Making an Effective Research Poster: Design advice and inspirations

Prof Annaliese K. Franz
Faculty Director
Undergraduate Research Center
Why present a research poster?

- Great experience for first time presenters
- Experience presenting your research in a formal setting
- Standard format used at many professional meetings
- Get feedback from peers, faculty, and other experts
- Share ideas and learn from others
- Network in your area of study
- Enhance your resume
What is a Research Poster?

- A summary of research
- A way to share ideas and generate discussion
- A visual display
- Includes a mixture of text, graphs, pictures, tables, etc.
Purpose of a Research Poster?

- Video: How to Design a Research Poster Part I

https://www.youtube.com/watch?v=WCKhmKeAXY0
Goals of a Research Poster

Old Goal:
Summarize every part of my research and my entire research paper/thesis to get an A+

New Goal:
Teach as many people as possible something you learned and a key result in your research
Design of a Research Poster

The two golden rules of scientific poster design:

1. Don’t put things on your poster that people ignore
2. People will ignore many/most things!

One of the key considerations for effective communication is the idea of “less is sometimes more”. Think about how your design can feature more by having fewer words and making images larger.
Evidence supports better poster design! Check out this video from Mike Morrison, and a link to his templates: https://osf.io/6ua4k/ https://www.youtube.com/watch?v=SYk29tnxASs
Components of a Research Poster

- **Title** (Use Big font, 10 words or less if possible)
  - Authors and Institutional Affiliation (contact info)

- **You do not need an Abstract** – note that this may be rather “controversial” but my opinion that your poster IS an abstract and thus should actually include an abstract on it

- **Introduction/Background** (with images!)

- **Methods** (often with images!)

- **Results/Findings** (with images!)

- **Discussion/Conclusions**

- **Acknowledgements**
  - Grant funding, research programs, mentors, etc

- **References**

Remember that posters may take different formats.
There are various templates on websites as a starting point

• Don’t use too many words

• Make sure to have Images/graphs, etc!

• Check out some templates here:

  https://osf.io/6ua4k/

  https://www.posterpresentations.com/free-poster-templates.html
Research Poster Best Practices

- Video: How to Design a Research Poster Part II

https://www.youtube.com/watch?v=kD_zCBT3GUk
Examples of Research Posters
Examples of Research Posters
Examples of Research Posters

Effect of Prior Forage Experience on Response to Novel Feed in Dairy Calves
Chelsea B. Morrow, Blair C. Downer, and Cassandra B. Tucker
Center for Animal Welfare, Department of Animal Science, UC Davis

Background
Access to forage from birth may be important to satisfy a newborn calf’s need to ingratiate itself with the environment and to improve gastrointestinal health. This may be a problem if the calf does not have access to fresh forage.

Objectives
Determine how exposure to a novel forage affects a calf’s behavioral reaction to being offered a novel forage. Specific objectives are:

- Efficacy of TMR composition on feeding behavior in dairy calves
- Effects of exposure to novel forage on feeding behavior

Methods

- Day 0-49 (treatment groups): all calves were offered a novel forage (60% TMR, 40% grass and hay)
- Day 50 (TMR introduced): all calves were offered a forage mix (60% TMR, 40% grass and hay)

Results & Discussion

- Latency to eat feed: TMR-fed calves showed a significantly lower latency to eat than those offered the novel forage. This may indicate a preference for the familiar feed.
- Time spent eating TMR: TMR-fed calves spent a significantly longer amount of time eating TMR than those offered the novel forage.

Conclusion
Calves with prior hay experience adapt better to novel forage introduced at weaning than calves with no prior hay experience, though this effect appears to be moderated by the presentation method of the hay.
Example of BAD Research Poster

What do you think should be fixed about this poster?

### Abstract

### Introduction

### Methods & Materials

### Results

### Discussion

### Conclusion

### References

### Acknowledgements
Example of BAD Research Poster

What do you think should be fixed about this poster?

