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Increasing the Sophistication and Relevance of Student Projects: A Small-Group Mentoring Approach to Teaching Research Methods

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Suzanne T. Mallery, Leslie R. Martin, Adeny Schmidt

When undergraduate students design independent research projects for a methodology class the compressed timeline encourages projects that are neither well-grounded in literature nor thoughtfully designed. To address this, a model has been developed in which faculty mentors work with students in small groups as they develop their literature reviews and project proposals and again after data are analyzed as they think about implications. Faculty mentor projects in their expertise, and share common learning outcomes for five meetings over the term that focus on theoretical perspectives; key issues and studies in the literature; ways to formulate literature reviews; forming operational and conceptual definitions and hypotheses; and (after project completion) understanding the connections between their results and the literature. This process increases the chance that students will do projects that are theoretically interesting and may contribute to the knowledge base in a given field. Challenges to implementation and administrative buy-in are discussed.

For a link to the presentation and electronic copies of relevant documents, please email pmallery@lasierra.edu.

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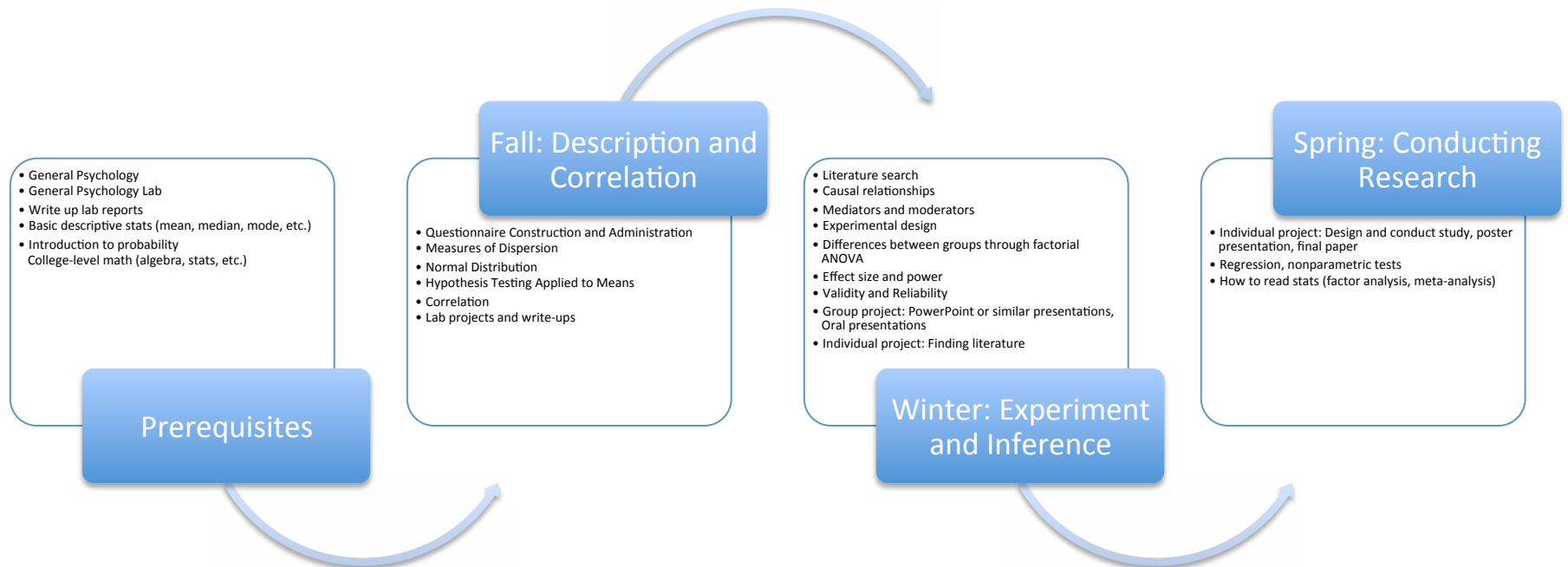
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Methods and Statistics Course Sequence



PSYC 322 Faculty Facilitator Groups—Week A Lesson Plan For 2/21/2013

Learning Outcomes:

1. Have a general understanding of the theoretical perspective(s) and contours of the sub-field their research projects will focus on.
2. Be able to find research articles within their topic's focus.
3. Get a glimpse of the dominant research methodologies likely to be used within the sub-field their research group will focus on.

