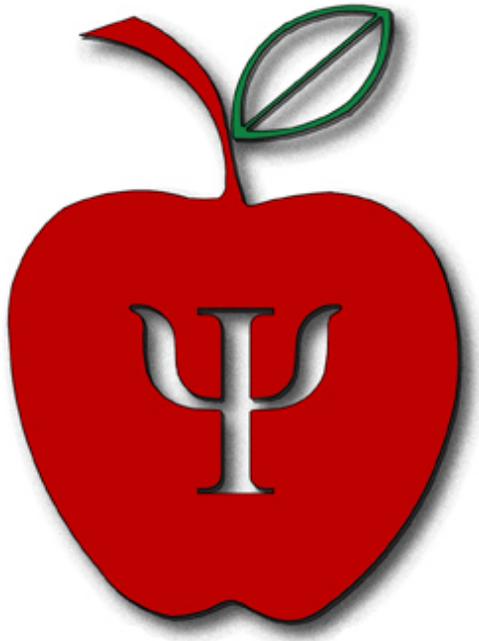


Essays from E-xcellence in Teaching Volume XV

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Edited by
William S. Altman
Lyra Stein
Jonathan E. Westfall



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Table of Contents

Table of Contents	iii
Introduction	iv
Directed Notes:	1
A Strategy for Active Engagement in the Classroom <i>Elizabeth Harwood, Rivier University</i>	1
Increasing Student Engagement Through Film: ‘Film’ the Change You Want to See <i>D. Lisa Cothran, Alabama State University</i>	5
The Zeitgeist is Right for Using Student Created Comics as Learning Tools <i>Walter L. Issac, Georgia College</i>	9
Lions, and tigers, and undergraduate students, oh my! The zoo as a tool for enhancing student learning <i>Bonnie M. Perdue, Agnes Scott College</i>	13
Halloween as an Opportunity for Teaching Biological Psychology <i>Ana M. H. Kehrberg, Muskingum University</i>	17
Exam Review Trivia <i>Kristie L. Campana, Minnesota State University, Mankato</i>	22
How to Use Replication Team Projects in a Research Methods Course <i>Lionel G. Standing</i>	26
No Minorities Allowed! Stimulating Antiracism Dialogue by Examining Psychology’s Past <i>Michelle M. Merwin and Joseph Ostenson, The Univeristy of Tennessee at Martin</i>	32
E-xcellence in Writing: Reducing Undergraduate Writing Apprehension with the Basic Psychological Needs <i>Shannon Hayden, Adena Young-Jones, Jacqueline Byrket, and Taylor Smith, Missouri State University</i>	36
Service Learning Research Projects: Student Satisfaction and Tips for Educators <i>Lindsay A. Phillips, Albright College</i>	41
Margaret Floy Washburn’s Facebook Friends: Telling the Stories of Psychology’s Women and Minority Pioneers <i>Deborah A. Gagnon, Wells College</i>	45
About the Authors.....	49
About the Editors	52

Introduction

This year's volume of *E-xcellence in Teaching* contains invited essays originally published on the Society for the Teaching of Psychology's (STP) PsychTeacher listserv. The listserv has provided a forum for discussion of issues related to the teaching of psychology at all levels, since its launch in 1998. STP has featured the *E-xcellence in Teaching* essay series on the listserv since the spring of 2000. This year's essays present both practical strategies and food for thought on a wide range of topics.

Several of this year's essays focus on unique methods for addressing minority issues in the history of psychology, as well as the present. For example, in chapter 8, Michelle Merwin and Joseph Ostenson sought to foster student understanding and empathy for early contributors whose work was restricted because of race, ethnicity, or sex. They had students prepare presentations as historical psychological figures, but on presentation day told several of them that, because of their psychologist's minority status, he or she would not be allowed to present. The strong emotions and real sense of injustice that the students experienced gave them a more profound understanding of discrimination. Deborah Gagnon, in chapter 11, emphasizes the contributions of women and people of color that made lasting and significant contributions to scientific psychology by having students create Facebook pages to represent their lives and contributions. Researching and presenting Facebook profiles allowed students to gain a deeper appreciation of under-represented historical figures in psychology and their contributions to the field. In chapter 2, D. Lisa Cothran had students generate knowledge about a key issue facing African American women and communicate it in a documentary format. This brought certain causes or injustices about the group to light while also permitting students to harness their digital devices and their engagement with web-based and social media outlets.

Several other essays focus on innovative ways to increase student engagement. Walter Isaac's (chapter 3) students generate comics as class assignments, fostering a more active learning environment. His students researched topics and design creative presentations of the material that would allow them to incorporate far more imagery than typical class papers. The format of the comics promoted succinctness in the communication of the information and provided a creative learning experience for students. In chapter 5, Ana M. H. Kehrberg, increased students' interest and understanding of biopsychology by relating course material to one of the most popular holidays on campus, Halloween. She found that the student's enthusiasm for these topics allowed them to review many topics covered during the course with an interesting approach, which reduced student's anxiety about biopsychology. Bonnie Perdue's students used the zoo (chapter 4) to formulate research questions, design studies, collect data, and present results of their research. Student's research focused on the animals themselves and their welfare in captivity. This helped students identify environmental or social factors that might have impacts on animals housed in captivity, including those in zoos, farms, labs, and even our homes, such as our pets. She found the living laboratory of the zoo provided an almost endless combination of variables to be examined with a rich environment for critical thinking and analysis.

Some essays address specific pedagogical strategies for research methods classes. Lionel Standing (chapter 7) used replication projects as an exercise to promote critical thinking. He

found the benefits of class replication projects, beyond their contribution to scientific knowledge, also included better quality research than projects dreamed up by the students, manageable studies for the student to plan and execute (and for the instructor to monitor), simpler final reports, more adequate sample sizes, and cross-checking of the original experiments' validity. Replication team projects are the ideal stepping-stone between the small "canned" experiments that are often used to introduce research methods, and the thesis or dissertation courses. In chapter 10, Lindsay Phillips discusses partnering with agencies to provide a research project that was not only an educational experience for her students, but also a valuable service to the agencies. The service learning project gave students the opportunity to conduct an actual evaluation of a program to assist an under-resourced program in their community. She also shows how students may enjoy service learning in similar courses.

