

# Gender differences

Education



Gender Differences Analysis and Critique Guide Problem What is the problem/purpose being investigated in this study (what is the particular focus of the study)

The problem is discussed in this study is gender differences in attitudes towards computers. The focus of the study is to understand if there is orientation in a certain gender toward computers and toward self-efficacy in performing computer tasks.

2. What background information on the problem is presented (on what theories, frameworks, and/or concepts is this study based)?

The premise theory of the study is that people who do not have a positive attitude toward computers tend to face difficulties in their careers. Computer knowledge is in high demand and people lacking self-efficacy tend to face hard challenges.

3. What evidence is provided in the literature review about the educational significance of the study? (Why is the study of importance?)

The study gives evidence that choosing course subjects is based on attitudes. If this attitude has a particular orientation then it determines career in life.

Research Questions and Hypotheses

4. Write the stated or implied research question(s).

Implied research questions;

a) Do gender differences tend to influence attitude toward computer education?

b) Do gender differences influence self-efficacy in performing computer tasks?

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5. Write the stated or implied research hypothesis for each of the research questions identified above. Also, identify if the research hypothesis is directional or non-directional? Provide support for your decision.

a) Gender differences tend to influence attitude toward computer education

b) Gender differences influence self-efficacy in performing computer tasks

6. State the null hypothesis for each of the research questions identified above.

a) Gender differences don't influence attitude toward computer education

b) Gender differences don't influence self-efficacy in performing computer tasks

7. For each research question/hypothesis identify the variables and determine the independent and dependent variable.

Independent variable: Gender differences

Dependent variable: Attitude toward computer education

Dependent variable: Self efficacy in performing computer tasks

8. Identify which of the variables are quantitative/continuous and which are nominal/categorical.

Gender differences are quantitative and self-efficacy in performing computer tasks and attitude toward computer education are nominal.

Method

Research Design

9. Is this a quantitative or qualitative study? List several characteristics with specific evidence from the research article to support your response.

It is quantitative study. It selected the sample and then asks their opinions.

10. If a quantitative study is this an associational, causal-comparative, or experimental research design? If a qualitative study is this an ethnography

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or phenomenology. List several characteristics with specific evidence from the research article to support your response.

It is a quantitative study and it is an experimental research. Gender difference is the independent variable.

Participants

11. What was the target population being investigated in this study (The target population may not be addressed in the participant section, but is often determined from information in the introduction and literature review section)?

Undergraduate students was the target population investigated in this study.

12. What type of sampling technique was used in this study and what information provided in the study lead you to this decision?

Stratified sampling was used. Strata was the undergraduates while male and female students were the subcategory.

13. Locate the description of the sample in the research article. Compare the sample with the target population. Do you think the sample used in this study is likely to be representative of the target population? Can this study be generalized to the intended population? Explain your reasoning.

The subjects were 147 undergraduate students of business administration, 80 women and 67 men, who were enrolled in a compulsory introductory computer course in a Norwegian college. The sample represents the target population.

14. Describe several improvements that could be made to the sampling techniques to improve the representativeness of the sample in this study?

Equal ratio of men and women could have been better suited.

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### Instruments/Measures

15. List each of the instruments/measures and identify the variable(s) assessed by each measure.

Computer attitude scale was the instrument used. This scale measured three variables; computer anxiety, computer confidence and computer liking.

16. For each of the instruments describe what evidence was provided on the instrument's validity (content, construct, criterion). You may not find that evidence was provided for all types of validity. If no evidence was provided state so.

The evidence for instrument's validity was that it was developed by Gressard and Loyd (1984a, 1986).

17. For each of the instruments describe what evidence was provided on the instrument's reliability (test-retest, equivalent forms, equivalent forms/retest, internal consistency, scoring agreement). You may not find that evidence was provided or all types of reliability. If no evidence was provided state so.

It was simply stated that Gressard and Loyd, the scale they developed was convenient, reliable and valid measure of computer attitudes. It could be confidently and effectively utilized in research and evaluations.

18. For each instrument, do you think there was sufficient evidence that the measure was validity and reliability? Support your decision with data provided in the article.

Each instrument was valid and reliable. The stats show t-test and p-test values confirming it. For instance the computer attitudes of; anxiety, liking and confidence had test values of; 3. 2, 1. 7 and 3. 3, and p-test values of 0. 001, 0. 095 and 0. 001 respectively.

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Analysis/Results (Analyze each variable in the Computer Attitudes Section of the Table 1)

19. A t-test was used to evaluate if there was a statistically significant difference b/w the males and females. Did the researcher use the appropriate inferential statistic? Explain your reasoning.

Sample size was too small compared to undergraduate population, which is suitable for using t-test.

