

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

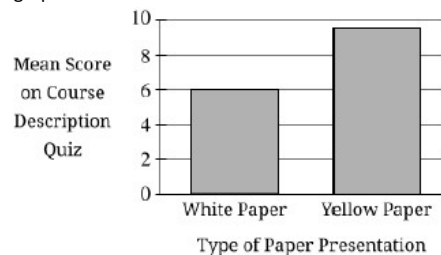
1. Answers must be cogent enough for the meaning to come through. Spelling and grammatical mistakes do not reduce a score, but spelling must be close enough so that the reader is convinced of the word.
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3. The response must apply the concept to the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

- 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.
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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 2: Research Design

7 points

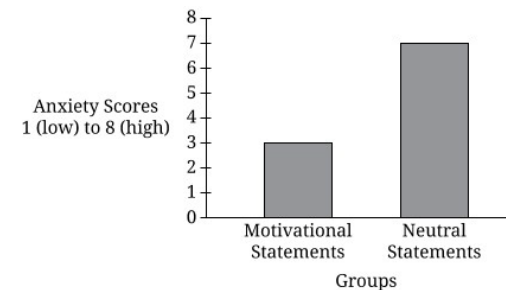
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Part A Dr. Dawson is a psychologist who believes that students who read motivational statements before a test will experience lower levels of anxiety as compared with students who read neutral statements. To examine this belief, he conducted a study. In the study, he randomly assigned half of the participants to read motivational statements and the other half to read neutral statements. Immediately after reading the statements, all of the students completed a survey about their current level of anxiety (1 = low; 8 = high) and then took the test. Dr. Dawson found statistically significant results that are depicted in the graph.



State a valid operational definition of the dependent variable in this study.**1 point**

Response must indicate that anxiety is defined by their score on the scale/survey of their anxiety.

Acceptable explanations include:

- *The dependent variable can be operationally defined as the score on the anxiety scale.*
- *The dependent variable is the score on the scale/survey.*
- *The dependent variable is the anxiety score from 1 to 8 (or 1 to 10).*

Unacceptable explanations include:

Responses that do not mention the scale/survey.

- *The operational definition is the level of anxiety.*
- *The operational definition is the anxiety score.*

Identify the control group in this study.**1 point**

Response must indicate that the control group is the group that reads the neutral statements.

Acceptable explanations include:

- *The control group is the group that reads neutral statements.*
- *The control group is the group that does not read positive statements.*

Unacceptable explanations include:

Responses that indicate the experimental group.

- *The control group is the group that reads the positive statements.*
- *The control group is the group that does not read the neutral statements.*

Explain why the study would be considered an experiment.**1 point**

Response must indicate that the study is experimental because an independent variable is manipulated, and/or the participants were randomly assigned to the groups in the study.

Acceptable explanations include:

- *The study is experimental because the students are randomly assigned to two conditions.*
- *The study is an experiment because a variable was manipulated.*

Unacceptable explanations include:

The response indicates random selection/sampling.

- *The study is experimental because they were randomly chosen to participate.*
- *The study is experimental because it tests a hypothesis.*

Explain how the results of the study do or do not support Dr. Dawson's hypothesis.**1 point**

Response must indicate that Dr. Dawson's hypothesis is supported because either the motivational statement group had lower anxiety or the neutral statement group had higher anxiety.

Acceptable explanations include:

- *Dr. Dawson's hypothesis is supported because the motivational group had lower anxiety.*
- *Dr. Dawson's hypothesis is supported because the neutral statement group had higher anxiety.*

Unacceptable explanations include:

- *The results do not support Dr. Dawson's hypothesis.*
- *Dr. Dawson's hypothesis is supported because the motivational group had higher anxiety.*
- *Dr. Dawson's hypothesis is supported because the motivational group had low anxiety.*

Part B The test Dr. Dawson gave was a vocabulary test. Explain how the following terms might relate to the students who performed poorly on the test in this study.

External locus of control**1 point**

Response must indicate that students may perform poorly because they believe that factors outside of themselves (e.g., fate, luck, destiny, circumstances, other people) are responsible for their performance.

Acceptable explanations include:

- *Students who believe that fate determines their scores on the test won't perform as well.*
- *Students who believe that the unfairness of their teacher determines their score won't pass the test.*

Unacceptable explanations include:

Responses that do not include a cognitive component (e.g., perception, belief, thought) do not score.

- *Students did badly because the questions were too hard.*

Responses that refer to internal locus of control do not score.

- *Students believe they can control how they do on the test.*

Responses that refer to lack of control without mention of an outside factor do not score.

- *The students may think there is nothing they can do, so they perform worse on the test.*
- *The students did poorly on the quiz because they believed they lacked the ability to do well.*

Stage one of Selye's general adaptation syndrome**1 point**

Response must indicate that the students' sympathetic nervous system or some specific aspect of their sympathetic nervous system is activated which interferes with taking the test.

OR

Response indicates that the students' fight-or-flight mechanism is activated, which interferes with them taking the test.

NOTE: Students are not required to identify the name of the stage in order to earn the point.

Acceptable explanations include:

- *Students' fight or flight response might engage if they perceive the test as being a threat, so they might score lower than if they weren't stressed.*
- *Students' heart rates increased, and they performed poorly.*

Unacceptable explanations include:

Responses that do not indicate poor performance on the test do not score.