Some other essays provide advice on studying for, and reviewing, course content. Elizabeth Harwood (chapter 1) developed directed notes, which consist of 8-10 questions that *direct* note-taking to important issues in class and encourages students to apply the concepts presented. She found that questions from directed notes encouraged her when preparing the questions, and her students, when attempting to answer them, to actively engage with the material in new and innovative ways. In chapter 6, Kristie Campana, employed a trivia review activity in her Industrial-Organizational Psychology course. She found this activity had the potential to help students develop better study habits and provided active involvement in class. It was a fun and beneficial way to encourage students to be more active in studying and reviewing their material for exams.

Finally, in chapter 9, Shannon Hayden, Adena Young-Jones, Jacqueline Byrket, and Taylor Smith examined why students feel inadequate, avoid writing, and lack motivation to write. They examined factors within the Self-Determination Theory (SDT) framework and include brief recommendations for improving student perceptions of writing abilities. They propose that students avoid writing because they have either too high or too low a level of apprehension toward the task and recommend that teachers incorporate at least one writing assignment into introductory level courses and increase the depth and/or complexity of compositions for upper level courses.

Together, these essays make up Volume XV of *E-xcellence in Teaching*. We hope our readers find both thought-provoking ideas and practical teaching help in these essays. We thank the contributors for sharing their experiences and ideas with the readers of PsychTeacher, and with the rest of the psychology teaching community.

Chapter 1

Directed Notes: A Strategy for Active Engagement in the Classroom

Elizabeth Harwood, Ph.D.
Rivier University

When I first started teaching, one of my mistaken assumptions (and there were many) was that students would not only take notes, but good notes at that. How would they adequately prepare for tests otherwise? What I soon came to realize, however, was that students entering college are often under-prepared in many ways for the experience they are embarking on and that includes taking effective, complete notes (Austin, Lee & Carr, 2004; Kiewra, 1985). Students struggle with picking out the most important material from a lecture, even when they have access to transcripts (van der Meer, 2012)! If we presume that note-taking is a skill that can be taught (Kobayashi, 2006), students generally are not provided explicit guidance on how to take notes at an advanced level, even though research suggests that many students would prefer this (van der Meer, 2012). Any guidance that is provided is typically through student services or other retention efforts, rather than in the actual classroom. Students have to take the initiative to seek out these services and stigma often acts as a barrier. As faculty, we teach many skills to our students – writing, presenting, analyzing, critical thinking, etc., why not include note-taking too?

Some faculty have dealt with this dilemma by providing students with their own lecture notes or PowerPoint slides before class. While students prefer receiving notes before class (Babb & Ross, 2009), many faculty strongly feel that providing notes will reduce class attendance (Landrum, 2010). Babb and Ross (2009) have found that offering PowerPoint slides online before class in fact increases attendance but only for classes where attendance is not graded. However, test performance is the same for courses that supply slides before and after class (Babb & Ross, 2009). Setting aside the issue of attendance, note-taking improves active engagement with course material, deeper level processing, and test performance (Bohay, Blakely, Tamplin & Radvansky, 2011; Kobayashi, 2006; Peverly, Brobst, Graham, & Shaw, 2003; Titsworth, 2004). Are we missing out on a valuable teaching opportunity by providing our own notes to students rather than teaching them how to take high quality notes themselves? After all, when students are in the workforce, their supervisors won't be giving them printed out notes or PowerPoint slides.

I searched for solutions on this problem and encountered the idea of “guided notes.” These are PowerPoint slides that are given to students before class, but with key elements missing, so that they have to attend lecture and fill them in (Barbetta & Skaruppa, 1995). In a meta-analytic review, Konrad, Joseph and Eveleigh (2009) found that guided notes were a valuable tool for students in K-12, especially students with disabilities. However, the results were mixed for college students, although only three studies with variable methodologies were included.

Austin and colleagues (2004) found guided notes to be effective for identifying important points from lecture and for increasing the number of examples in their notes. Williams, Weil, and Porter, (2012) demonstrated increased test performance with the addition of guided notes. Neef, McCord and Ferreri (2006), on the other hand, did not find a significant difference between providing complete PowerPoint slides and guided notes on quizzes, although the guided notes condition had higher scores for applied questions.

While guided notes seem promising, I really want my students to do more than just copy down PowerPoint slides. In fact, that often seems to be the problem rather than the solution. Students are so busy writing down anything I put on the slides, that they may miss the big picture, the important concepts, the whole point of the lecture, and copying notes doesn't seem to lend itself to active engagement. When students are writing down something different than what is on the slides, Stefanou, Hoffman and Vielee (2008) argue that this leads to generative learning and higher test performance. How can I combine the potential effectiveness of guided notes while also encouraging more time spent on generative learning? To this end, I developed what I have come to call directed notes. At the beginning of each chapter, students receive a handout with approximately 8-10 questions that direct their note-taking to important issues in class and encourages them to apply the concepts presented. These questions range from applied questions ("Give new examples of use, misuse, abuse and dependence") to discussion questions ("How as a society should we respond to drug-taking behavior?"), questions that require students to integrate the material they have learned thus far ("If a patient presented in the ER on drugs, how could you tell if they are on cocaine or heroin?"), and questions that are a part of in class activities ("What are your reactions to the anti-depressant commercials we just watched? How do they portray depression and its treatment?"). These questions also provide organizational structure for note-taking and vary in their format and response demand in order to encourage students to take notes from in class discussion and to take non-linear style notes (i.e., concept maps; Titsworth, 2004). Frequently, throughout the lecture, I refer to these questions for in class activities ("Take out your smartphones and look up the different effects of serotonin, norepinephrine, etc..."), to check for understanding ("Use the next 5 minutes to write how neurons communicate using your notes from lecture") and for review of important concepts before tests.

While directed notes seemed to add a great deal to class (and had the added benefit of encouraging me to add new exercises, discussion questions and material to my lecture), I tested their impact with a pre- and post-test assessing overall learning of important course material and an end of the semester survey assessing student satisfaction. A dependent samples t-test revealed significantly higher post-test scores ($M=10.38$, $SD=1.93$) than pre-test scores ($M=8.17$, $SD=2.18$; $t(14)=-5.392$, $p<.01$), indicating preliminary evidence of an increase in student knowledge. Furthermore, quantitative and qualitative analyses of student surveys suggested that students frequently used the directed note taking handouts for both note-taking and test preparation and found them useful. Future research will include an A-B-A-B design to better assess the impact of directed notes on quiz performance.

