiable (“when a dog reacts a certain way”).

Part C: Statistic Interpretation (0–1 points): 0

The response did not earn the point because it does not accurately describe what the mean for the person-oriented behaviors indicates for laughing compared to talking trials (“The volume of your laugh might scare dogs”).

Part D: Ethical Guidelines (0–1 points): 1

The response earned the point because the ethical guideline applied by researchers is accurately identified as “receiving consent.”

Part E: Generalizability (0–1 points): 0

The response did not earn the point because the claim uses evidence that is not specific and relevant to the population or the participant variables of the study (“may be generalizable due to the emotional difference”).

Part F: Argumentation (0–2 points): 0

The response did not earn the first point because it does not use a specific result from the study to explain how the findings support or refute the idea that dogs’ expressions of the person-oriented behaviors demonstrate stimulus discrimination in operant conditioning. The response did not earn the second point because it does not describe stimulus discrimination appropriately in relation to the study (“The dog isn’t discriminating nor judging, they are just trying to help the person”).