Instructional Suggestions and Ideas:

- Give a 30-minute mini-lecture, introducing students to the major theories, cutting-edge controversies, and major methodologies within the general topic the research group will focus on. It's up to you to decide just how wide or narrow a net you will cast; for the sake of helping students develop strong projects quickly, I'd suggest you not allow them to work on a project that you can't provide a key citation or two from your memory or files.
- Give them a syllabus for the research group; a sample syllabus is included if you wish to modify it.
- Talk about a few key citations in the field, the appropriate databases, and key thesaurus terms (or how to find them).
- Demonstrate a literature search relevant to the topic.
- DON'T let them get committed to a particular hypothesis this early, before they have conducted a literature review. Hypotheses to explore are fine.
- DON'T let them get committed to a particular methodology. They often want to come up with a methodology before a hypothesis. Make them stop.
- Make it a mini-assignment to read and be prepared to present a summary of a classic article you assign and/or a contemporary article that they find.

Course Context:

	Big Ideas in Lecture/Readings	Significant Assignments
Last Week	Post hoc tests; analyzing two-way ANOVA; how to give a good oral presentation	Midterm exam; rough draft of results section for group project
This Week	Interpreting two-way interactions; error bars	Homework on interpreting interaction effects
Next Week	χ^2 , three-way interactions (just a little bit!), covariates	Oral presentations of group projects

Two weeks from now the faculty facilitator group: Conceptualizing the literature.

PSYC 322 Faculty Facilitator Groups—Week B Lesson Plan

For 3/7/2013

Learning Outcomes:

1. Have a basic understanding of the key issues in the literature related to their research topics (controversies, schools of thought, key researchers, etc.).
2. Know some key studies or researchers relevant to their topics.
3. Be able to relate their topics to the broader literature in the area being studied.
4. Outline a literature review, focused on a research question or a focused area of study. They should not be ready to have a hypothesis yet, but should have a research question or area.

Instructional Suggestions and Ideas:

- Take a few minutes for each person to talk about what research questions they find most interesting. Provide feedback on appropriate literature they need to examine (perhaps building on their bibliographies).
- Use your expertise in the area to highlight/draw out key issues.
- Give them occasional “behind-the-scenes” tidbits: Who loves or hates who (e.g., an interpersonal relationships research who changed her name as she married & divorced the same partner [and sometimes co-author] multiple times: Walster Bercheid Walster Bercheid Walster), the dead-ends taken (e.g., how many times people tried to prove that opposites attract), the backbiting (e.g., the research I know who told a friend of mine that his data wasn’t ready for publication while she tried to collect data for a similar study), and the amusing anecdotes (e.g., the interpersonal relationships researcher who married the Adventist girl he met in the MIT housing study).
- Talk about “ways to tell the story” in a literature review: Many students tend to summarize a series of articles rather than telling a research story. What stories are often told in this area of literature? Perhaps there are two competing theories, or an interesting chronological history, or different theories that are being synthesized, or some gaps in the literature that could be filled. How can literature reviews be thought of as stories about these issues? Have students tell their story from the literature review outlines.

Course Context:

	Big Ideas in Lecture/ Readings	Assignments
Last Week	χ^2	Oral presentations of group projects; two-way ANOVA lab write-up
This Week	Discussion of report writing; how to select a test	Bibliographies; literature review outlines
Next Week	Power, effect size, and null hypothesis significance testing; sources (finding, citing and formatting); nonparametric procedures beyond χ^2	Lab final; lab write-up (χ^2); homework (power and nonparametric procedures)

Next faculty facilitator group meeting: More on literature reviews (ready to draft).

PSYC 323 Research Groups—Lesson Plan

For 4/3/2013

Learning Outcomes:

1. Be able to highlight key issues in the literature they have found.
2. Understand different ways to formulate their literature reviews (e.g., chronologically, conflicting theories, etc.).

Instructional Suggestions and Ideas:

- ▲ At best, they should have begun drafting a literature review. You may want to ask each student to describe the narrative or story that they will be telling in their literature review.
- ▲ Examine several intro sections of articles they have found; these are possible models for their lit reviews.
- ▲ Have them share research ideas. They should be just starting to formulate possible hypotheses in their fields; they don't necessarily have to narrow it down to one yet, but if they have none (or none in their area), they need to start thinking about them. Remind them that they are generating hypotheses, not methodologies; but the hypotheses have to be testable using accessible methodologies.
 - ▲ Note that any hypotheses they generate need to be testable quickly using the 25 other students in the class, convenient people on campus, or in exceptional cases the PSYC 104 research participant pool or people off campus. They will have a 1.5 week window in which to collect data.
 - ▲ I try to get students to do within-subjects designs as much as possible; there needs to be a reason to use a between-subjects design.
 - ▲ They need to do at least "three-variable" studies. This could be two IVs and a DV, two DVs and an IV, two variables with a mediator between them, developing a scale with three subscales expected, etc. They should hypothesize interactions when appropriate (i.e., it should be a three variable study for a theoretical reason). In no cases should they do more than five-variable studies.
- ▲ You may want them to bring their literature review drafts and an outline of a suggested methodology for next week.

