

Explanations of the statistical analyzes

[1]

Research Question:

Is there a difference in the understanding of roles depending on which card method was taught?

H_0 : There is no difference between the CRC and R-CRC method (null hypothesis).

H_1 : There is a difference between the CRC and R-CRC method (alternative hypothesis).

The underlying data are the answers from the students' questionnaire which represent the subjective modeling evaluation. The hypotheses are non-directional which means, that we only assume that there exists a difference between the two methods but we make no assumptions about the direction of the possible effect.

Therefore we interpret the two-sided significance with $p=0.605$. As the p-value is $>\alpha$ (0.05), the null hypothesis can not be rejected. There is no significant difference in the central tendency between the CRC and the R-CRC group regarding the understanding of roles after the exercise.

[2]

Shows the frequency distribution of the R-CRC group measuring the understanding of roles. We reported from the column cumulative percent.

[3]

Shows the frequency distribution of the CRC group measuring the understanding of roles. We reported from the column cumulative percent.

[4]

Research Question:

How are the card methods evaluated referring to their specific characteristics?

H_0 : There is no difference between the CRC and R-CRC method referring to their characteristics (null hypothesis).

H_1 : There is a difference between the CRC and R-CRC method referring to their characteristics (alternative hypothesis).

[4]

Shows the Mann-Whitney Test for the characteristics of the card method grouped by the method.

The hypotheses are non-directional which means, that we only assume that there exists a difference between the two methods referring to their characteristics but we make no assumptions about the direction of the possible effect.

Therefore we interpret the two-sided significance. The only significant difference can be seen at item 5 (How understandable was the card method for you?) with $p<0.001$. As the p-value is $<\alpha$ (0.05),

the null hypothesis can be rejected. There is a significant difference in the central tendency between the CRC and the R-CRC group regarding the understandability of the method after the exercise. For all other items, the null hypothesis can not be rejected, there does no statistical significant difference exist.

[5]

[5] corresponds to [1] and refers to the Research Question:

Is there a difference in the understanding of roles depending on which card method was taught?

H_0 : There is no difference between the CRC and R-CRC method (null hypothesis).

H_1 : There is a difference between the CRC and R-CRC method (alternative hypothesis).

The underlying data are the achieved points which represent the objective modeling evaluation. The hypotheses are non-directional which means, that we only assume that there exists a difference between the two methods but we make no assumptions about the direction of the possible effect. Therefore we interpret the two-sided significance with $p < 0.001$. As the p-value is $< \alpha (0.05)$, the null hypothesis can be rejected. There is a significant difference in the central tendency between the CRC and the R-CRC group regarding the understanding of roles after the exercise. In addition the test shows a significant difference between the methods referring to the role-play ($p = 0.004$) as described in the paper.

[6]

Shows the frequency distribution of the CRC group measuring the understandability of the CRC Card Method. We reported from the column cumulative percent.

[7]

Shows the frequency distribution of the R-CRC group measuring the understandability of the R-CRC Card Method. We reported from the column cumulative percent.