AP®

# AP® Psychology
## Sample Student Responses and Scoring Commentary
## Set 2

**Inside:**

**Free-Response Question 2**

☑ **Scoring Guidelines**

☑ **Student Samples**

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## 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 <u>not</u> score if it includes a correct answer among 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.

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**Part A**  Mobile Gamer Central (MGC) is preparing to launch a new game app. The advertisements for this new game are brightly colored, have lively music, and feature celebrities playing the game. To generate interest in the game, MGC pays to have these advertisements pop up multiple times while people are using other apps on their phone. The marketing director is pleased with the advertising campaign and thinks the game is really fun to play.

Explain how each of the following concepts relates to the scenario.

**Peripheral route to persuasion**                                                    **1 point**

Response must indicate that the advertisements utilize factors other than the quality of the game (e.g., bright colors, lively music, or celebrities shown in the ads) to persuade consumers.

**OR**

Response must indicate that the person exposed to the advertisement is persuaded by factors other than quality of the game (e.g., bright colors, lively music, or celebrities shown in the ads).

**Acceptable explanations include:**

- *The people liked the game because of who the celebrities were who were playing it in the ads.*

- *Because they included lots of bright colors and music in their commercials, it is clear that MGC wanted to employ the peripheral route to persuasion in their advertising.*

- *MGC tried to get people to buy the game for reasons other than that the game is well-designed.*

**Unacceptable explanations include:**

- *The customers like the game because it is easy to play.*

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**False consensus effect**                                                            **1 point**

Response must indicate that, because an individual related to the scenario really likes the game/advertising, they overestimate the extent to which other people will like the game/advertising.

**Acceptable explanations include:**

- *The marketing director thinks everybody will like the game as much as he does.*

- *The marketing director thinks more people will buy the game than actually do because he enjoys it so much.*

- *A consumer really likes the pop-up ads and believes that most other people will like them as well.*

**Unacceptable explanations include:**

- *The marketing director's opinion is so strong that the other people on the team keep their opinions to themselves.*

- *People see advertisements with celebrities enjoying the game and assume everyone enjoys the game.*

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**Mere-exposure effect**                                                                      **1 point**

Response must indicate that repeated exposure(s) to the game/advertisement will increase the liking/enjoyment of the game/advertisement.

**Acceptable explanations include:**

- *The more often people see the ads pop up on their phone, the more they will like the game.*

- *People liked the advertisement the second time they saw it more than the first time.*

- *The more times people play the game, the more likely they are to buy it.*

**Unacceptable explanations include:**

- *By playing the game, the people enjoy it and want to download it.*

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**Part B** After a few weeks with moderate success, MGC's marketing director decides to test the most effective ways to increase sales of the game. Marketing researchers recruit 100 people to play the new game. They randomly assign half of the people to observe someone demonstrating how the game is played and assign the other half of the people to play the video game themselves. Participants rate how likely they are to buy the game on a scale of 1 (not likely) through 10 (very likely). Results are presented in the table.

| Participants' Rating | Observed Game Demonstration ($n = 50$) | Personally Played Game ($n = 50$) | $p$ value |
|---|---|---|---|
| Mean | 6.31 | 2.04 | <0.001 |
| Standard Deviation | 1.25 | 0.80 | |

**Identify the operational definition of the dependent variable in the study.**          **1 point**

Response must indicate that the operational definition of the dependent variable is the rating/score/number on the scale used in the study.

**Acceptable explanations include:**

- *The rating of the game on a scale of 1–10 is the dependent variable.*

- *The score of the survey indicating how likely the participant is to buy the game is the operational definition of the dependent variable.*

**Unacceptable explanations include:**

- *The operational definition of the dependent variable is which group the people were in.*

- *The operational definition of the DV is whether people will buy the game.*

- *The operational definition is how much people like the game.*

| **Explain what the difference between the standard deviations in the study indicates.** | **1 point** |

Response must indicate that the "personally played game" group ratings are more similar/less varied.

