Arizona State University (ASU) PSY290 Research Methods Exam 1 Practice (Sample)

Study Guide

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Questions

1. What does a p-value indicate in research?

   A. The total number of participants involved

   B. The validity of the research design

   C. The probability of observed results occurring by chance

   D. The reliability of the data collected

2. When data does not support a hypothesis, what action is suggested for the underlying theory?

   A. Ignore the results

   B. Revise the theory

   C. Strengthen the hypothesis

   D. Publish the findings immediately

3. In which research method is the researcher most likely to manipulate variables?

   A. Qualitative research

   B. Observational research

   C. Experimental research

   D. Surveys

4. How does basic research contribute to psychology?

   A. By solving specific problems directly

   B. By enhancing our fundamental understanding of psychological principles

   C. By focusing on practical applications

   D. By conducting community service projects

5. What role do operational definitions play in research?

   A. They provide theoretical frameworks for research topics

   B. They clarify how variables are measured and manipulated, enhancing the study's validity

   C. They summarize findings from previous studies

   D. They limit the scope of a research project

6. Which of the following is an example of a source of empirical evidence?

A. A literature review

B. A thermometer

C. A theoretical paper

D. A self-reported survey

7. How is Dr. Kamran assessing men's negative attitudes toward women in her study?

A. Qualitative interviews

B. Observational techniques

C. Self-report scale

D. Experimental manipulation

8. How were the words for each list in the memory experiment selected?

A. To ensure randomness among participants

B. To operationalize different levels of the independent variable "familiarity"

C. To create an equal number of common and rare words

D. To measure the accuracy of word recall

9. What does a high positive correlation suggest about the two measures of heart rate variability?

A. The measures are unrelated.

B. One measure predicts the other.

C. The measures are inversely related.

D. The measures fluctuate independently.

10. What is a survey method in research?

A. A technique involving experimental manipulation

B. A method that relies on observation of behavior

C. A research technique that uses questionnaires or interviews

D. A statistical analysis of existing data

Answers

1. C
2. B
3. C
4. B
5. B
6. B
7. C
8. B
9. B
10. C

Explanations

1. What does a p-value indicate in research?

A. The total number of participants involved

B. The validity of the research design

C. The probability of observed results occurring by chance

D. The reliability of the data collected

A p-value is a statistical measure that helps researchers determine the significance of their findings. Specifically, it indicates the probability of obtaining the observed results, or more extreme results, if the null hypothesis is true. Essentially, a low p-value suggests that the observed data would be unlikely under the assumption that there is no effect or relationship, leading researchers to consider rejecting the null hypothesis. This probability aspect is crucial because it quantifies the likelihood that any observed differences or associations could have occurred simply by random chance. In hypothesis testing, p-values assist in deciding whether the evidence is strong enough to support a claim that there is a statistically significant effect, thus playing a central role in the interpretation of research results. This is why "the probability of observed results occurring by chance" is the correct understanding of what a p-value indicates in research.

2. When data does not support a hypothesis, what action is suggested for the underlying theory?

A. Ignore the results

B. Revise the theory

C. Strengthen the hypothesis

D. Publish the findings immediately

When data does not support a hypothesis, it is important to consider that the underlying theory may need to be revised. This is a crucial aspect of the scientific method, which emphasizes that theories must adapt based on empirical evidence. Theories are not static; they evolve as new data is collected and analyzed. If the results do not align with the expectations set by the hypothesis, it indicates a potential gap or flaw in the theoretical framework informing the hypothesis. Revising the theory allows researchers to better reflect the complexities of the phenomena being studied and to accommodate new insights. This process not only leads to a more accurate understanding of the underlying mechanisms at play but also strengthens the validity of future hypotheses derived from the revised theory. Continuous improvement and adjustment of theories based on evidence are fundamental to scientific progress, ensuring that conclusions are grounded in reality. In contrast, ignoring the results or rushing to publish findings without thorough consideration would undermine the integrity of the research process. Strengthening the hypothesis without addressing the underlying theory fails to acknowledge the data's implications, while simply publishing findings can lead to the dissemination of potentially misleading information that does not contribute to the advancement of knowledge.

3. In which research method is the researcher most likely to manipulate variables?

A. Qualitative research

B. Observational research

C. Experimental research

D. Surveys

Experimental research is the most appropriate method when it comes to variable manipulation. In this approach, researchers deliberately change or manipulate one or more independent variables to observe the effect on a dependent variable. This manipulation allows for establishing cause-and-effect relationships, as it controls for other variable influences and utilizes random assignment to eliminate bias in the groups being compared. The strength of experimental research lies in its ability to isolate the effects of the manipulated variables while systematically controlling other factors. This method is foundational in psychology and other sciences, as it provides clear evidence of how changes in certain conditions can lead to variations in outcomes. In contrast, qualitative research typically focuses on understanding experiences and meanings rather than altering variables. Observational research involves watching and recording behavior without intervention, thus not manipulating any variables. Surveys are designed to gather data through questions and are also not about manipulating variables, but rather about collecting information from participants' responses.

