

Question 2: Research Design**7 points****General Considerations**

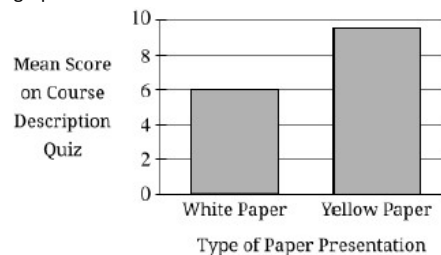
1. Answers must be cogent enough for the meaning to come through. Spelling and grammatical mistakes do not reduce a score, but spelling must be close enough so that the reader is convinced of the word.
2. A response can earn points only if the student clearly conveys what part of the question is being answered. It is possible to infer the part of the question being answered if it is consistent with the order of the question.
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 point, a response will not be penalized for incorrect information unless it *directly contradicts* correct information that would have otherwise earned a point. For example, if a response applies a concept in two contradictory ways (such as identifying both the independent and dependent variables as the independent variable or describing proactive interference as interference from both older and newer information), the point is not earned.

NOTE: In certain cases, a response will not score if it includes a correct answer amongst multiple incorrect answers related to the same general concept/theory (e.g., a response that describes the Big Five trait of conscientiousness as being diligent, trusting, highly emotional, outgoing, and intellectually curious).

6. Within a bulleted question part, if the response addresses details from a scenario other than the one in the prompt, the point is not earned.

Part A Professor Gonzalez hypothesizes that students will remember more information from his detailed course description if it is printed on yellow paper than if it is printed on standard white paper. To test this hypothesis, he put the names of all his students into a bowl, then drew out names to assign them to two different groups. He gave one group of the students in his class a course description printed on white paper and gave the other group of students a course description printed on yellow paper. Students were instructed to thoroughly read the description outside of class in preparation for their next class. In the next class, he gave all students a ten-question quiz asking them about the information found on the course description. Professor Gonzalez then compared the number of correct answers for each group of students. The statistically significant results are depicted in the graph.

**State the operational definition of the dependent variable.****1 point**

Response must indicate that the dependent variable is operationally defined as the student's score on the course description quiz.

Acceptable explanations include:

- *The dependent variable is operationally defined as the score on the course description quiz.*
- *The dependent variable is the quiz score/grade on the quiz.*
- *The number of correct answers on the quiz is the dependent variable.*

Unacceptable explanations include:

- *The dependent variable is the type of paper used.*
- *The student's result on the quiz, and that's the dependent variable.*
- *The mean score on the quiz.*

Identify the experimental group.**1 point**

Response must indicate that the experimental group is the group with the course description printed on yellow paper.

Acceptable explanations include:

- *The experimental group is the people who have the yellow paper.*

Unacceptable explanations include:

Responses that state the yellow paper without indicating the people/group.

- *The experimental group is the yellow paper.*

Responses that state a control group instead of an experimental group.

- *Example: The control group is the group with the yellow paper.*

References to taking the quiz on yellow paper do not score.

In addition to the manipulation of an independent variable, identify the procedure Professor Gonzalez used to make this study a true experiment.
1 point

Response must indicate that the procedure used to make this a true experiment is random assignment.

Acceptable explanations include:

- *Professor Gonzalez randomly assigned the participants to groups.*
- *Professor Gonzalez put people in groups randomly.*
- *Professor Gonzalez puts the names of all students into a bowl and pulls them out of a bowl.*

Unacceptable explanations include:

Responses that refer to random selection/sampling.

- *Professor Gonzalez used random selection to make this a true experiment.*

Explain how the data as presented in the graph do or do not support Professor Gonzalez's hypothesis. **1 point**

Response must indicate that data support the hypothesis because the experimental group (i.e., the yellow paper group) scored higher on the test.

Acceptable explanations include:

- *Professor Gonzalez thought that the experimental group would score higher, and they did, so the data support the hypothesis.*
- *The bar for the yellow paper group is higher than the bar for the white paper group, which supports the hypothesis.*
- *The control group/white paper group scored lower than the experimental group/yellow paper group, which is what Professor Gonzalez expected.*

Unacceptable explanations include:

Responses that do not provide an explanation for data supporting the hypothesis.

- *The data do not support the hypothesis.*
- *The data **support the hypothesis** (needs to make clear what the hypothesis was).*

Part B Explain how each of the following might relate to a student's performance on any quiz.

Context-dependent memory

1 point

Response must indicate that the student's memory retrieval is affected if some external element (e.g., room, sensory cues, equipment) that is present when the information was learned/encoded is present/the same or absent/not the same as when they take a quiz.

Acceptable explanations include:

- *If students learn the information in a particular classroom, they should take a quiz in that same classroom so they can use the surroundings to cue them for their memories.*
- *If a student chews gum while studying, they should chew gum while taking a quiz.*
- *If students sit in different seats taking the quiz than when they learned that information, they will do worse on the quiz.*

Unacceptable explanations include:

- *Students must consider context in order to remember things well enough for their quiz.*

Responses that refer only to mood-dependent or state-dependent memory.

