**Statistical Analysis**

**Pre test:**

|  |  |  |
| --- | --- | --- |
| **Question** | **Correct** | **Incorrect** |
| Question 1: A | 95% | 5% |
| Question 1: B | 100% | 0% |
|  |  |  |
| Question 2: A | 64% | 36% |
| Question 2: B | 77% | 23% |
| Question 2: C | 95% | 5% |
| Question 2: D | 77% | 23% |
|  |  |  |
| Question 3: A | 72% | 28% |
| Question 3: B | 100% | 0% |
| Question 3: C | 100% | 0% |

Due to the fact that each question had multiple correct answers and the fact that the students were instructed to circle all correct choices, they needed to distinguish between which needed to be circled and which did not, essentially turning each answer choice into a true/false option. Because it is multiple-choice, there really isn’t such a thing as partial or blank. A correct answer is either a correctly circled choice, or (in the case of question 2: C and question 3: C) a choice that is correctly left uncircled.

**Post test:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question** | **Correct** | **Partial** | **Incorrect** | **Blank** |
| Question 1 | 100% | 0% | 0% | 0% |
|  |  |  |  |  |
| Question 2: a | 50% | 23% | 23% | 4% |
| Question 2: b | 41% | 14% | 31% | 14% |
| Question 2: a & b | 14% | 72% | 5% | 9% |
|  |  |  |  |  |
| Question 3: a | 36% | 18% | 18% | 28% |
| Question 3: b | 31% | 18% | 23% | 28% |
| Question 3: a & b | 18% | 45% | 14% | 23% |

Question 1 was a straight-forward multiple-choice question.

Question 2 and question 3 asked for the student to give two reasons in response to the question.

14% of the students gave two correct reasons for question 2, while 72% got partial credit for one or more of their responses. 5% of the students gave both incorrect answers. 9% of students left both answer places blank by writing “I don’t know.”

18% of the students gave two correct reasons for question 3, while 45% got partial credit for one or more of their responses. 14% of the students gave both incorrect answers. 23% of students left both answer places blank by writing “I don’t know.”

**Question Match-up**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pre-test** |  |  | **Post-test** |  |  |
| Question  | Correct | Incorrect | Question |  Correct or partially correct | Incorrect or blank |
| 1 | 97.5% | 2.5% | 2 | 86% | 14% |
| 2 | 78.25% | 21.75% | 3 | 63% | 37% |
| 3 | 90.7% | 9.3% | 1 | 100% | 0% |