4. How does basic research contribute to psychology?

A. By solving specific problems directly

B. By enhancing our fundamental understanding of psychological principles

C. By focusing on practical applications

D. By conducting community service projects

The contribution of basic research to psychology lies in its goal of enhancing our fundamental understanding of psychological principles. This type of research seeks to explore and explain the underlying mechanisms of behavior, cognition, emotions, and other psychological phenomena without an immediate focus on practical applications. By building a robust theoretical framework, basic research lays the groundwork for applied research, which then takes these principles and seeks to address specific problems or implement interventions in real-world settings. For instance, studies in basic research might investigate how memory works or how people learn, generating insights that can later inform educational practices or therapeutic measures. This foundational knowledge is essential, as it informs the development of theories and models that can be tested and applied, ultimately benefiting various fields within psychology and related disciplines.

5. What role do operational definitions play in research?

A. They provide theoretical frameworks for research topics

B. They clarify how variables are measured and manipulated, enhancing the study's validity

C. They summarize findings from previous studies

D. They limit the scope of a research project

Operational definitions play a crucial role in research by specifying how variables are measured and manipulated. This clarity is essential for several reasons. First, it allows researchers to define abstract concepts in concrete terms, which helps others understand how those concepts are applied in the study. For example, if a study investigates "anxiety," an operational definition might specify that anxiety is measured through self-report questionnaires or physiological indicators like heart rate. By providing clear measurements, operational definitions enhance the study's validity. They ensure that researchers are all using the same parameters, which facilitates consistency and comparability across different studies. Without well-defined operational definitions, findings can become ambiguous, leaving room for interpretation that can lead to misunderstandings or contradictions in the literature. This clarity is vital for replicating studies and verifying results, ultimately contributing to the reliability of the research outcome.

6. Which of the following is an example of a source of empirical evidence?

A. A literature review

B. A thermometer

C. A theoretical paper

D. A self-reported survey

A thermometer exemplifies a source of empirical evidence because it provides direct, measurable data that can be observed and quantified. Empirical evidence is derived from observation and experimentation, and a thermometer captures specific data points regarding temperature, which can be used in scientific analysis and research. In contrast, while a literature review summarizes existing research and findings, it does not generate new empirical data. A theoretical paper focuses on hypotheses and theoretical frameworks rather than on data collection or observations. A self-reported survey gathers subjective responses from participants, which, although valuable, reflects personal perceptions and experiences rather than objective empirical measurements like those derived from a thermometer.

7. How is Dr. Kamran assessing men's negative attitudes toward women in her study?

A. Qualitative interviews

B. Observational techniques

C. Self-report scale

D. Experimental manipulation

Dr. Kamran is using a self-report scale to assess men's negative attitudes toward women, which is a common method in psychological research. Self-report scales involve participants providing their own responses to questions or statements, often through questionnaires that measure specific attitudes, feelings, or opinions. These scales allow researchers to gather direct insights into individuals' beliefs and attitudes, making it a suitable choice for exploring sensitive topics like gender attitudes. This method enables the collection of standardized data that can be quantitatively analyzed to identify patterns or correlations in men's attitudes towards women. By utilizing a self-report scale, Dr. Kamran can achieve a clearer understanding of the prevalence and nature of negative attitudes, as participants can express their thoughts in their own words, rather than through observation or experimental manipulation which may induce bias or limit the depth of understanding.

8. How were the words for each list in the memory experiment selected?

A. To ensure randomness among participants

B. To operationalize different levels of the independent variable "familiarity"

C. To create an equal number of common and rare words

D. To measure the accuracy of word recall

The words for each list in the memory experiment were selected to operationalize different levels of the independent variable "familiarity." This means that the words were deliberately chosen based on their familiarity to the participants to investigate how this factor influences memory recall. By using words that vary in their commonality or rarity, researchers can assess how familiarity impacts recall performance, allowing for a clearer understanding of how memory works in relation to the level of familiarity with the words. Focusing on the operationalization of the independent variable is crucial because it establishes the criteria through which the effects on participants' memory can be tested. By manipulating familiarity, researchers can observe subsequent changes in recall, which is essential for drawing valid conclusions from the experiment.

9. What does a high positive correlation suggest about the two measures of heart rate variability?

A. The measures are unrelated.

B. One measure predicts the other.

C. The measures are inversely related.

D. The measures fluctuate independently.

A high positive correlation between two measures of heart rate variability indicates that as one measure increases, the other also tends to increase. This statistical relationship suggests that there is a predictive relationship between the two measures. In practical terms, if one measure indicates higher heart rate variability, the other measure is also likely to reflect similar higher values. This predictive nature demonstrates that the two measures are not only related but also work in tandem, providing valuable information when considering heart rate variability in different contexts, such as health assessments or psychological states.

10. What is a survey method in research?

A. A technique involving experimental manipulation

B. A method that relies on observation of behavior

C. A research technique that uses questionnaires or interviews

D. A statistical analysis of existing data

Survey method as a research technique involves gathering information from a group of individuals through structured questionnaires or interviews. This method is primarily used to collect self-reported data from participants, which can include their thoughts, feelings, perceptions, or behaviors regarding various topics. By utilizing surveys, researchers can collect large amounts of data relatively quickly and efficiently, allowing for the analysis of trends, correlations, and group differences. The effectiveness of surveys lies in their ability to reach a wide audience and obtain responses that can be quantified and analyzed statistically. This method is particularly valuable in social sciences, psychology, and market research, where understanding human attitudes and behaviors is crucial.