Course Context:

	Big Ideas in Lecture/Readings	Assignments
Last Week	Nothing (vacation)	Nothing (though some of them did some reading or started drafting their literature reviews)
This Week	Choosing the right research design	Homework on choosing research designs and effect size
Next Week	Stats Review; Effect Size; Power; Reaction time methodology; Linear regression	Literature review

Next week in the research group: Developing a methodology and proposal.

PSYC 323 Research Groups—Lesson Plan

For 4/10/2013

Learning Outcomes:

1. Be able to formulate a relevant hypothesis (ideal: have clear and well-written hypotheses; minimally: comprehensible).
2. Be able to generate one or more operational definitions for the conceptual definitions in their hypotheses (ideal: consistent with the literature, interesting, and innovative; minimally: actually related to the hypothesis).
3. Develop a preliminary outline of a methodology to test their hypotheses.

Instructional Suggestions and Ideas:

- ▲ Share hypotheses; see if they are clear.
- ▲ Discuss the connection between the hypotheses and the literature:
 - ▲ What does their study add to the body of literature? What will we know now that we didn't know before?
- ▲ Have them outline a method of testing their hypotheses, asking them to list operational and conceptual definitions.
- ▲ Let them know what you are willing to do to help them with their project for the rest of the class, and what things are now turned over to Paul Mallery and Leslie Martin. Suggestion: You will give them help in finding relevant articles to fill in gaps or to help with their methodologies (when you know without doing a lengthy search), and the rest goes to Paul or Leslie. At least, make it clear that they are mostly working with us for the sake of this class, and don't spend a lot of time helping them (with the possible exception of a project that will help you in your research).

Course Context:

	Big Ideas in Lecture/Readings	Assignments
Last Week	Choosing the right research design	Homework on choosing designs and effect size
This Week	Stats Review; Effect Size; Power; Reaction time methodology; Linear regression	Literature review (due Friday)
Next Week	Multiple regression; selecting the appropriate statistical analysis; review project proposals	Homework on linear regression; project proposal

Next time in the research group: Interpreting results and discussing implications, May 22, noon

PSYC 323 Research Groups—Lesson Plan For 5/22/2013

Learning Outcomes:

1. Understand what their findings mean, especially if they didn't find what they expected.
2. Understand implications of their results.
3. Begin thinking about relevant literature to include in their final papers.

Instructional Suggestions and Ideas:

- ▲ Students have been told to come prepared to provide a 2-minute summary of what they did, and what they found. You might structure the session with a few minutes for each student's presentation, questions, and suggestions.
- ▲ Poster presentations are coming up right away, so they won't have time to incorporate any but the key implications for their posters. Some direction on this might be useful.
- ▲ They will have about 2 weeks from the time the poster presentations are completed until the final papers are due, so they do have time to update their literature searches.
- ▲ Some who didn't find anything significant are unhappy. Some reinforcement that they did a meaningful project might be helpful. I've been trying to tell them that all data is good data, so even if it's not as good as they wanted, it's not bad.

Course Context:

	Big Ideas in Lecture/Readings	Assignments
Last Week	Data Collection	Midterm exam
This Week	Data analysis; how to make a poster	Results section draft (due Tuesday); poster drafts (due Thursday)
Next Week	Receive feedback from posters; filling in some gaps in their knowledge for the year	Final posters; poster presentations