Can You Do This In Your Course?

Easy Way to Implement Directed Notes

1. After you've created your lecture, identify 8-10 points you want your students to walk away with and use these as your questions on your directed notes handout.
2. Questions should have the students apply the material and think critically about the subject. Concept maps, 5-minute writing summaries, or having students come up with their own examples of concepts are all great ideas. Vary the types of questions and response formats.
3. Provide the directed notes before students read the chapters so they can fill them out as they read and as they listen to lecture. Give lots of space on the directed notes for students to write on it. The more space you provide, the more it encourages students to write.
4. Refer to the directed notes throughout class to encourage students to use them.
5. Going over the directed notes at the end of the chapter can act as a quiztest review.
6. Have students work on the answers in groups and then report back their answers to the class. This allows students time to formulate their answers and encourages class participation.

Incorporating directed notes into the classroom is an easy yet effective way to direct students to the essential learning outcomes of the day. Questions from directed notes encourage both me when preparing the questions, and my students, when attempting to answer them, to actively engage with the material in new and innovative ways. We spend more time on reflection and discussion and less time on lecture and that's where we see generative learning take place.

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Chapter 2

Increasing Student Engagement Through Film: 'Film' the Change You Want to See

D. Lisa Cothran, Ph.D.

Alabama State University

Historically, student engagement has focused on increasing achievement and positive personal behaviors (Taylor & Parsons, 2011). Student engagement in the digital age is on an ever-evolving path. Traditional projects in social science classes consist of papers, posters, presentations, and web site development. Current college students have unique demographics, resources, and skills that allow them to move beyond more traditional models and formats for class projects. In the Fall of 2014, students enrolled in a newly-developed seminar course, *Psychology of African American Women*, at a historically black university in the southeast United States were asked to make documentaries for their final projects. In the current essay, I briefly describe how well-suited and equipped this population is for this course and project. Then, I discuss the project outline as well as some of the students' exemplary documentary projects.

The Population, Course and Documentary-Making are Well-Suited

In the Fall of 2014, approximately 21 million students were expected to enroll in U.S. colleges and universities (National Center for Education Statistics, [2014](#)). The vast majority of current college students may be described in the following ways: self-assured; easily engaged by digital devices; more receptive to short(er) pieces of information; and more engaged with web-based, social media outlets (compared to traditional, print sources). More so than for previous generations, the majority of current college students and millennials are constantly connected to the World Wide Web (i.e., Internet) throughout the day via mobile electronic devices (Lenhart, Purcell, Smith, & Zickuhr, 2010). With such widespread access to the World Wide Web and smart phones, these students have unprecedented abilities to use technology and media to explore and apply the empirical literature. African Americans, in particular, are the most active users of mobile Internet and their usage rate is the fastest growing (compared to white or Latino Americans; Lenhart et al., 2010). In addition to their mobile and on-line activity, given the location and demographic of college students at historically black colleges and universities (HBCUs), they are sensitized to topics related to ethnic minorities and social justice (e.g., intersectionality, social justice, discrimination, etc.; Harrell & Cothran, in press).

While the majority of African American students attend predominantly white institutions, approximately 260,000 of the African American students enrolled in college attend HBCUs (Hall, Lee, Witherspoon, 2014; Knapp, Kelly-Reid, & Ginder, 2010) where Black women outnumber Black men at a rate of approximately 6 to 1 (American Council on Education, 2006;

as cited in Alleyne & Gaston, 2010) and at an even higher rate in the social sciences. In light of this as well as some of the research that explores African American women's vulnerable and precarious reality (e.g., Bureau of Justice Statistics, 2008; Xu, Kochanek, Murphy, & Arias, 2014), I developed a seminar course entitled, *Psychology of African American Women*. The final project in this seminar requires students to generate knowledge about a key issue facing African American women and to communicate it in a documentary format. In light of the population and course subject matter, final projects in documentary format are uniquely suited as these provide a more fluid development and expression of knowledge, a free flowing format (as compared to a paper or more traditional oral presentation), a more visible and learner-centered format, and easy access via social media.

Final Project Guidelines and Examples

Students began their project development in the 5th week of a 16-week semester. First, they were given a description and outline. The general guidelines for the finished documentaries included the following:

1. The finished documentary piece must be approximately 20 minutes in length;
2. The piece must accomplish one of the following purposes of documentaries: bring to light a certain cause or injustice; make an observation, not to judge, simply to show something unique to the group; or uncover a hidden truth or mystery unique to the group;
3. The focus of the piece must be specifically, but not necessarily solely, relevant to the Psychology of Black Women;
4. Students must include and cite readings from the class (e.g., Akbar, 1996; Harris-Perry, 2011; Roberts, 1999); and
5. The finished piece must enlighten and engage the viewers (Students were encouraged to plan a documentary presentation that they would enjoy watching.)

Second, they decided on a topic and whether to work individually or as a group. This is a personal choice for many students, so they were not forced to work with others. If they chose to work in groups, however, group sizes were capped at 5 students to minimize social loafing.

Third, every student completed a blank design-map and worksheet to help guide their project development and planning. On this sheet, students mapped out their documentaries scene-by-scene so that I could provide feedback and facilitate their access to resources here at the university.

Fourth, after students' designs and timelines were approved, they were allowed to begin working in earnest.

Finally, everyone received tutorials on imovie and several class discussions over the course of the semester were devoted to progress reports and project development. This was to ensure that students had the resources and help that they needed at every step.

Assigning documentaries as final projects was a great success. It is important to note that 100% of students stated this was their "first time" creating a documentary and that they were glad they were "challenged" and "found their voice". After the projects were completed, students wrote reaction papers and described the projects' impact on them. One male student stated, "... This (project) has taught me lots on the rights, views, impacts, and societal problems

involving African-American women”. Another male student wrote, “...I enjoyed doing (the documentary project) and I learned how the B-word is used in many ways but overall it is a very inappropriate word to use at all. I enjoyed the project with all its ups and downs.” Those two students worked on two of the more exemplary documentary topics that semester. The first is entitled, *Team light skin vs. Team dark skin: Black women’s skin tones influence their perceived desirability and approachability*, and the second one is entitled, *The Real Housewives of Atlanta (RHOA) Effect: Black women’s appropriation of b*tch as a self-reference hurts their credibility*.