- *If a student is happy while learning the information, they will do better if they are happy when they take the quiz.*

Yerkes-Dodson law

1 point

Response must indicate that students would perform best under a level of optimal arousal.

OR

Response must indicate that students would perform worse if they were under- or over-aroused.

Synonyms for "under-aroused" can include a reference to the amount (e.g., too little, under, insufficient).

Synonyms for "over-aroused" can include a reference to the amount (e.g., too much, overly, super).

Acceptable explanations include:

- *Students might be too aroused on the quiz, so they don't do well.*
- *Students may be at their optimal arousal, so they end up doing well on the quiz.*
- *Students are extremely disinterested/very bored in the class, so they don't do well on a quiz.*
- *Students who have a high level of arousal perform poorly on the quiz.*

Unacceptable explanations include:

Responses that refer to arousal without quantity (i.e., too much, too little).

- *Students may be relaxed, so they do well on the quiz.*
- *Students who are excited do poorly on the quiz.*

Low level of the Big Five trait of conscientiousness

1 point

Response must indicate that a low level of an enduring characteristic of conscientiousness would hinder student performance on the quiz (e.g., not being diligent, being less hardworking, being unorganized, being undisciplined, being irresponsible, being unprepared, etc.).

Acceptable explanations include:

- *Students who aren't hardworking may be hindered from doing well on the quiz.*

Unacceptable explanations include:

- *Students who are diligent do better on the quiz.*
- *Students who did not study hard did poorly on the quiz.*

Total for question 2 7 points

Question 1: Concept Application**7 points****General Considerations**

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- Within a bulleted question part, if the response addresses details from a scenario other than the one in the prompt, the point is not earned.

Part A Claire's sports team made it to the championship basketball game. To play the game, the teammates will need to work together to move a ball toward their own goal. They must then aim carefully to throw the ball into a hoop that is elevated about 10 feet off the ground. The winner is the team that gets the ball into the hoop the most times.

Explain how each of the following might help Claire be successful during the game.

Retinal disparity**1 point**

Response must indicate that the difference in visual signals from each of Claire's eyes allows her to see depth, which helps her be successful during the game.

Acceptable explanations include:

- Claire can see depth because she sees two slightly different images out of each eye, making her able to throw the ball accurately.

Unacceptable explanations include:

Any reference to monocular cues or convergence

- Claire uses linear perspective to tell how far away the goal is.

Any reference to depth perception without references to two retinal images

- This will help Claire with her depth perception to make more accurate free throws.

Intrinsic motivation**1 point**

Response must indicate that Claire has some specific kind of internal motivation instead of external motivation that helps her to be successful during the basketball game.

Acceptable explanations include:

- Claire is motivated by doing her best, so she does well in the game because of her good work ethic.
- Claire is motivated by her personal goal to be the best player in the game.

Unacceptable explanations include:

The response is about extrinsic motivation.

- Claire wants to win the approval of her parents, so she tries hard to be successful in the game.

Social facilitation**1 point**

Response must indicate that Claire's success in the game is helped by the physical presence of others.

Acceptable explanations include:

- Claire is really energized by the presence of the crowd at the game, so she does better than she typically does at practice.
- Claire is really energized by the presence of the crowd at the game, so she plays better than she has in the past when she practiced alone.

Unacceptable explanations include:

Responses that refer to cooperation or collaboration.

- Claire's teammates help each other to perform well.

Responses that refer to social inhibition.

- Claire does poorly because people are watching her.

Kinesthetic sense**1 point**

Response must indicate that Claire's sensation of the movement of her body and/or the position of her body part(s) is related to her success in the game.

Acceptable explanations include:

- Claire's ability to know where her hands are in relation to other parts of her body will help her be successful when she dribbles or shoots.
- Claire's awareness of how her hand moves as she dribbles and shoots helps her score points in the game.

Unacceptable explanations include:

Responses that refer only to the ability to move one's body or that refer to the vestibular sense or a sense of balance.

- Claire has a great sense of balance, so she does well in the game.
- Claire's kinesthetic sense allows her to control her muscles, which will help her successfully shoot the ball.

Part B Claire's team won the championship game. Ten years later, the team got together for a reunion at the gym where the game was originally held. At the reunion they discussed the championship game.

Explain how each of the following might influence Claire's recollection of the game.

Context-dependent memory

1 point

Response must indicate that Claire remembers more about the game because she is in the same physical location where she encoded the memory.

Acceptable explanations include:

- *Claire remembered a lot of information about the game because she was in the same gym where she made the memories.*

Unacceptable explanations include:

- *Claire remembers the context of where she played, which helped her remember.*
- *Listening to her teammates recall the game helps Claire remember more details about the game.*

Responses that refer only to mood-congruent or state-dependent memory.

- *Claire's joy from seeing her friends reminds her of the joy of winning the game.*

Self-serving bias

1 point

Response must indicate that Claire takes credit for events with positive outcomes and/or blames others for negative events in her recollection of the game.

