How Do Innate and Learned Behavior Differ?

Prelab discussion
Mammals have the most highly developed brain of all animals. This enables them to perform a wide range of complicated behaviors. Some of a mammal's behaviors are innate, unlearned. This means that the mammal is capable of performing the behavior without being taught. Innate behaviors include reflexes and instincts. Reflexes are simple, quick, automatic responses: for example, blinking your eye when a piece of dust flies in. Instincts are inborn behavioral patterns that can be modified very little, if at all: for example, a spider's web-building, a crane's courtship dance.

Many of a mammal's behaviors are learned, or acquired through experience. Because mammals have a large, highly sophisticated cerebrum, the part of the brain involved with learning, memory, and thinking, they are capable of performing a wide array of learned behaviors. Some examples of learned behaviors in humans include habits and solving visual or word problems. The most advanced type of learned behavior is known as insight learning, or reasoning, which will not be investigated in this lab.

Objective
To study the differences between innate and learned human behavior.

Problem
Which types of human behaviors are unlearned and which are learned? What roles do reflexes, conditioned responses, trial-and-error learning, and reasoning play in human behavior?

Materials
Paper Pencil Clock or watch with second hand

Procedure Part
A. Reflexes
A reflex is a simple, automatic response to a stimulus. A reflex usually involves only part of the body. Working with a partner, you will alternate as subject and helper while you test a human reflex. You will record the responses in a Data Table.

Procedure
1. Look at your partner=s eyes, and note the size of their pupils with the lights on.
2. The teacher will turn off the lights. When the lights are turned on, look at the watch. Time how long it takes your pupils to change size. Record your data.
3. Write a hypothesis to tell whether the length of time it takes your pupils to change size will increase, decrease, or stay the same with repeated trials.
4. Repeat step 3 four more times.

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<thead>
<tr>
<th>TIME IN SECONDS</th>
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<tr>
<td>Trial</td>
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Part B. Habits
1. Mr. Bittle will dictate a sentence, you will write it down, legibly.
2. Mr. Bittle will dictate the same sentence, you will again write it down, legibly, but this time don’t cross any “t”s or dot any “I”s.
3. How many mistakes did you make?
4. Write a hypothesis to tell whether the number of mistakes will change with repeated trials.
5. Repeat steps 2 and 3 four more times.

Part C. Trial-and-Error Learning
1. Trial-and-error learning begins when an animal associates certain responses with favorable or unfavorable consequences. The animal then tries to repeat those behaviors that led to favorable results.
2. Find out how quickly you can successfully complete a path through Maze 1. Use a pencil to mark your path and have your partner time you. Record the time needed to complete Maze 1 in a Data Table.
3. Complete the rest of the mazes in succession; timing each one as you go. Cover each completed maze as you finish so that you cannot look back at the completed mazes. Record your results in a Data Table. Graph the results for you and your partner on the graph.

Questions
1. Did the pupils take the same amount of time to dilate with repeated trials? Why?
2. Did the not crossing any “t”s or doting any “I”s improve with extra trials? Why?
3. Check your hypotheses: Are your hypotheses supported by your data? Why or why not?
4. Design an experiment to show if learned behavior is forgotten if it is not practiced
5. How does the behavior in Part A help humans with their vision?
6. Explain which of the above procedures were innate or learned? Compare innate and learned behaviors.
7. Is a reflex an innate or a learned behavior?
8. Is a habit an innate or a learned behavior?
9. Did any learned behavior take place in Part C of this investigation? Using your graph, give evidence to support your answer.

For this lab report you will include the sheet with the data table for the pupil dilation times of you and your partner, all copies of your dictated sentences, your maze sheet, all your written hypotheses, your maze data graph, answers to all questions.
Innate behavior is set by the "hard-wiring" of the nervous system; it is usually hard and fast, a given stimulus triggering a given response, while learned behavior is permanently altered as a result of the experience.

I = 15
T = 13