ATHLETIC IDENTITY, FIELD AGGRESSION, AND LIFE AGGRESSION



Abstract

Consistent with the idea that sports act as an aggression instigator, this study examined the predicting ability of athletic identity and field aggression on life aggression. Three hypotheses were made regarding athletic identity, field aggression, and life aggression. Participants were gathered from the six La Sierra University athletic teams. A multiple regression was used to analyze the data. The results indicated that the first hypothesis was not supported, showing that athletic identity ($\beta = .01, p = .90, 95\% \text{ CI } [-.15, .17]$) was not a significant predictor of life aggression ($M = 5.28, SD = 2.35, 95\% \text{ CI } [4.47, 6.09]$). Field aggression ($\beta = .08, p = .10, 95\% \text{ CI } [-.02, .18]$) was also not found to be a significant predictor of life aggression in college athletes. Lastly, the third hypothesis was not supported. Athletic identity, ($\beta = .077, p = .66, 95\% \text{ CI } [-.13, .20]$) in comparison to field aggression, was not a better predictor of life aggression in college athletes. Conversely, field aggression was shown to be a better predictor of life aggression($\beta = .29, p = .088, 95\% \text{ CI } [-.02, .18]$).

Introduction

- In the past, many researchers assumed that sports play an important role in channeling aggressive behavior.
- However, current research points to the opposite effect. Sports may lead to maintenance or increased levels of aggression in daily life.
- How much an athlete identifies with the athletic role (Brewer, Van Raalte, & Linder, 1993) also plays a part in the aggressive output displayed on or off the field. High athletic identity may lead to more aggressive behavior in an attempt to rebuke a threat towards one’s identity or self-perception.
- Based on the research of Visek, Watson, Hurst, Maxwell, and Harris (2010), three hypotheses regarding athletic identity, field aggression, and life aggression were generated.

Variables
1. Athletic identity: ‘the degree to which an individual identifies with the athlete role’ (Brewer, Van Raalte, & Linder, 1993; p. 237).
2. Field aggression: any intentional act while playing a team sport, legal or illegal, inflicted on an opponent that can cause physical or psychological harm.
3. Level of aggression in daily life, or life aggression: an athlete’s global hostility off the field, or perception and frequency of aggressive behavior in their daily life.

Hypotheses

Hypothesis 1: Athletes high in athletic identity will show more aggression in their daily lives, compared to athletes low in athletic identity.

•Hypothesis 2: Athletes displaying high levels of aggression on the field, compared to athletes displaying low field aggression, will show higher levels of aggression in their daily lives.

•Hypothesis 3: Athletes who identify highly with the athletic role and show more field aggression, will show higher levels of aggression in their daily lives, compared to athletes with high athletic identity and low field aggression.

Gabriela J. Bolivar

La Sierra University, Riverside, California

Method

Participants

Thirty-five participants (23 men and 12 women) were gathered from the six La Sierra University athletic teams. 9 basketball players, 13 soccer players, 3 baseball players, 8 volleyball players, and 2 softball players.