**ABSTRACT:**

One primary cause of space debris is a problem with weightlessness, as many parts of the system. In theory, weightlessness would cause some parts to fall and others to float above the ground. This can lead to a number of problems, such as a decrease in the effectiveness of satellites or a failure of rocket engines. The goal of this project was to evaluate the effects of weightlessness on a number of different systems, including a delicate scientific equipment.
Example of Better Research Poster

What do you think should be fixed about this poster?

Active Video Game Use and its Effects on Sedentary Behaviors
Draycen D. DeCator, M.A., Yvette Ramirez, & Jocelyn Smith Carter, Ph. D.
DePaul University

Introduction

Despite a lot of research attention, the obesity epidemic in United States youth is a continuing problem (Centers for Disease Control and Prevention, 2013). The problem is receiving attention from researchers hoping to reverse the trend of increasing body mass index (BMI). An area of focus revolves around the use of active video games (AVGs) to increase physical activity levels in youth (e.g., Madlon, Mihucu, & Jull, 2012). Having an understanding of the way in which AVGs can help decrease BMI can lead to the creation of AVGs with an increased likelihood of being played, and can thus increase the number of youth that will benefit from the game.

Results

From previous studies using AVGs have shown that children given an AVG spent less time playing sedentary video games and spent more time playing AVGs (Mihucu et al., 2009). These children also had lower waist circumference compared to the control group that did not receive an AVG. In a review by Active Healthy Kids Canada, the results did not support AVGs as a strategy to keep children more physically active (Chaput et al., 2013), but suggested that AVGs may help children to reduce sedentary time. Therefore, youth with high levels of baseline sedentary behaviors may benefit most from AVG use. The success of introducing AVGs will also likely depend on characteristics of the youth, such as screen time (Wu, O'Connor, & Johnson, 2011). That is, the findings of these studies may have been mixed because of relevant variables not being taken into consideration such as baseline sedentary levels and temperament (e.g., surgency/intensity pleasure seeking).

The current study researched: 1) whether sedentary time, AVG use, and levels of surgency predicted BMI, and 2) if any interactions were present.

Methods

The Active Project (TAP) for Kids is a broader research project being conducted by DePaul University and Sacred Heart University. TAP’s aim has been to help understand what makes kids more likely to play active video games (AVGs), and how they can be encouraged to be more physically active through the use of AVGs.

Participants

Participants in the current study consist of a subset of youth from the TAP for Kids project that had complete data for all study variables (n = 193). Participants for the study were youth between the ages of 8 and 14 from the Chicago area. The study measured sedentary time, AVG use, temperament, and BMI of each child.

Measures

- Sedentary time
- Self-report
- 6 items (3 tasks, weeknight and weekend days)
- Combined for weeks average time
- AVG use
- Self-report
- Time during one week
- Temperament:
  - Early Adolescent Temperament Questionnaire – Revised (EAT-R) by Rothbart, Ellis, Rasiel, & Posner, 2003
- BMI for significance

Figure 1. Bar graphs of significant group differences.

Table 1. Preliminary analysis of group differences. Note: Controlling for age, *p < .05, **p < .01.

Discussion

The current study provides support for AVG use as a predictor of BMI, at least for youth with already low sedentary tendencies. Emerging intervention programs that seek to promote AVG use as a form of physical activity should take into account that the success of introducing AVGs will likely depend on already-established behaviors of the youth. However, the current study does not support a link between temperament and sedentary time or AVG use.

Future studies should examine the effect of introducing AVGs to youth longitudinally, to see if AVG use can lead to decreases in BMI or if the current findings are due to a confound variable predicting lower BMI, higher AVG use, and lower sedentary tendencies. In addition, there is a need to replicate the findings of the current study with populations in other areas, as the current results are limited to a predominantly Caucasian and African American population in the Midwest.

References

Community Building Through Assessment: Creating a Culture of Practice

Sarah Jardeleza, Gabe Ording, Julie Libarkin: CENTER FOR INTEGRATIVE STUDIES IN GENERAL SCIENCE

COMMUNITY OF PRACTICE?
Can CISGS be transformed into a community of practice (Wenger 1998) through assessment?