**OR**

Response must indicate that the "observed game demonstration" group ratings differ more/varied more.

**Acceptable explanations include:**

- *The personally played game group had responses that were more alike because their standard deviation is closer to zero.*

- *The ratings in the group who observed the game were more spread out than the group who played the game.*

**Unacceptable explanations include:**

- *The observed game group had higher scores than the personally played game group.*

| **Explain why random assignment is necessary for determining cause and effect in the study.** | **1 point** |

Responses must indicate that random assignment is necessary because it would help eliminate or reduce the impact of confounding variables related to individual differences.

**Acceptable explanations include:**

- *The researchers used random assignment to make sure individual differences are controlled for.*

- *The researchers used random assignment to make sure differences between participants are more likely to be spread out evenly between the two groups.*

- *The researchers used random assignment to make sure gender wasn't the reason why people wanted to buy the app.*

**Unacceptable explanations include:**

- *They must get a random group of people to participate in order to establish cause and effect.*

- *Random assignment is necessary for it to be an experiment.*

- *Random assignment will allow the MGC researchers to eliminate bias and confounding variables.*

**Explain what the *p* value allows MGC to conclude about the study.**    **1 point**

Response must indicate that the *p* value allows MGC to conclude that the IV (observing vs. playing the game) caused a change in the DV (ratings).

**OR**

Response must indicate that the *p* value allows MGC to conclude that the results of the study or difference between the groups' ratings were significant.

**OR**

Response must indicate that the *p* value allows MGC to conclude that the difference between the groups' ratings was not (or not likely) due to chance.

**Acceptable explanations include:**

- *The p value allows them to conclude that the people who observed the game demo were significantly more likely to say they would buy the app.*

- *The p value says that the groups' ratings were different enough to be statistically significant.*

- *The p value says that the difference in the group's ratings about the game is not likely due to chance.*

- *The p value allows MGC researchers to reject the null hypothesis.*

**Unacceptable explanations include:**

- *The p value shows that the results are accurate.*

- *The p value shows that the people who played the game found the experience to be significant.*

**Total for question 2    7 points**

Begin your response to each question at the top of a new page. Do not skip lines.

While the central route focuses on convincing an audience with use of the ideas and facts, ~~peripheral route of persuasion~~ to win audience's favor by getting them to associate the product or idea with posotive things. Eg. companies pick attractive ~~salesps~~ spokespeople to appeal to audience visual sense. In this case, the Ads use of celebrities bright colors, & music will create posotive associations with the game.

The false consensus effect is when you believe many people agree with your opinion although that isn't the case. Eg. thinking 90% of people are libertarian because you are. The marketing manager believes the campaign will be successful since he loves the game, so he assumes others will.

~~Mere~~-exposure effect states we naturally like things we see again and again. Seeing ads many times creates interest & favorable views simply because it is familiar.

The <u>operational definition</u> is the clear & complete description of a unit of measurement in an experiment. This allows the expirement to be accurately replicated. In this case it is the self-reported rating, on a scale of 1-10, how likely the participant is to purchase the game. (1 ~~likely~~ not likely 10 very likely) <u>Standard deviation</u>* is how greately responses differ from the mean score. ~~An~~ The people who personally

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0233420

Q5347/04

**Important:** Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1    Question 2
○                ◉

Begin your response to each question at the top of a new page. Do not skip lines.

Played scores vary less than those who watched. Therefore test testing with participants playing creates more ~~accurate~~ ~~results~~ consistent results.

Random assigment ensures both types of measuring have equally enthusiastic participants and ensure results are unbiased. Random assigment means niether participants nor experiments get to pick groups and it usually assigned alphabetically or in another neutral manner. ~~One~~ For example, they should not have put participants with video game shirts in one group ~~Random~~ This ensures the reports are ~~caused~~ by the method of advertisement, not the participants predisposition

P value determines ~~sig~~ statistical signitigane. Given the P value is so close to 0 , the study ~~call~~ (at least the mean portion) has good stastical signitiganie and the MGC can conclude the results are accurate and the observers are more likely to want to purchase than those who played.