Responses that refer to being "alarmed," "stressed," or "aroused" but do not indicate a physiological element do not score.

- *The student was too alarmed or too aroused to perform well on the test.*
- *Students with anxiety might get sick because they've resisted stress so much.*

Crystallized intelligence**1 point**

Response must indicate that a lack of crystallized intelligence (e.g., accumulated knowledge, facts, general information, or vocabulary) could have hindered student performance on the test.

Acceptable explanations include:

- *Students who study the wrong vocabulary perform poorly.*
- *Students who do not have prior knowledge do poorly on the test.*

Unacceptable explanations include:

Responses that refer to general intelligence or fluid intelligence do not score.

- *Students may not be able to come up with abstract answers quickly, so they score low on the test.*

Responses that refer to memories unrelated to knowledge on the test do not score.

- *The memory of a past bad experience on a test makes them perform poorly on the vocabulary test.*

Total for question 2**7 points****Question 1: Concept Application****7 points****General Considerations**

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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 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

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7 points

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Michael is the regional manager for a car company and needs to give a presentation to the president of the company about how different management styles might relate to the total number of sales of the company's new electric car. He hires an industrial/organizational psychologist to study three stores, each in a different city. Each store's manager has their own distinct management style:

- In Store A, the manager has a supportive style (open and warm).
- In Store B, the manager has a strict style (rigid and severe).
- In Store C, the manager, who is Michael's good friend, has a distant style (permissive and disengaged).

The number of electric cars sold at each store over a five-month period is shown in the table.

Month	ELECTRIC CARS SOLD BY STORE		
	Store A (supportive style)	Store B (strict style)	Store C (distant style)
January	9	7	3
February	7	8	2
March	9	5	5
April	5	3	4

Explain why this study is not a true experiment.**1 point**

Response must indicate that this study is not an experiment because the researcher did NOT use random assignment.

OR

Response must indicate that the study did not include the manipulation of a variable.

Acceptable explanations include:

- *The study is not a true experiment because the psychologist did not randomly assign participants to his groups.*
- *The study used stores that already existed instead of manipulating an independent variable.*
- *The independent variable was not manipulated by the researcher in this study.*

Unacceptable explanations include:

- *Michael didn't use random selection, so his study is not an experiment.*

Identify the implied dependent variable for the study if the study had been a true experiment.**1 point**

Response must indicate that the number of cars sold would be the dependent variable.

Acceptable explanations include:

- *The DV would be the number of cars bought by customers.*
- *The DV is cars sold.*
- *The DV is sales.*

Unacceptable explanations include:

- *The DV would be the stores.*
- *The DV is cars.*
- *The DV is leadership style.*

Calculate the mean of Store B's sales.**1 point**

Response must indicate that the mean for Store B is 5.

Acceptable explanations include:

- *The mean is five.*

Unacceptable explanations include:

Responses that indicate any other number than 5 or other representation of the number five that is not English/Arabic numerals.

- *The mean is 12.*

Explain why the location of the store is a confounding variable in this study.**1 point**

Response must indicate that the location of the store is affecting the dependent variable in some specified way.

Acceptable explanations include:

- *Each management style was also in a different city, and people in each city may have different tastes in items and will purchase things differently.*
- *Cities with more people would most likely sell more units.*
- *Store A is in a higher-income area, so more cars are sold there.*

Unacceptable explanations include:

- *The location of the stores was confounding because some people couldn't go to all the stores.*
- *There may not be charging stations in some parts of the city where Store B is located.*

Explain how the halo effect could influence Michael's interpretation of the findings.**1 point**

Response must indicate that Michael's previous positive perception of Store C's manager will cause him to think more positively toward Store C's sales data than he otherwise would.

Acceptable explanations include:

- *Michael's good feeling about the manager at Store C will make him think the data for that store are wrong.*
- *Michael is good friends with the manager of Store C, so that causes him to make a positive evaluation of the store's performance.*

Unacceptable explanations include:

- *Michael views the manager positively, but the data lead him to think he may have chosen a bad manager.*

Explain why the hiring of an industrial/organizational psychologist was appropriate for this study.**1 point**

Response must indicate that I/O psychologists are interested in optimizing or improving performance **OR** solving problems in the workplace.

Acceptable explanations include:

- *This study is about which management style leads to the most sales, so an I/O psychologist would be best to help solve this problem.*
- *Michael wants to identify ways to improve managers' performance, and an I/O psychologist can help him with this goal.*

Unacceptable explanations include:

- *I/O psychologists study the workplace.*

Explain how Michael could use positive reinforcement to help him finish his presentation by the deadline. 1 point

Response must indicate Michael could reward himself with something that he likes each time he works on his presentation to make it more likely that he will keep working.

Acceptable explanations include:

- *Michael treats himself to a small piece of candy after he works for 20 minutes to encourage himself to keep working.*

Unacceptable explanations include:

- *Michael is positive with himself about finishing the report on time.*
- *Michael treats himself to candy after working on his presentation.*
- *Michael eats a piece of candy and then begins to work on his presentation.*

Total for question 2 7 points