

THINKING AND WRITING IN PSYCHOLOGY Psychology 204

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The object of education is to prepare the young to educate themselves throughout their lives.

-Robert M. Hutchins

Defining Psychology

- Scientific study of behavior and mental processes
- A science
- Behavior
- Mental processes
- Critical thinking
- Empirical method
 - Based on observed and measured phenomena and derives knowledge from actual experience rather than from theory or belief

Counterintuitive

- Intuition
 - The ability to understand something immediately, without the need for conscious reasoning
- Contradiction to intuitive thinking

History of Psychology

- Field is about 150 years old
- Early psychologists focused on observable behavior and normal human functioning
- Freud:
 - First to focus on abnormal behavior
 - Id, ego, superego

History of Psychology

- Behaviorism

- Belief that psychology should study observable behavior rather than mental processes
- Pavlov
- Watson
- Skinner
 - Operant conditioning

History of Psychology

- Child Psychology
 - Emphasized the study of how children think
 - Piaget

Critical Thinking

Reflective thinking involved in the evaluation of evidence relevant to a claim so that a sound or good conclusion can be drawn from the evidence.¹

- Thinking deeply and actively
- Not taking things for granted
- Asking questions
- Defining terms
- Evaluating the evidence
- Asking questions about the conclusions of others

¹ Bensley, D.A. & Haynes, C. (1995). The acquisition of general purpose strategic knowledge for argumentation. *Teaching of Psychology*, 22, 41–45.

Critical Thinking

Reflective thinking involved in the evaluation of evidence relevant to a claim so that a sound or good conclusion can be drawn from the evidence

- Characteristics of critical thinking

- Curiosity
- Skepticism
- Objectivity

FEATURES OF CRITICAL THINKING

- Be skeptical
- Examine definitions of terms
 - *Operational definitions*
- Examine the assumptions and premises of arguments (green apples)
- Be cautious in drawing conclusions from evidence
- Consider alternative interpretations of research evidence

FEATURES OF CRITICAL THINKING

- Do not oversimplify “Most human behavior is learned”
- Do not overgeneralize “You cannot learn about human behavior by observing animals”
- Apply critical thinking to all areas of life

PSYCHOLOGICAL RESEARCH

The Scientific Method

1. Observing some phenomenon
2. Formulating hypotheses and prediction
3. Testing through empirical research
4. Drawing conclusions
5. Evaluating conclusions

Observing some phenomenon

- Variable
- Theory

Research observation and bias

- Observation is the simplest research method
- Confirmation bias
 - Searching for information that confirms a preconceived idea or theory
- Participant bias
- Naturalistic observation

Correlation

- Designed to determine the degree to which two *variables* are related to each other
- *Positive correlation*
- *Negative correlation*
- Correlation $\neq$ causation
 - Third variable (confound) problem
- Correlational studies can tell us that two variables are linked, but not why
- Correlational studies can allow us to make predictions

Surveys

- A research technique that involves questioning a sample of people or collecting information about their attitudes or behavior
 - *People should be allowed to drink at 18*
- Social desirability
- *Population*
- *Random sample (By chance)*

Experiments

- The only research method that allows us to establish cause and effect relationships
 - Experimenters control the things that can change (variables)
 - Hypothesis (testable prediction about the outcome of research)
 - The more intelligent a person is, the better grades they will get.
 - Operational definition (What is intelligence?)

Independent and dependent variables

- Independent (IV): Causes something to happen
- Dependent (DV): The variable that shows the effect of changing the IV
- Pavlov's dog
 - IV = food/bell
 - DV: salivation

Control and experimental groups

- *Control group*: Does not receives the treatment
- *Experimental group*: Does receive the treatment
- Subjects placed in control or experimental group by *random assignment*
- These groups are the same except for the treatment
 - *Confounding variable(s)*
 - *Environmental differences*
 - *Expectation effects*

Control and experimental groups

- Blind and double-blind conditions
 - Blind: Subjects do not know what group they're in
 - Double blind: Neither the subject nor the experimenter knows which group the subject is in
- Placebo: A thing or procedure that has no effect

Music and grades:

Experimental method step by step

- Develop the hypothesis
- Create operational definitions for IV and DV
- Randomly select a group of subjects from the population
- Randomly assign the subject to experimental or control group
- Expose the experimental group to the IV
- If necessary, introduce the control group to placebo

Music and Studying

- Hypothesis: Student who listens to music during “study hall” will have higher grades at the end of the term than student who don’t
- IV: Listening or not to music
- DV: Higher or lower grades
- Control group Does not listen to music
- Experimental group: Does listen to music
- Random assignment: Sample selected from all students who attend study hall
- Confounding variables?

Data analysis

- Analysis of the numbers in the experiment through using statistical methods to find out if the hypothesis is correct
 - Is there is difference in grades between the two groups?
 - How large is the difference?
 - How similar are the differences within groups?
 - How many participants are in each group?

Replication

- Repeating an experiment to see if the results can be reliably reproduced
- The more replication there is, the more valid the result

Research ethics

- IRB
- First do no harm
- Informed Consent
- Protection from harm
- Deception
- Coercion
- Debriefing
- Confidentiality and anonymity

Informed consent

- Procedure occurs before research begins
- Knowledge of what will happen
- Voluntary participation
- Right to withdraw from research at any point
- Purpose of the research/logistics
- Risks involved
- Agree/disagree to do it/be involved/be treated
- Informed consent document

Protection from harm

- Minimize risk of harm
 - Physical
 - Psychological
- Risk-benefit analysis

Deception

- Misleading
- “Hide the truth”
- May be acceptable
 - Milgram study
- Confederates
- Risk-benefit analysis

Coercion

- *Coerce*: Force or pressure someone to do something against their will
- Accomplished through threats

Debriefing

- Occurs after the study concludes
- Purpose of study
- Procedure of study
- Reveal deception
- Questions/concerns

Confidentiality/Anonymity

- Right to privacy
- All identifying information kept in a secure environment

Statistics in Psychology

- What is the purpose of statistics?
- Frequency distributions
- Measures of central tendency
 - Mode
 - Mean
 - Median
- Standard deviation
- Normal distribution