*Standard deviation should be as close to 1 as possible, as this is the standard bell curve. Eg. in IQ test, 1 deviation below the mean means you scored higher than 16% of people

Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

0233420

Q5347/05

Begin your response to each question at the top of a new page. Do not skip lines.

2. Peripheral route to persuasion is an non-analytical and logical way to persuade, which requires less energy and easier. In this scenario, the ~~celebs~~ celebrities they invited playing the game is a peripheral route to persuasion since people may ~~choose~~ be persuaded to play this game simply because of this celebrities, Also, they make the advertisements pop up multiple times is also peripheral route which can enhance the audience's notice which lead them to play this game.

• False consensus effect is. even though you think something is incorrect, you may ~~see~~ confirm it only ~~a~~ because your other people agree with it. ~~If~~ People may choose to play MGC's game only because they saw other people play this.

• Mere-exposure effect. is when you exposed to something multiple times and get familir with it, you then to choose this thing rather than other unfamiler things. People see the ~~ad~~. advertisments of MGC multiple times on their phone and start getting ~~used~~ familier with it. Then people tend to choose play this game rather than similar games but they are not familler with.

• The dependant variable in this study is. how likely the participants are to buy the game.

• The ~~std~~ standard deviation of the observed game ~~demonstrated~~ ion group is higher which means each rating is deviated from the mean more in observed game demonstration group. This number ~~s~~ indicates the difference between each individuals

Page 4

0023829

Q5347/04

**Important:** Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1        Question 2
○                    ●

Begin your response to each question at the top of a new page. Do not skip lines.

ratio.
• Random assignment is ~~was~~ necessary for determining cause and effect since it can attributes the control in each group and ~~make a~~ eliminate the cofounding variables. Therefore the study can get more accurate cause and effect from this experiment. good for repitition.
• P value in this study is less than 0.001 which is less than the α 0.05, then ~~we can~~ MGC can conclude the study that people who observed game demonstration are more likely to buy the game than the people who personally played the game. since the study is significant.

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Use a pen with black or dark blue ink only. Do NOT write your name. Do NOT write outside the box.

0023829

Q5347/05

Begin your response to each question at the top of a new page. Do not skip lines.

<u>Peripheral route to persuasion</u>: The peripheral route to persuasion is looking at every other option instead of one main one. The MGC uses this by describing irrelevant aspects aspects of the game, instead of the main one.

<u>False consensus effect</u>: The false consensus effect is creating an idea that isn't correct, but it is stated anyway. MGC shows this when they only give feedback on the aspects of the game, but not the actual content.

<u>Mere-exposure effect</u>: The mere-exposure effect is used to expose people with information that will lure them in even if the information is incorrect. The ad that MGC posted is being exposed to many, saying that it's fun, and will make them want to buy it.

<u>Operational definition</u>: The operational definition of the experiment would be how much people enjoyed the game, as the dependent variable. Operational definition provides a question or statement for the experiment to demonstrate.

<u>Standard deviation</u>: The standard deviation is the average amount of numbers away from the mean. The difference between the standard deviations shows that the observers had more variance in people who did and didn't enjoy it versus the players who mainly didn't like playing.

<u>Random assignment</u>: Random assignment is randomly assigning a population into different samples. This is necessary for the experiment because to determine cause and effect, the groups cannot be biased in one answer, so the randomness avoids that.

<u>p value</u>: The p value represents that the means were both greater than 0.001, and could not go below that. This is because a boundary line was created there, and the ratings or means won't go past it.

## Question 2

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

**Overview**

Responses were expected to demonstrate an understanding of the social psychological concepts of attitude change from the elaboration likelihood model (peripheral route to persuasion), false consensus effect, and mere-exposure effect.