WHY ASSESSMENT?
• Easy segue for scientists: assessment and evaluation are similar to experimentation and scientific processes
• Discipline-Based Education Research (DBER; NRC 2012)
• Continuous improvement of teaching and learning

Outcomes

Decision-making

Measures

Reporting

Courses

Students

Faculty

Figure 1. Assessment cycle for continuous improvement.

Figure 2. Structures for participation in CISGS program evaluation and continuous improvement.

Table 1. Faculty and student interaction with assessment process (% by AY for lunch meetings or seminar for surveys).

<table>
<thead>
<tr>
<th>Semester</th>
<th>Student Surveys</th>
<th>Faculty: Surveys</th>
<th>Faculty: Lunch Meetings</th>
</tr>
</thead>
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<tr>
<td>Spring 2011</td>
<td>n/a</td>
<td>37%**</td>
<td>67%</td>
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<td>39%**</td>
<td>32%**</td>
<td>40%**</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>33%**</td>
<td>30%**</td>
<td>40%**</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>49%**</td>
<td>41%**</td>
<td>30%**</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>49%**</td>
<td>41%**</td>
<td>38%**</td>
</tr>
</tbody>
</table>

OUTCOMES:

Global Learning VALUE Rubric Review:
1. Professional development related to rubrics
2. Collaborative iterative feedback for rubric improvement
3. Alignment of instructor’s course goals with the rubric
4. Shared effective rubric-related instructional activities
5. Developed innovative rubric-related instructional activities
6. Improved community of practice with faculty across disciplinary boundaries

Energy Concept Inventory:
• What is a set of concepts common across CISGS?
• Syllabus review, faculty discussion = Energy

• Research/Development
• AAAS Project 2061, etc.

• Survey Creation & Student Pilot Testing #1
• Administered survey during student orientation

• Survey Revision & Student Pilot Testing #2
• Administered survey early-course FS2012

• Faculty Feedback
• Item revision and creation

• Survey Revision & Student Pilot Testing #3
• Administered survey late-course FS2012

Example Question:
Which of the following contain(s) energy? CHOOSE ALL THAT APPLY.

A) Rocks sitting on a hill
B) Rocks rolling on a hill
C) Rocks sitting on the ocean floor
D) Rocks rolling on the ocean floor
E) I do not know

Faculty DBER Projects:
1. Dr. Remke Van Dam – Weather, Climate, Water, and Communication
2. Dr. Jon Stoltzfus – Flipped REAL Classroom
3. Drs. Julie Libarkin, Stephen Thomas, Gabe Ording

Figure 3. Ideal student and expert models of the greenhouse effect.

FUTURE STEPS
• Faculty Collaborative DBER AOP Assessments
• Coordinated embedded assessments
• Automated course reports for faculty as requested
• Continued Collaborative Publications
• Collaborative Grants

CITATIONS
Good Example of Research Poster

Think of what you will point to and say during your presentation.
Examples of Research Posters

This poster had multimedia with a tablet to show a video and samples attached as a visual – great for in person interactions.
Presenting Your Research

- Remember that you are the expert!

- Don’t block your poster (in person or when recording on zoom, etc)
  - Especially if you have more than one presenter

- Treat your poster presentation like a conversation
  - Prepare a mini “presentation” but allow for questions
  - Think about what you will point to on your poster to support what you are saying

- Practice!
  - Prepare 1-2 sentences per section
  - Use the And-But-Therefore framework or other effective communication strategy

https://www.youtube.com/watch?v=ERB7ITvabA4
Presenting Your Research

- Prepare and practice for common open-ended questions
  - Tell me about your research…
  - How does this relate to the field?
  - How will this research impact your future research?

- Be enthusiastic about your work
  - Have more than one presenter?

- Practice projecting your voice
  - Have water

- Dress so you feel confident
QUESTIONS?