The documentary entitled, *Team light skin vs. Team dark skin: Black women’s skin tones influence their perceived desirability and approachability* included literary references and interviews of several African American men and women who believe that lighter-skinned (compared to darker skinned) African American women are viewed as more attractive and are the preferred mates. Further, as mates, lighter-skinned African Americans are perceived as having higher standards and higher expectations for treatment. In the complete documentary, the students reviewed literature that explored the origins of this in-group bias as well as policies that could be implemented to improve the situation. An excerpt of this documentary currently is posted on YouTube and can be accessed using the following link:

<https://www.youtube.com/watch?v=b8LTVurmRjQ>. The documentary entitled, *The RHOA Effect: Black women’s appropriation of b*tch as a self-reference hurts their credibility*, interviewed African American men and women who endorsed several things: Black women referring to themselves and each other as bitches is a new phenomenon; and this behavior reflects poor self concepts, self esteem, and self respect. Further, through this type of self-effacing behavior, these women encourage others to respect them less. This group of students cited literature that explored the origins of this phenomenon as well as policies that could be implemented to lessen the practice and its effects on the group.

Conclusions

Documentary film projects are well-suited for millennial college students, allow them to exercise their preferred communication routes, and help them develop their research, technology, and presentation skills. These projects also permit students to harness their digital devices, their easier and more frequent engagement with web-based, social media outlets (compared to traditional, print sources), their interest in social justice, and their propensity and receptiveness to short(er) pieces of information. Students unanimously reported benefiting from the hard(er) work, skill development, and empowering communication involved in creating documentary projects in this course. Another benefit is that their finished projects, unlike papers, are more engaging and accessible by larger numbers of people. Given how accessible the tools and movie making programs are, other professors could easily adapt this project format for their classes and students.

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Chapter 3

The Zeitgeist is Right for Using Student Created Comics as Learning Tools

Walter L. Isaac
Georgia College

Recently, I searched PsycINFO for the keyword *comics* and found 1,206 citations. I noticed a slow upward trend in citations beginning in the 1970s, and a sudden leap in sources referring to *comics* after 2004. I was pleased to see a rise in the number of publications examining the use of comic books in educational and research settings during the last decade. Most of the early sources didn't address using the comic format to teach, but Sones (1943) did express support for using comic books in the classroom. The creation of a series of comics in the 1940s for educational purposes demonstrated signs of support for this idea (Smith, 1948). The debate about the educational merits of comics continued in the 1950s (e.g., Carr, 1958; Wertham, 1955). We seem to be revisiting that discussion, but this time we have research to support the idea.

Changing Perspectives and New Technology

Apparently, the zeitgeist was right since my own exploration of using cartoons as educational tools began at about the same time that others were also beginning to demonstrate more interest in the same possibilities. However, there have been different approaches. One basic tactic is to create comics for our students to read. Another, to which I will give more attention shortly, focuses having students generate the comics as class assignments in a more active learning environment.

Technology facilitated this phenomenon, as computer software for creating cartoons became available. Having the artistic ability to draw was no longer a necessity. I began exploring the possibilities upon receiving my first Apple MacBook Pro laptop in 2006, as part of a Georgia College campus-sponsored Faculty Development Workshop intended to facilitate our use of the new podcasting technology. That laptop came preloaded with Comic Life software by Plasq. My initial foray into using comics in education, creating my own neuroanatomy themed comic entitled *The Brain Chronicles*, was like that of many others (e.g. Park, Kim, & Chung, 2011; Walker, 2014). Each issue would address a different topic in neuroanatomy beginning with very simple nervous system anatomy and related constructs while working toward presenting topics of more complexity. I started wrestling with deciding on what content and images to include in my first try. That led me to consider the theme I should follow and the layout to use. The list of creative decisions continued to lengthen. It occurred to me quite soon that while a comic that I create may help some students, students would learn even more if they created their own comics on a given topic. Playing with that idea led me to a parallel notion; why not have

students create the comic book chapters as their required writing assignments for selected classes? Such assignments, would require the students to research their topic and design a creative presentation of the material that would allow them to incorporate far more imagery than typical class papers. The format would also promote succinctness in their communication of the information. Kiliçkaya and Krajka (2012) used this approach to teach Turkish teenagers grammar form and function in a second language, English. Their students created short comic strips illustrating assigned topics and then the instructors evaluated the students' language usage.

Implementing and Evaluating the Idea

I've used the student generated comic book chapter assignment three times, with three different topics in my Advanced Behavioral Neuroscience seminars. Each class, focused on a different aspect of behavioral neuroanatomy. The first time, while studying tracts within the brain, was a truly formative experience for me—as well as for the students—as we worked our way through the assignment together. As a class, we created a list of suggestions that included initiating work on the comics at the beginning of the semester, making the comics integral to student presentations of their topic for the semester, and allowing more opportunities to work collaboratively in class on their assignments. The students' enthusiasm for the projects in that initial class encouraged me to try a second time.

The second course was a year later, and focused on neural systems within the brain. Students were encouraged to apply APA format selectively—providing leeway for choosing fonts and for making other creative choices. We also began the creative process at the beginning of the semester instead of around midterm as before, which was a good decision. Midway through this second try with the comic chapters, I realized that this presented a wonderful research opportunity. I submitted a proposal to evaluate my students' attitudes toward the comic chapter assignment to our Institutional Review Board (IRB). Gaining IRB approval before the end of the term, I assessed the students' attitudes about the projects and the process of creating comics as learning tools compared to completing a typical term paper assignment using a series of questions with student responses given on seven point Likert-style scales. Within subject t-tests revealed that the students had indicated that their perceived level of effort ($t_{(12)} = 8.04, p = .0001$), perceived level of learning ($t_{(12)} = 3.60, p = .0018$), and anticipated retention ($t_{(12)} = 4.38, p = .0004$) were greater than writing the typical research paper for a class. Students also indicated that their perceived levels of creativity and inventiveness ($t_{(12)} = 5.78, p = .0001$) were greater for the comic chapter assignment and their reported level of enjoyment from completing this assignment ($t_{(12)} = 3.56, p = .002$) was greater than that for a typical term paper. I assembled the chapters into an electronic book and distributed copies to the class members. I also included these students as co-authors on a poster (Isaac, et al., 2014) presented at the National Institute on the Teaching of Psychology (NITOP). NITOP honored this poster with the Doug Bernstein Award that year.