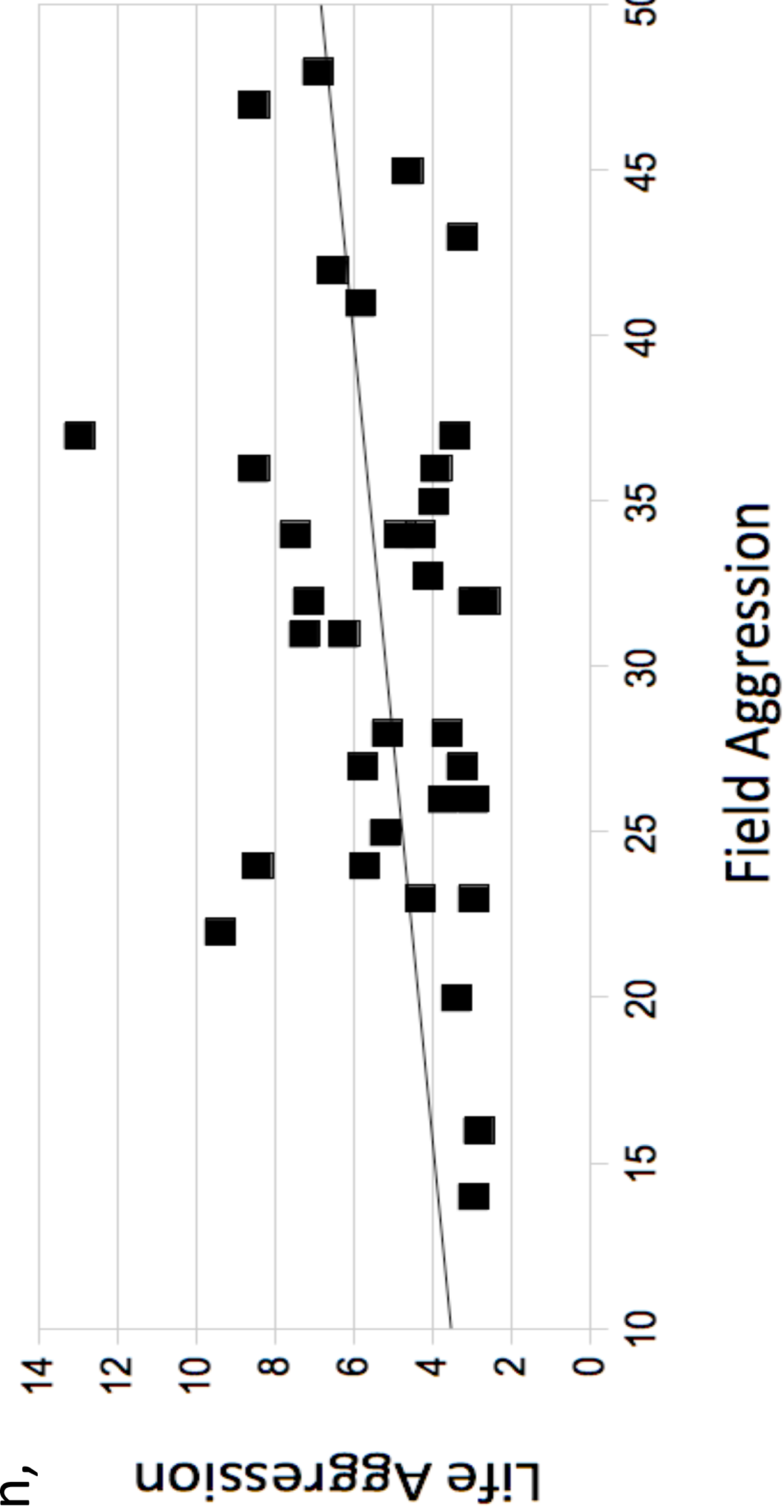
Measures

- Athletic Identity*: The Athletic Identity Measurement Scale (AIMS) by Brewer and Cornelius (Visek, et al., 2010)
- Field Aggression*: Competitive Aggressiveness and Anger Scale (CAAS) by Maxwell & Moores (Visek, et al., 2007)
- Life Aggression*: Adapted version of the Problem Behavior Frequency Scale (Farrell, Kung, White, & Valois, 2000).

Data analysis

A multiple regression was used to test the predictability of athletic identity and field aggression on life aggression.

Associations Between Field Aggression and Life Aggression



Acknowledgments

Special thanks to Dr. Leslie Martin and Dr. Brian Gendron for being faculty facilitators, mentors, and giving me the resources to complete this project. In addition, I would like to thank the La Sierra University Psychology Department for the opportunity to participate in undergraduate research.

Results

- Athletic identity and field aggression accounted for 8.6% of the variance ($R^2 = .086, F(2, 32) = 1.51, p = .236$).
- The first hypothesis was not supported, showing that athletic identity ($\beta = .01, p = .90, 95\% \text{ CI } [-.15, .17]$) was not a significant predictor of life aggression ($M = 5.28, SD = 2.35, 95\% \text{ CI } [4.47, 6.09]$).
- Field aggression ($\beta = .08, p = .10, 95\% \text{ CI } [-.02, .18]$) was not found to be a significant predictor of life aggression in college athletes, not supporting the second hypothesis.
- The third hypothesis was not supported. Athletic identity, ($\beta = .08, p = .66, 95\% \text{ CI } [-.13, .20]$) in comparison to field aggression, was not a better predictor of life aggression in college athletes. Conversely, field aggression was shown to be a better predictor of life aggression ($\beta = .29, p = .09, 95\% \text{ CI } [-.02, .18]$).

	Standardized Coefficients	95% CI
	β	p
Model 1	Athletic Identity	0.08
		0.66
Model 2	Field Aggression	0.29
		0.09
		[-.02, .18]

Discussion

- The lack of support for athletic identity and field aggression predicting life aggression shows a separation of athletic identity and field aggression in athletes.
- Contrary to what was previously hypothesized, aggressive behavior may not be caused by a conflict between one’s inner emotional state and environmental cues.
- A player’s aggression displayed on the field or in daily life is not dependent on his or her self-concept.
- Field aggression may not be stimulated by a perceived threat to a player’s identity, or by having a high level of athletic identity, but may be due to other external factors or aggressive tendencies.
- Field aggression was shown to be a better predictor of overall expression of aggression in daily life. This may reveal that aggressive people may simply be aggressive across different domains of life, not necessarily only in the sports context.

