Descriptive Research Study

Investigation of Positive and Negative Affect of UniJos PhD Students toward their PhD Research Project

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1. Ask Question

- **General research question:** What is the attitude of PhD students at UniJos toward their PhD research project?
  - Specific research questions:
    - What is the level of positive affect that UniJos PhD students have toward their PhD research project?
    - What is the level of negative affect that UniJos PhD students have toward their PhD research project?

2. Design Study

- **Participants:** UniJos PhD students who attend the Research Seminar on 29 February, 2008.
- **Instruments:** PANAS Questionnaire (see next slide)
  - Previously designed and validated by other researchers.
  - Published in *Journal of Personality and Social Psychology*
- **Procedure:** Administer questionnaire to PhD students before the Research Seminar begins.

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3. Collect Data

- Data was collected on 29 February 2008 when the questionnaire was administered.

4. Analyze Results

- Data was entered into an Excel Spreadsheet.
  - The next few slides outline how the results were analyzed.

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Scientific Method

1: Ask Question
2: Design Study
3: Collect Data
4: Analyze Results
5: Reach Conclusions
6: Share Findings
On the questionnaire, items 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19 measured Positive Affect. For each participant, I added the responses for these items to get a grand total for Positive Affect.
On the questionnaire, items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20 measured **Negative Affect**.

For each participant, I added the responses for these items to get a grand total for **Negative Affect**.

Now that I have grand scores for **Positive Affect** and **Negative Affect**, I want to know what the average scores for both constructs are. By averaging the scores, I will then be able to interpret the scores on the Likert scale that was originally administered.

To do this, I divided the total **Positive Affect** and total **Negative Affect** scores by 10, the number of items that measure each construct.

By adding up the scores and dividing by the number of scores, I am in effect calculating the mean score for each construct.

The average (Avg) PA and NA scores can now be interpreted on the Likert scale, i.e., an average score of 3.6 is midway between having **moderate** Positive Affect and **quite a bit** of Positive Affect.

1 is low PA or NA
5 is high PA or NA
3 is average.

Now that I have average PA and NA scores for each participant, I want to know the average PA and NA score for my overall sample.
Now that I have analyzed the Positive and Negative Affect for PhD students overall, I would like to compare Positive and Negative Affect by the demographic characteristics that I assessed.

When comparing results by demographic characteristics, this study turns into a Causal-Comparative Research Design (a subset of the Descriptive design) because I will be comparing PA and NA between naturally occurring variables (e.g., sex and age).

I first wanted to compare PA and NA by sex. I sorted the data so all of the male data (coded as 1) and female data (coded as 2) were together. Since there were only 9 records of missing sex information, I did not include these persons in the analysis.

The mean PA score for males was 3.83 and for females was 3.66. The mean NA score for males was 1.47 and for females was 2.44. The t-test showed a p-value of 0.45 for PA and 0.05 for NA, indicating that the differences between male and female PA and NA scores are not statistically significant.

I next wanted to compare PA and NA by age. I sorted the data by age. The age categories were 40-49 (coded 2), 50-59 (coded 3), and 60+ (coded 5). Since there were only 1 person in the 60+ age category, I decided to combine the 50-59 and 60+ age groups.

The mean PA score for the 40-49 age group was 3.71 and for the 50+ age group was 3.52. The mean NA score for the 40-49 age group was 1.89 and for the 50+ age group was 2.82. The t-test showed a p-value of 0.39 for PA and 0.02 for NA, indicating that the difference in NA score between the 40-49 and 50+ age groups is statistically significant, while the difference in PA score is not statistically significant.

I again determined whether differences between the mean scores were statistically significant by conducting a t-test. The p-value for PA was 0.65 and for NA was 0.04, indicating that the difference in NA score between the 40-49 and 50+ age groups is statistically significant, while the difference in PA score is not statistically significant.
• Since the differences in Negative Affect scores between males and females were different, we might be tempted to conclude that being female causes increased Negative Affect toward the PhD research project.
• Likewise, we might also be tempted to conclude that being older causes increased Negative Affect toward the PhD research project.
• However, you CANNOT do this. See the next slide to find out why.

5: Reach Conclusions

• Conclusions
  • Describing the current state of Affect by overall mean scores:
    • The typical PhD student at UnJios feels quite a bit of Positive Affect toward their Research Project.
    • The typical PhD student at UnJios feels little Negative Affect toward their Research Project.
  • Comparing the current state of Affect by demographic characteristics:
    • Female students tend to feel slightly more Negative Affect toward their Research Project than males.
    • Older students tend to feel slightly more Negative Affect toward their Research Projects than younger students.
    • There were no significant differences in Negative Affect by years enrolled in the PhD program.
    • There were no significant differences in Positive Affect for any of the demographic characteristics.