The following year, my class focused on nuclei within the brain, I was prepared with an IRB proposal already approved. I included learning assessments in the requirements of that class. Each student author wrote twenty multiple-choice questions that I edited and posted in our learning management system (LMS) as pretests and posttests for each comic chapter. I made

the comic chapters available for download in the LMS when the related pretest availability closed. When the class had completed discussion of the chapter, I made the posttests available. A two-way analysis of variance with one repeated variable verified the range of difficulty in our chapters and quiz questions that was apparent in the quiz results ($F_{(6, 35)} = 14.55$, $p = .0001$), but everyone's scores improved between pre- and posttests ($F_{(1, 35)} = 221.96$, $p = .0001$). An interaction between chapters and pre- and posttest results ($F_{(6, 35)} = 3.70$, $p = .0060$) further illustrated the range of difficulty in the assessments written by the students. We reported this project at NITOP (Isaac, et al., 2015), as well.

The Process Followed

How did we create the comic book chapters? We began with students selecting or requesting topics based on their interests within the bounds of the course. I provided example chapters from Shepherd's book *The Synaptic Organization of the Brain* (2004) and Barr and Kiernan's book *The Human Nervous System* (1983). We discussed the organization of material within the example chapters, and we established an outline of topics that each of their chapters had to address. For example, the chapters on nuclei were required to have the following headings: Overview, Neuronal Elements, Basic Circuit (including information about intrinsic circuitry as well as details about afferent and efferent connections), Neurotransmitters, Behavioral Relevance, Lesion Effects, and a Summary. The class designed what turned into a series of content driven comic chapters with a clear creative edge. Students created individual storylines and themes to follow throughout their chapters. We photographed brain specimens, supplementing other images students were able to incorporate from the Internet all the while discussing topics relevant to the course topic. Students cited their images and sources in their chapters. The central tool was the then-current version of Plasq's Comic Life software (<https://plasq.comappscomiclifemacwin>) which is available for both the Mac and Windows operating systems. Some students chose to appear in their comics as characters (e.g. a trench coat, fedora-wearing female detective with magnifying glass), so we photographed them in front of a green screen. We used the Instant Alpha tool within Apple's Keynote software to remove the green background, so we could insert their images into a comic panel. A few students used Photoshop software to manipulate their images. My students discovered the ToonDoo website (<http://www.toondoo.com>) on the Internet, which allowed them to create cartoon characters of their own design if they did not want to appear as characters, themselves. These activities led to much class discussion of neuroanatomy and a very active collaborative spirit within the classes. I also devoted some class periods to working on the comic chapters. This allowed me to monitor progress, engage the students in discussion focusing on their work, and share ideas and information.

Concluding Thoughts

I look forward to students creating comics in my next advanced topics seminar, which will focus on glia. In an upcoming Senior Capstone Seminar about Psychological Myths—infused with a strong emphasis on research methodology—I plan to incorporate very succinct comics that limit the number of panels allowed as one of the course assignments. Perhaps I'll ask the students to

write their term papers with the occasional comic panel inserted to illustrate their topics. You can easily generalize this idea to any topic, and provide a creative learning experience that engages your students in learning more about their topics. Can you imagine a History of Psychology comic book assignment?

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Chapter 4

Lions, and tigers, and undergraduate students, oh my! The zoo as a tool for enhancing student learning

Bonnie M. Perdue
Agnes Scott College

Background

Research is a critically important part of psychology. It advances our knowledge in a wide range of areas, establishes the best practices for more applied pursuits, and serves as a backbone for the field as a whole. Accordingly, at colleges and universities around the world, psychology professors aim to train undergraduate students in a rigorous understanding of research methodologies. Yet many students don't expect such a strong focus on analysis, logic and design when they embark upon a psychology major. Some students find this focus refreshing, but for others this isn't the case. Research methods courses can be technical and challenging and may not appeal to or interest many students (Ball & Pelco, 2006). As professors, we must find ways to engage and excite *all* students, given the importance of the topic. At Agnes Scott College, a small liberal arts women's college in Decatur, GA, we require a research capstone course to fulfill the psychology major. We leave the exact nature of this course to the professor's discretion, but our goal for students to experience all aspects of the research process. Students begin by formulating a research question, then designing a study, collecting the data, and finally presenting the results of their research via a paper and an oral presentation at the end of the semester. My approach to this course follows this general format, but takes place at a local, living laboratory: the zoo!

Modern zoos seek to achieve four goals: recreation, education, conservation, and research. Accordingly, zoos provide an excellent location to train the next generation of student scholars. From a recreation perspective, zoos provide a place for individuals to visit and experience outdoors, animal life, and to be exposed to a variety of wildlife that would otherwise remain unknown. While at the zoo, people are exposed to a variety of educational messages ranging from interpretive signs to live demonstrations. The goals of these educational programs are wide ranging, but usually involve teaching visitors the basic demographic characteristics of the animals, interesting social or biological facts, and perhaps most importantly, conservation-related issues that many of these animals face in the wild (Falk, Reinhard, Vernon, Bronnenkant, Deans, & Heimlich, 2007). Modern zoos focus their conservation education messages toward everyday changes that individuals might make in their behaviors, and that could have impacts on the survival of a species far away (Ballantyne, Packer, Hughes, & Dierking, 2007). The increasingly global nature of the planet is evidenced by the fact that many consumers are engaged in behaviors that unwittingly contribute to the decline and sustainability of populations of animals around the world. By educating visitors about these issues, zoos can make a strong conservation impact. In addition to these efforts,

zoos are directly involved in *in situ* (on site) conservation initiatives for the species housed in zoos. This brings us to the final goal of zoos—research. As we might expect, research can play a vital role in all of these areas as well as many more.

For my particular course, students' research focused on the animals themselves and their welfare in captivity. This is another critically important area of research in zoos (Maple & Perdue, 2013). We must pay careful attention to identifying environmental or social factors that might have impacts on any animals housed in captivity, including those in zoos, farms, labs, and even our homes, such as our pets. If we can identify external factors that have negative impacts on animals' welfare (through empirical evidence rather than anecdotes), we can change the environment to better suit the animals in our care. In a research course, students can learn to apply principles of research design and data collection to find empirical answers to these questions.