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Predicting Relationships between Music Type, Emotional Intensities, Religiosity, and Social Desirability

Matthew S. Stanley

La Sierra University, Department of Psychology

Abstract

Linear regression was used to analyze the effects of music type, emotional intensities, and religiosity on social desirability. None of the predictions were supported, but positive emotional intensity was found to be negatively related with social desirability, positively correlated with intrinsic religiosity, and negatively correlated with extrinsic religiosity.

Introduction

Self-deception is associated with positive emotions, depressed people are thought to be sad due to lack of self-deception, and level of religiosity has been negatively correlated with depression (Kilbourne, Cummings, & Levine, 2009; Robinson & Moeller, 2009; Roth & Ingram, 1985). Self-deception was measured in the form of social desirability, using the Marlowe-Crown scale. Two music conditions were used to manipulate participants’ emotions. It was predicted that positive music would elicit greater positive emotional intensity and that negative music would elicit greater negative emotional intensity. It was also predicted that both increasing intrinsic religiosity and increasing extrinsic religiosity would lead to greater social desirability. It was hypothesized that increasing overall emotional intensity would lead to greater social desirability. Last, it was predicted that while increasing positive emotional intensity would lead to greater social desirability, increasing negative emotional intensity would lead to decreasing social desirability.

Method

The sample consisted of 8 men and 27 women who were students at La Sierra University. Subjects first listened to one of two musical selections before filling out a survey. Each musical piece was played for between eight and nine minutes. The survey had three sections: a 12-item scale which measured emotional intensities, the Allport Religious Orientation Scale, and the Marlowe-Crowne Social Desirability Scale.

Discussion

It is unclear why the hypotheses were not supported, and that one of the predictions was counter-supported. A potential confounding variable in the study is that of boredom. It is possible that the lengths of the musical pieces were longer than necessary to elicit emotional shifts. The strong correlation between positive emotional intensity and intrinsic religiosity suggests that deeply religious individuals may have a more positive outlook on life. Social desirability, in the form of self-deception, can be seen as an unconscious method of feeling better about oneself and life situations. The negative relationship between social desirability and positive emotional intensity could indicate that people with a strong positive outlook on life have less a need for this self-deception. Further research where the length of music listening is decreased and a larger sample size is used would likely give a better indication of the effects of the other predicted variables on emotional intensities and social desirability.

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Psychology Department
Methods & Statistics

Special thanks to the faculty sponsors
who made this project possible:
Dr. Paul Mallery
Dr. Sean Evans

Name: _____

Poster Presentations

Grammar, spelling, APA-style for text, citations, and results	____/5
Abstract <i>(clear, without extraneous information, provides synopsis of what was found)</i>	____/5
Introduction, including research question/hypotheses <i>(flows well, provides good sense of where the field is at present, leads logically to your hypotheses; hypotheses stated clearly)</i>	____/10
Method <i>(clear description of what was done, what tools were used, any modifications)</i>	____/5
Results <i>(presented in APA style, directly linked to stated hypotheses, stated using numbers and plain English)</i>	____/10
Appropriate use of figures and tables <i>(illustrates effectively, clearly labeled)</i>	____/5
Discussion / Conclusions / Summary <i>(frames points appropriately in context of introduction, addresses any surprises or failures, discusses practical application and/or next steps)</i>	____/5
References	____/5
Overall ideas flow and transition well; appropriate level of summarization	____/10
Visually easy to follow and attractive	____/20
Presenting at Department Poster Session and Research Emphasis Week	____/20

Total: ____ /100

Additional comments:

General Instructions: The Psychology Department will provide one 30 x 40 inch poster board for each of you; you may use that, or supply your own. There will also be a can or two of artist's spray adhesive you can use from the Psychology Department. Please **do not use the spray adhesive inside the building** (as we don't want people to get high except on the joy of research). During the Research Emphasis Week presentation, you should be available at all times standing beside your poster to answer questions. (If you're gone for a minute or two, that's OK, but it shouldn't be longer than that.) Be prepared to give a 45-second summary of your research when someone asks, "Tell me what you did" or "What did you find?"

Look at the posters from last year's class, or that have been presented at conferences, in the halls of Ambs. These can give you ideas for how to present things effectively (look for the ones that were selected for first, second, and third place by the Psychology faculty last year)—as well as a few examples of what not to do!

It is demanded that you use font sizes no smaller than 16-point once it is printed.