Responses to this question were expected to demonstrate an ability to analyze an experimental design and interpret basic statistical results, specifically standard deviations. Responses were also expected to demonstrate an understanding of statistical significance. In addition, responses were expected to demonstrate a student's conceptual understanding of operational definitions in the context of an experimental research design.

**Sample: 2A**
**Score: 7**

The peripheral route to persuasion point was earned because the response indicates that factors other than the quality of the game are used in the ad: "The Ads use of celebrities, bright colors, & music will create posotive assocriations with the game." The false consensus effect point was earned because the response indicates that an individual likes the game and overestimates the extent to which others like the game: "The marketing manager believes the campaign will be successful since he loves the game, so he assumes others will." The mere-exposure effect point was earned because the response indicates that repeated exposure to ads leads to increased liking: "Seeing ads many times creates interest & favorable views simply because it is familiar." The operational definition of the dependent variable point was earned because the response states that the operational definition is "the self-reported rating, on a scale of 1–10, how likely the participant is to purchase the game." The standard deviation point was earned because the response states, "The people who personally played scores vary less than those who watched." The random assignment point was earned because the response indicates that random assignment reduces the impact of confounding variables related to individual differences. Random assignment "ensures both types of measuring have equally enthusiastic particpants." The *p*-value point was earned because the response states that "the P value is so close to 0, the study (at least the mean portion) has good stastical signifigance."

**Sample: 2B**
**Score: 4**

The peripheral route to persuasion point was earned because the response states that "the celebrities they invited playing the game is a peripheral route to persuasion since people may be persuaded to play this game simply because of this celebrities." The false consensus effect point was not earned because the response does not indicate that, because an individual likes the game/advertising, they overestimate the extent to which other people will like the game/advertising. The mere-exposure effect point was earned because the response states, "People see the advertments of MGC multiple times on their phone" leading them "to choose play this game," indicating increased liking/enjoyment.

# Question 2 (continued)

The operational definition of the dependent variable point was not earned because, while the response correctly identifies the dependent variable as "how likely the participants are to buy the game," the response does not indicate that the dependent variable is measured with a rating/score/number on the scale. The standard deviation point was earned because the response states that "each rating is deviated from the mean more in observed game demonstration group." The random assignment point was not earned; although the response indicates that random assignment eliminates "confounding variables," the response does not indicate that the confounding variables are related to individual differences. The $p$-value point was earned because the response concludes that the independent variable caused a change in the dependent variable and that the differences were significant. "MGC can conclude the study that people who observed game demonstration are more likely to buy the game than the people who personally played the game. Since the study is significant."

**Sample: 2C**
**Score: 1**

The peripheral route to persuasion point was not earned because "describing irrelevant aspects of the game, instead of the main one" does not indicate a factor other than the quality of the game used to persuade the consumer such as color, music, or celebrities. The false consensus effect point was not earned because the response does not indicate that an individual likes the game/advertising and overestimates the extent to which others will like the game/advertising. The mere-exposure effect point was not earned because the response states that the ad is "exposed to many," which does not indicate repeated exposure to the game/advertisement leading to increased liking/enjoyment. The operational definition of the dependent variable point was not earned because, while the response correctly identifies the dependent variable as "how much people enjoy the game," the response does not indicate that the dependent variable is measured with a rating/score/number on the scale. The standard deviation point was earned because the response correctly states that the difference between the standard deviations "shows that the observers had more variance in people who did and didn't enjoy it versus the players who mainly didn't like playing." The random assignment point was not earned. The response indicates that "groups cannot be biased in one answer"; however, the response does not indicate that random assignment eliminates bias that results from confounding variables related to individual differences. The $p$-value point was not earned because the response does not indicate that the $p$ value allows MGC to conclude that the difference between the ratings is significant or not likely due to chance.