Implementation

There are many ways in which we might implement research at the zoo. In my course, students worked in teams of two. Each team selected one species to observe and individuals identified independent factors to measure (e.g., temperature, number of visitors, enrichment items in enclosure) that might influence the animals' behavior. Students conducted literature reviews to identify background information and ways of measuring these variables. They then created ethograms (written description of all possible behaviors) and learned data collection techniques such as all-occurrence and instantaneous sampling (Martin & Bateson, 1993). The teams collected data on weekly visits to the zoo throughout the semester and then analyzed their data to see whether any environmental or social factors had positive or negative impacts on the animals' behavior and welfare. Issues of interrater reliability and standardization became apparent quickly once data collection began, and provided a great basis for discussing the challenges of research. After data collection was complete, students compiled, organized, and summarized their data in preparation for analysis. Once students completed their analyses, they wrote up their findings with regard to their initial hypotheses. Finally, students created and presented posters and presentations, and submitted an APA style research manuscript for evaluation.

Assessment

Topics for the projects were open (with guidance). This permitted students to express a variety of creative and important topics. In the two semesters that I've taught the course, students have come up with a wide range of topics, such as:

- ***Evaluating the Welfare of Two Primate Species based on Grooming Behavior***
- ***Visitor Effects on Within-Species Interactions in a Petting Zoo Setting***
- ***Effects of Noise Level and Temperature on Play Behavior in Red Kangaroos***
- ***Golden Lion Tamarins: Can crowd size optimize nurturing behavior?***

These examples illustrate the wide variety of independent variables, species, and behavioral measures that students might choose to explore. Students also interact with one another and provide a lot of peer feedback throughout the course, so all students are exposed to a range of topics.

I also administered a survey to students, as part of the course evaluation process over both semesters, and feedback was very positive. My survey included items related to experiences in the capstone course, overall ratings of the effectiveness of different levels of involvement with the research process, and specific zoo-related questions. Students rated their experiences positively and suggested that experiences involving more hands-on involvement in the research process were more beneficial for learning. They also indicated that the experience was beneficial even if they weren't directly interested in animal research. Feedback included comments such as:

- ***It was great getting off campus for something academic and the zoo was a fun location.***
- ***I look back on these experiences very fondly. Not only did I learn a lot, but I also had fun while doing it. I was involved in a cool project start to finish (brainstorming ideas to writing a paper or poster) to fully grasp research more. Each different research experience is valuable and builds on the last! This exposed me to something I didn't know I would enjoy so much and find so fascinating, and I plan to continue this into my future.***
- ***It was eye-opening and despite the fact that my future research will be different, it was helpful to experience the process.***
- ***I learned that research can be fun.***

Conclusions

Research experiences at the zoo can be highly engaging, interactive, and beneficial to students learning about research design and methodology. The living laboratory of the zoo provides an almost endless combination of variables to be examined, and a rich environment for critical thinking and analysis. The students reported that engaging in research at the zoo was a positive experience, and the work they produced was of high quality. In addition to research methods, the zoo might provide an appropriate forum for a number of psychology courses such as social, environmental, educational or cultural psychology. Depending on the course, students might conduct research on the effectiveness of different educational techniques, or on changes in conservation related knowledge or behavior. Most zoos are open to involving students and helping to build community bridges across institutions. Additional research should continue to investigate the relationship between the student experience, potential impact on the zoo itself, and the strengths of the zoo as a learning environment, but this experience suggests that there is great potential for a very positive, mutually beneficial relationship.

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Chapter 5

Halloween as an Opportunity for Teaching Biological Psychology

Ana M. H. Kehrberg
Muskingum University

What do witches, zombies and biopsychology all have in common? Fear and intimidation. Just as zombies and witches have scared people for centuries, biological psychology intimidates many psychology majors. Whether in the introductory course, or an upper-level course required for the major, most undergraduate students do not understand the usefulness of biopsychology knowledge in their future careers as counselors, social workers, teachers, etc. In all of my classes, I make an effort to reduce students' fears, while also increasing their appreciation for the ways biopsychology will be relevant to their future careers and personal lives. One way I have found to increase students' interest and understanding of biopsychology is to relate it to one of the most popular holidays on campus: Halloween.

Background

I plan my syllabus to cover sensation, perception, and movement in late October. These topics allow me to incorporate Halloween themes because sensation, perception and motor behaviors are integral to the elements of fear and surprise in the Halloween activities that are so loved by students. Throughout the semester I incorporate many clinical examples and case studies to help students connect neuroanatomy with disorders that they might already find familiar. Therefore, in October, we discuss topics such as synesthesia, color blindness, and Parkinson's disease as many students have experience with them. I also introduce new topics such as Huntington's disease.

On the lecture before Halloween, with much enthusiasm, I remind them that biopsychology applies to everything. Therefore, I will give them another example by relating class vocabulary words and concepts to Halloween-themed topics. I start by explaining hypothesized connections between the Salem Witch Trials and biopsychology. There were reports that some of the accused witches were afflicted by Huntington's disease. Although there have been criticisms (Hayden, 1983), the original hypothesis allows us to review the symptoms of Huntington's disease (motor dysfunctions including chorea, cognitive changes including increased impulsivity, and emotional changes including irritability and social withdrawal). We then discuss how the gradual appearance of these unusual behaviors and thoughts might have been interpreted as threatening by the residents of Salem, Massachusetts in the late 1600s.

Another biopsychology-related hypothesis regarding these trials was that the victims of witchcraft might have been affected by ergot poisoning (Caporael, 1976). Although mass hysteria is a more likely explanation for subsequent cases (Spanos, 1983), students can review neurochemistry and understand why ergot poisoning might have caused terrifying symptoms in the first victims. Simply, ergot is a fungus that can infect grains such as wheat and rye. One of the chemical components is similar to lysergic acid diethylamide (LSD), a hallucinogenic drug that most students have heard of. The hallucinatory effects of LSD have been linked, probably as a partial agonist, to the 5-HT_{2A} serotonergic receptors (Fantegrossi, Murnane & Reissig, 2008), which are concentrated in the frontal and visual lobes. Given their basic knowledge of serotonin's importance in mood and emotions, as well as basic understanding of the roles of these brain areas, undergraduates are usually able to hypothesize that ergot poisoning should also result in hallucinations and mood disruptions. These behavioral changes, in addition to possible convulsions, possibly connect changes in neurotransmitter levels to witches.

If additional time remains to discuss witches, you may wish students to see an episode of the PBS series, *Secrets of the Dead* entitled *The Witches Curse*, which included an interview with Dr. Caporael regarding her ergotism hypothesis (Lewis, 2001).