20. Analyze the data provided in Table 1, addressing each of the below questions for Anxiety.

What is the mean score for males and females for anxiety. What is the mean difference b/w the groups?

Mean Anxiety for females = 47.9

Mean Anxiety for males = 51.7

Mean Difference = 3.8

What is the probability that the differences b/w the group means were due to random chance or error (look at the p-value)?

A p value of 0.001 indicates that there is a one in a thousand chance of being wrong, which means that difference between group means is not an error

Is this probability below or above the cutoff for statistical significance?

Explain your response.

This probability is below the cutoff significance.

In terms of hypothesis testing should you reject the null hypothesis of no difference and accept the research hypothesis (statistical significance)? On what information did you base this decision?

In hypothesis testing, one is supposed to reject the null hypothesis and the

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research hypothesis gets accepted by default.

Statistically, was there a difference between the group means, if yes which group scored higher/lower (look at the means)?

On the scale, the group of male students scored higher on anxiety, which means that their anxiety levels were lower than the female students.

The effect size is .57. Is this effect size below or above the cutoff for practical significance? Explain your response.

The effect size of 0.57 is above the practical significance. The large effect size 'r' has a max value of 0.5.

What does this effect size data tell us about the importance of anxiety in understanding differences b/w males and females use of computers.

Such a large effect size suggests significant difference between anxiety levels of the two groups.

21. Analyze the data provided in Table 1, addressing each of the below questions for Liking.

What is the mean score for males and females for Liking? What is the mean difference b/w the groups?

Mean score for female liking = 33.5

Mean score for male liking = 35.8

Mean difference = 2.3

What is the probability that the differences b/w the group means were due to random chance or error (look at the p-value)?

P value of 0.095 suggests a significant chance of an error.

Is this probability below or above the cutoff for statistical significance?

Explain your response.

This probability level is below the statistical significance.

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In terms of hypothesis testing should you reject the null hypothesis of no difference and accept the research hypothesis (statistical significance)? On what information did you base this decision?

The p value and the difference in the mean suggest that null hypotheses should be rejected.

Statistically, was there a difference between the group means, if yes which group scored higher/lower (look at the means)?

The male group scored higher (35. 8) on the liking mean compared to the females (33. 5).

The effect size is . 03. Is this effect size below or above the cutoff for practical significance? Explain your response.

The effect size of 0. 03 is below the cutoff for practical significance.

What does this effect size data tell us about the importance of liking in understanding differences b/w males and females use of computers.

This effect size tells that both the groups exhibit significant liking for computer education. The mean difference of 2. 3 shows that there is more comparability in liking compared to anxiety levels.

22. Analyze the data provided in Table 1, addressing each of the below questions for Confidence.

What is the mean score for males and females for confidence? What is the mean difference b/w the groups?

Female mean score for confidence = 33. 8

Male mean score for confidence = 37. 9

Difference = 4. 1

What is the probability that the differences b/w the group means were due to random chance or error (look at the p-value)?

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A p value of 0.001 indicates that there is a one in a thousand chance of being wrong, which means that difference between group means is not an error.

Is this probability below or above the cutoff for statistical significance?

Explain your response.

This probability is below the cutoff significance.

In terms of hypothesis testing should you reject the null hypothesis of no difference and accept the research hypothesis (statistical significance)? On what information did you base this decision?

The null hypothesis should be rejected according to the statistical significance.

Statistically, was there a difference between the group means, if yes which group scored higher/lower (look at the means)?

The male group scored higher on the group means.

The effect size is .6. Is this effect size below or above the cutoff for practical significance? Explain your response.

This effect size is above the cutoff for practical significance. The large 'r' value for max effect is 0.5.

What does this effect size data tell us about the importance of confidence in understanding differences b/w males and females use of computers.

This effect size suggests that the male group feels much more confident than the females in performing computer tasks.

Critique

23. Identify two threats to the internal validity of this study and identify steps that were taken or could have been taken to minimize the threats.

The sample size used 80 women and 67 men. This gave the females a

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majority in the study. If it were the opposite then it would have made the study biased keeping in view previous researches on the same topic. Explicit interpretation is missing from the study. Adding it would make the study more reliable.

24. Describe any other weaknesses.

The correlational study is weak in this study.

25. Describe the strengths of this study.

The study takes a significant sample size to validate the hypothesis. Second, the statistic (mean differences) are sufficient to reject the null hypothesis.

26. Based on your analysis of the study, what is your opinion of the usefulness of this study for yourself, other practitioners, and researchers?

The study is useful in more than one way. First, it clearly proves the thesis (see stats). Second, this study is well in line with previous research on this topic.