6: Share Findings

• In my write-up for this research study, I would need to include the following information in the Methods section.
  • Participants:
    • 14 PhD students at UnJios
    • Sex:
      • Male: 3
      • Female: 10
    • Missing: 1
    • Age:
      • 40-49: 9
      • 50-59: 4
      • 60+: 1
    • Years enrolled in program:
      • 1 year: 4
      • 2 years: 5
      • 3 years: 2
      • Missing: 1

Note that the 3 males all happen to be in the 60+ age category.
However, the females are spread throughout all 3 age categories.
Because the lower NA scores are associated with male students and students in the lower age bracket, this may not be the case for PA.

Finally, I wanted to compare PA and NA by years enrolled in the PhD program. This is why we
– Male: 3
– Female: 10
– Missing: 1

Age

Affect by Years Enrolled in the Program

Positive and Negative Affect of PhD Students toward their PhD Research Project by Years Enrolled in the Program

Scores

– 40-49: 9
– 50-59: 4
– 60+: 1

Stu Sex Age Yrs Avg PA Avg NA
2 2 4 4 3.2 2.7
2 1 3 3 3.8 1.3
2 2 3 3 3.7 1.3
2 3 3 4 3.9 2.1
2 2 4 4 3.5 3.6

Stu Sex Age Yrs Avg PA Avg NA
2 1 3 3 3.8 1.3
2 1 3 1 3.9 1.8
6: Share Findings

- Methods Section, Continued
  - Research Design: Descriptive
    - Describing a phenomenon as it is
  - Instrument: PANAS (Positive and Negative Affect Scale)
    - Measures two affective state dimensions
      - Positive affect – the state of high energy, full concentration, and pleasurable engagement
      - Negative affect – the state of unpleasurable engagement and distress
    - Participants responded to how they feel when think about working on their PhD Research Project
      - 10 items for Positive Affect
      - 5-point Likert scale from 1 (very slightly) to 5 (extremely)
    - Developed and validated by Watson, Clark, and Tellegen (1988)

- Methods Section, Concluded
  - Procedure:
    - Administer PANAS before PhD Research Seminar
  - Data Analysis:
    - Mean for Positive Affect and Negative Affect
    - Calculated mean of PA and NA by demographic groups
      - Compared means by demographic group by t-test

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6: Share Findings

- Results
  - In the Results section, I would include the tables with mean values (for the sample overall in addition to sex, age, and years enrolled) as well as the charts.
  - I also need to include the standard deviation of scores for each mean value so the readers will know how much variation there is.

Calculating the Standard Deviation

1. Subtract each score from the mean. (This gives you the deviation.)
2. Square each deviation.
3. Add up the squared deviations.
4. Divide the sum by total number of scores.
5. Take the square root of the result.

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Average PA</th>
<th>Average NA</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>0.38</td>
<td>0.72</td>
<td>0.72</td>
</tr>
<tr>
<td>Male</td>
<td>0.06</td>
<td>0.29</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.37</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>40-49 years</td>
<td>0.32</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>50+</td>
<td>0.49</td>
<td>0.77</td>
<td></td>
</tr>
<tr>
<td>1-2 years</td>
<td>0.48</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>3-4 years</td>
<td>0.27</td>
<td>0.80</td>
<td></td>
</tr>
</tbody>
</table>

These are the standard deviations for each demographic where I reported a mean.

These low standard deviations mean that there was very little variation in PA scores for the males (see next slide).

These large scores mean that there were great differences between NA scores for those enrolled in the program for 3-4 years (see next slide).
Look at how closely these scores are—right around 4. This results in a low standard deviation.

These scores range from approximately 1 to 4. This results in a much higher standard deviation.

6: Share Findings

• Discussion
  – In the Discussion section, I would discuss the conclusions that I reached in Step 5.
    – I should also include Implications of the research, Limitations of the study, and Directions for Future Research.
      • Implications: Supervisors should pay careful attention to the distress level of female and older students and provide additional support when necessary.
      • Limitations: Small sample size and is limited to ASSE students.
      • Directions for Future Research: Conduct a similar study with a broader range of departments. Examine whether counseling interventions decrease Negative Affect