Implementation

After our discussions of witches, I ask the students to break into small groups. I then allow each of the groups to choose a new Halloween-themed topic, summarized below. Their assignment is to apply relevant biopsychology vocabulary and knowledge to their assigned topic, using their lecture notes and textbook. In the assignment, I stress that their ideas may be contested, and not strictly accurate (as was the case for both hypotheses about the Salem Witch Trials), however, the goal is to propose testable, feasible hypotheses. This is the text provided at the start of the activity:

Choose ONE of the topics below and relate it to at least TWO biopsychology concepts, using full sentences. We have NOT discussed these topics in class, but I expect you to be able to think about what you've learned about biopsychology this semester and apply that knowledge to a new topic. Your answer probably will not be strictly correct in describing the neuroscience behind the topic, but I am looking for you to thoroughly explain the concepts and your logic.

The groups discuss their topic and then report back to one another about their hypotheses. I conclude the lecture by providing some scientific research for each of their topics (see below).

You can modify this assignment for classes that don't have the previous knowledge or class time to dedicate to these group discussions. For example, the professor could allow students to vote in advance for a particular lecture topic from the list below. Another option would be to allow students, individually or as a group, to use out-of-class time to prepare class presentations based on the included links or additional resources.

Suggested Halloween Themes

Being Frightened by Haunted Houses, Horror Movies, etc.

Students can usually identify the amygdala and autonomic nervous system as regions activated by fear. Horrifying screams are always heard at haunted houses, and Akst (2015) summarized an article identifying amygdala activation when people hear “rough” screams. Shaw (2014) discussed the role of the hypothalamus and midbrain, as additional brain areas important in our experience of fear. Additionally, she included a brief description of how genetic differences in dopamine responsivity may contribute to why some people enjoy being frightened.

Zombies

Popular television shows have increased students’ interest in zombies, and they know about many more zombie characteristics than just a need to eat brains. Lewis (2013) summarized the role of the cerebellum in zombies’ motor patterns, a lack of executive functioning typically linked the prefrontal lobes, and the similarity between zombies’ language patterns and humans diagnosed with Wernicke’s aphasia. Also included in the article are stories about zombie-like animals and how neurotoxins or parasitic infections might cause some symptoms associated with zombies.

Candy consumption

Trick-or-treating is a traditional Halloween activity that leads to most children overindulging in sugary treats. Undergraduate students can often recognize the role of increased dopamine levels in making eating candy enjoyable. Greenberg (2013) wrote about additional links between sugar consumption and the nucleus accumbens, endogenous opioids, and similarities to drug addiction.

Frankenstein

Students with strong literary knowledge may be able to name some characteristics of Dr. Frankenstein’s classic monster that relate to biopsychology. For example, Holcombe, Altschuler & Over (2009) proposed that the monster experienced synesthesia. Mary Shelley herself explained that Galvani’s classic experiments that suggested the electrical control of muscles provided the idea that lightning strikes could bring life to the monster (Brown, 2010). Students may also make the connection between the monster and news about brain transplant surgeries (Lewis, 2015), which allows for a class discussion regarding the ethics and feasibility of these surgeries.

Vampire Bats

Although fictional human vampires are more focused on hematology than neurology, vampire bats provide interesting connections to biopsychology. Bardi (2011) explained how vampire bats use sensory receptors, similar to some pain receptors in humans, to detect the most efficient area to bite and receive animals’ blood. These bats also have other sensory adaptations, including remarkable vision, that improve their ability to find blood as it is their sole source of sustenance.

Additionally, vampire bats (and other animals) can transmit rabies to humans. The rabies virus causes enough neurological damage to be fatal if not vaccinated against almost immediately. However, the mechanism by which rabies causes neuronal cell death is still unclear (Murphy & Wasik, 2012).

Ghosts

Ghosts are always a popular Halloween costume, and provide a few interesting connections to biopsychology. However, these connections might be difficult for students to hypothesize on their own, so this topic would be better suited for a brief lecture or a student research presentation.

Klein & Ryther (2009) described a comatose patient whose CT scan appeared to show an “apparition hemorrhage.” Knox (2009) interviewed Dr. Klein who discussed his reactions to seeing a ghost-like image in this patient’s brain not long before the patient died.

Another way to relate ghosts to biopsychology is through hallucinations. Dr. Oliver Sacks (2012) wrote an entire book on hallucinations, but Wallace (2013) summarized many of the relevant points in a brief report. Students often assume that if someone experiences a hallucination, he must be diagnosed with schizophrenia. However, Charles Bonnet Syndrome, sensory deprivation, epilepsy, and migraines can all result in hallucinations. Although unlikely for most, some people may perceive these hallucinatory sensations as ghostly. These examples provide a useful way to remind students of the distinction between sensation and perception.

Conclusion

I find these activities to be a fun way to break up the classroom routine in the middle of the semester. Anecdotally, students also seem to be more energized and engaged in these activities than on any other mid-semester morning, especially if I provide brain-shaped gelatin (mold available from Oriental Trading Company, Item #IN-13672724) or candy (Oriental Trading Company, Item #IN-13700449). Most importantly, however, their enthusiasm for these topics allows us to review many of the vocabulary words and topics that have been covered during the course, thereby reducing student’s anxiety about biopsychology.

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Chapter 6

Exam Review Trivia

Kristie L. Campana

Minnesota State University, Mankato

One of the more common requests I receive from students is for an exam review. For example, students often ask me to provide a list of key words or concepts, and go over this list in detail in class. Other students ask that I provide example exam questions complete with a key that they can review before the test. More commonly, students ask me to prepare a game that allows them to shout out answers. I am certainly not the only instructor who receives these requests; articles from a variety of disciplines demonstrate how instructors have designed exam review games that mimic *Jeopardy!* (Keutzer, 1993), crossword puzzles (Davis, Shepherd, & Zweifelhofer, 2009), Survivor (Burks, 2011), and BINGO (Sutterluey, 2002).

In the past, I have been reluctant to devote class time to many of these review activities. Study guides, which I refuse to post until a week before the exam, seem to encourage my students to wait until the last minute to study, and to focus on learning only content that will be tested. Likewise, I am willing to post a few example exam items, but students tend not to use these effectively to gauge the gaps in their knowledge. Games seem at least more engaging and fun, and have been demonstrated to promote learning (e.g. Paul, Hollis & Messina, 2006). However, preparing these games is often an onerous task.

