

Lab Title: Creativity and Divergent Thinking

Section 1: Performance Expectations

What will the student be asked to do?

- Select one or more performance standards:
 - o Discuss operational definitions of creativity
 - o Hypothesize about factors that may contribute to creativity and divergent thinking
 - o Collect and summarize data
 - o Communicate their findings and generate possible explanations

Main Idea/Concept Demonstrated or Taught by Lab:

Students will discuss variables that may relate to creativity and divergent thinking and will collect data on divergent thinking under multiple conditions. At the end of the lab, students should be able to:

Demonstrate an understanding of creativity and divergent thinking.

Identify some potential variables that affect divergent thinking.

Summarize data and calculate descriptive statistics; interpret inferential statistics

Key Terms and Psychologists Associated with Main Idea/Concept:

Creativity, divergent thinking, convergent thinking, cognition, problem-solving, insight, flow, Csikszentmihalyi

Materials:

Students will need to identify participants. The number of participants required will depend on the specific goals of the lab exercise. Teachers can adjust the lab based on availability of participants.

Instructions:

8. Some studies indicate that creativity and divergent thinking can be elicited by simply instructing people to “be creative” or to think more abstractly about a particular problem. This lab explores that hypothesis.
9. Students should work together to generate a test for divergent thinking. Common tests ask a participant to generate as many uses as possible for a common item within a given time frame (e.g. “come up with as many different uses of a brick as you can”). The class should develop a script for two groups of participants – a group that receives the prompt to “be creative” (experimental group) and a group that is simply told to come up with uses for the item (control group). The experimental group may also be prompted to “think abstractly” and might be encouraged to continue to come up with ideas if they pause during the data collection period. Other issues for the class to consider include:
 - How long to allow for participants to respond?

- How to record responses. Responses could simply be counted using paper and pencil, or students may use some other method.
10. The class should develop a plan for data collection. Questions to consider include:
 - Number of participants needed
 - Age and other demographic characteristics of participants
 - Ethical considerations, including informed consent and debriefing
 11. Students may collect data as individuals or in pairs or small groups, depending on the size and nature of the class.
 12. Each student or small group should collect data on approximately an equal number of participants in each group.
 13. Students should bring data back to class by a specified due date. In class, have students tabulate the number of unique responses generated by each participant, and then pool their data for the control and experimental groups.
 14. Students can then calculate descriptive statistics, analyze the data, and construct appropriate figures to summarize the data. This could be done as homework or as a small group project within the class, depending on the level of the class and the number of students.
 15. Have the students write a report summarizing the results of tests of each concept.
 16. The students might want to look at other factors that could affect the dependent variable, such as age. The students could examine the data for this effect if their sample size is large enough.

Follow-up and Discussion:

- Have students discuss their findings and why they were consistent with (or not consistent with) other reported data on factors that contribute to divergent thinking.
- Have students discuss how these findings can be useful in their daily lives. Can individuals become more creative simply by “prompting” themselves?
- Ask students to describe how their understanding of creativity and divergent thinking has changed now that they have hands-on experience collecting data on these concepts.
- If the students examined age as a factor, they could discuss how divergent thinking might be related to fluid vs. crystallized intelligence and age-related changes in these abilities.
- Another important point for discussion could be whether divergent thinking and creativity are the same or different processes.
- Have students identify limitations with this exercise (e.g. sampling issues; measurement of variables), and how it could be modified.

Section 2: Crosscutting Concepts

Select at Least One

- Select one or more of the following cross-cutting concepts central to the phenomena that students will investigate:
 - What *patterns* underlie responses to the questions?
 - *Cause and effect*: Students should be able to discuss how some factors may affect divergent thinking.
- Describe how the cross-cutting concept(s) will factor into the lab.
 - Students will be discussing these concepts when summarizing and analyzing the data.

Section 3: Lab Report (written, verbal, or recorded)

Suggested Content to be Included in Student Report:

The sections below could be included in a written report of this lab, depending on the teacher's specific goal for this activity. See above for more details.

- Background information
- Objectives
- Questions and hypothesis
- Materials used (include measurements, where necessary)
- Procedure described in detail (for replication)
- Graphs/tables of collected data
- Findings
 - Was hypothesis supported or not supported? Explain.
 - If inferential statistics are not calculated, students could discuss whether the data are consistent with findings in the research literature.
 - What do the findings mean? (use appropriate terminology related to concept)
 - How could the research be improved, if replicated?

References:

Kaufman, J.C., Luria, S.R., & Beghetto, R. A. (2018). Creativity. In S.I. Pfeiffer (Ed.), *APA Handbook of Giftedness and Talent* (pp. 287-298). Washington, DC: American Psychological Association.