Acceptable explanations include:

- *As Claire remembers the game, she takes credit for the team winning.*
- *As Claire remembers the game, she blames the referees for her fouling out of the game.*

Unacceptable explanations include:

- *Claire only does things that help herself and not others.*

Retroactive interference

1 point

Response must indicate that a recent memory is preventing Claire from remembering something about the championship game.

Acceptable explanations include:

- *Claire couldn't remember what number she had in the championship game because she was confusing it with her college number.*
- *Claire couldn't recall the exact final score in the Championship game because she confused it with all the scores of games she had played since then.*

Unacceptable explanations include:

- *Claire can't remember her current team members' names because she can only remember the old team members' names.*
- *Claire interferes with how people remember retroactively, meaning she gets involved after the fact.*

Total for question 1 7 points

Question 1: Concept Application

7 points

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Part A Steve is in the kitchen happily making breakfast for his four children, who are all playing together in the living room. After hearing a loud crash, Steve becomes quite upset and rushes into the living room, where he sees a lamp shattered on the floor. The children are watching television, and no one is trying to clean up the lamp.

Explain how each of the following relates to the scenario.

Soundwave amplitude**1 point**

Response must indicate that relevant to the scenario, a loud sound is associated with high soundwaves, or a soft sound is associated with low soundwaves.

Acceptable explanations include:

- *The height of the soundwaves that were created when the lamp crashed must have been very high because Steve referred to it as loud.*
- *The sound of the lamp crashing was so loud because it had a high amplitude.*
- *Steve did not hear the timer chime because it has low soundwaves, and he almost burned the eggs.*

Unacceptable explanations include:

- *The crash of the lamp had a high pitch.*

Procedural memory**1 point**

Response must indicate that Steve and/or the children remember how to physically do something in the scenario (e.g., making breakfast) without paying conscious attention (e.g., automatically, unconsciously, muscle memory, nondeclarative, well-practiced/learned) to doing so.

Acceptable explanations include:

- *The children have set the breakfast table so much that they do it automatically.*

Unacceptable explanations include:

- *Steve remembered that the breakfast was cooking, so he had to go in and keep it from burning.*
- *The kids know they are supposed to take out the plates and then open the cupboard to find juice glasses.*
- *Steve remembers where the couch is located in the living room so that he does not trip on it as he walks toward the broken lamp.*

Diffusion of responsibility**1 point**

Response must indicate that the children do not attempt to clean up the broken lamp because they assume others are likely to do it.

Acceptable explanations include:

- *The children are not cleaning up the lamp because they think someone else will do it.*
- *The younger children assume the older children will clean up the lamp.*

Unacceptable explanations include:

- *The children don't clean up the lamp because they are not responsible for their actions.*
- *The children are watching TV, so they don't clean up the lamp.*
- *The children want to wait until their show is over before they clean up the lamp.*
- *The dad thinks that all the children are responsible for cleaning up the lamp.*

Dispositional attribution**1 point**

Response must indicate that Steve and/or the children overestimated the internal factors influencing their own or someone else's behavior in the scenario.

Acceptable explanations include:

- *Steve decided that his children were clumsy and irresponsible.*
- *Steve concludes that he is a mean person for disciplining his children.*

Unacceptable explanations include:

- *Steve thought his children were probably just distracted by the TV when the lamp broke.*

Ghrelin**1 point**

Response must indicate that for someone in the scenario, ghrelin levels are high when they are hungry or low when they are not hungry.

Acceptable explanations include:

- *While the children waited for breakfast, ghrelin caused feelings of hunger.*
- *Steve was able to lower his ghrelin levels because he ate all the breakfast.*

Unacceptable explanations include:

- *The children's ghrelin levels were lower because they were hungry.*

Part B Instead of asking the children what happened, Steve immediately turns off the television and sends them all outside to rake the large amount of leaves in the backyard. Steve stays irritable for the rest of the day.

Explain how each of the following relates to the scenario.

Authoritarian parenting style

1 point

Response must indicate that Steve is demonstrating a parenting style that includes high control, no discussion of expectations or consequences (one-way communication), or that focuses on obedience and discipline.

Acceptable explanations include:

- *Steve's parenting style most closely fits authoritarian because he was quick to punish them for the mistake they made (breaking the lamp) by making them stop playing to rake leaves.*
- *Steve was more interested in them following rules than understanding what happened.*

Unacceptable explanations include:

- *Steve explained to the children why he punished them.*

Steve's high level of the Big Five trait of neuroticism

1 point

Response must indicate that an enduring characteristic of neuroticism (e.g., depression, negative feelings, anxiety) explains Steve's behavior in the scenario.

Acceptable explanations include:

- *Steve remains irritable all day and doesn't seem to recover from this minor event, indicating a lack of stability and high level of neuroticism.*
- *Steve experiences an extreme, negative emotional change throughout the scenario, showing that he is high in neuroticism.*
- *Steve gets overly upset at the sound of the lamp breaking.*

Unacceptable explanations include:

- *There is evidence that Steve is high in neuroticism because he stays irritable the rest of the day.*
- *Steve is neurotic about his kids and their safety.*
- *Steve is unhappy that the lamp broke.*

Total for question 1 7 points