For example, the use of a *Jeopardy* activity required me to find an appropriate PowerPoint template, fill in answers, find a way to have groups “buzz in” in a way that I could identify who was first, add points, track which questions had already been answered.... Ultimately, I became frustrated with this activity because I felt that I was putting in more time preparing this activity than my students were spending reviewing the material.

Furthermore, while my students enjoyed this activity, I did not feel it was as beneficial as it could be. Students often tried to stack their team in such a way that they would identify the smartest student, and rely on him or her to answer all the questions with no input from the rest of the team. If I offered no incentive, students frequently became disengaged; however, if I offered extra credit points, the students focused on issues of fairness or cheating.

This is *not* what I wanted in a review activity. I wanted a game that would give them time for discussion, reflection, and persuasion before they submitted their answers. I wanted a game that would whet their appetite for competition, but would still draw their attention to understanding and learning the content, not on the minutia of gameplay and rules. As I considered what activities might better fit these goals, I hit upon an idea that was seemed so obvious, I was embarrassed I hadn't thought of it years ago: Trivia.

Trivia has experienced a great deal of growth in the past decade. Enterprising bars are offering a trivia night to ramp up their profits on traditionally slow Tuesdays and Wednesdays (Pagels, 2014), and apps such as Trivia Crack, QuizUp and Sporcle are popular among today's

college students (Tweedie, 2015). In the spring of 2015, I decided to try out a trivia review activity in my upper-level Survey of Industrial-Organizational Psychology course.

Preparing Materials for Trivia

To prepare this activity, I worked with my textbook exam bank to devise short-answer questions that would appropriately test students on the content for their first exam. Although my tests are mainly multiple choice and essay, I liked the idea of asking students to come up with short answers, because this would prove slightly harder than the exam, and would help them identify key words or concepts they had forgotten or misunderstood. For our first session, I designed 2 rounds, with 10 questions each. I created an answer form with room for answers for 10 questions and a spot for a team name. I also designed PowerPoint slides with one question per slide; these slides automatically advanced every minute, with built-in “intermissions” to allow me time to score their forms after each round. The form and my slides are available at <http://topix.teachpsych.orgwpag99775791Teaching%20with%20Trivia>

The first exam was primarily a review of research methods and an introduction to performance measurement. Below are some example questions (and answers) from the slides:

- Which measure of central tendency will be most affected by an extremely high value? (The mean)
- If we want to know that all the items on a test seem to measure the same thing, what kind of reliability should we examine? (Internal consistency)
- What does the coefficient of determination tell us? (Percent of variance explained)
- What type of research design allows us to determine causality? (Experiments)
- Sometimes we might examine records such as data sets of test scores or public records. What type of research is this? (Archival)
- What is the difference between the subjects of Army Alpha and Army Beta? (Soldier literacy)
- “Number of widgets produced in one hour” is an example of a) Contextual performance b) Objective performance c) Subjective performance (b- Objective performance)

I attempted to provide a range of difficulty on the questions, but I also tried to make the correct answers straightforward to help me score them easily. I also prepared a “tiebreaker” question that required any teams with a tied score to guess a number (“How many members does SIOP have, according to your textbook?”) so that whichever team was the closest would win the game.

Trivia Day

For trivia day, I divided my 20-student class into four groups of five students. I brought 5 donuts into class, and let them know the winning team would receive donuts as a prize—students were visibly motivated by this incentive. I turned on music for the students (I found Pandora’s “Scorpions Radio” provided an appropriate dive bar ambiance), and started the slides. As I walked among the groups, I found that their discussions were intense; members who disagreed about the correct answer had to provide clear rationale for their position, which resulted in some excellent debate about the finer points of the material. Once the slides for the

first round ended, I gave students one minute to bring their sheet to me, and then I scored while students took a break, chatted, or continued to debate the correct answers. After students retrieved their scored sheets, we went back through the slides to provide the correct answer and address any common mistakes I noticed and allow for questions or challenges to my answers. We repeated this process for the second round, which resulted in a tie. We used the tiebreaker item, and I awarded the donuts to the team that was the closest.

Reflections

I continued to use the trivia technique throughout the semester, which gave me some opportunities to tweak the process and reflect on the benefits of the activity. I felt this activity helped to contribute to a more cooperative, collegial environment. Debates within groups were passionate and articulate; during the breaks when I would score sheets, students often would drink coffee and chat with other groups about what they put for their answers. Students would quiet down quickly as I read out answers, although cheers and groans from groups would be common.

Students also were willing to challenge my answers; I welcomed this debate, and although this semester I did not hear any compelling arguments, certainly a strong rationale could earn a group points back and help to educate the rest of the class on the topic. This activity also allowed for some moments of drama during the activity; for example, during our last trivia session, a group that had been the underdog swept the last round and snatched the donut prize away from the group that had been in the lead the entire game.

Repeating this activity gave me the opportunity to experiment with logistics. My class was 105 minutes, and I found I could do 3 or 4 rounds comfortably in this time. I also found that a minute per slide was an appropriate length of time, and students appreciated seeing the items again briefly (10-20 seconds each) so they could double-check their answers. I also found that giving groups 1 minute after the end of the round to hand in their paper was adequate in this small class. It typically took me only a minute to grade their sheets and return them.

Although I implemented this activity in a small classroom, I believe it would be feasible in larger classrooms. Having students hand in and pick up their answer forms, and getting help from a TA or a student in scoring answers would expedite the process. In addition, having a limited number of prizes can ensure the groups stay at a reasonable size; if a group had 6 members, someone would miss out on their donut. Using smart phones to look up answers is certainly an issue, so setting the slides to play automatically can allow the instructor to watch for any cheating in larger classes.

Finally, I believe this activity has potential to help students develop better study habits and active involvement in class if used regularly. Shorter, more frequent trivia sessions might be a helpful unit recap, and instructors who use Team-Based Learning (TBL) could easily incorporate this as an additional exercise for their formed teams. This may also be a helpful activity for instructors who are interested in TBL, but aren't ready to commit to incorporating it into their classrooms fully. Ultimately, I found this to be a fun and beneficial way to encourage students to be more active in studying and reviewing their material for exams.

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Chapter 7

How to Use Replication Team Projects in a Research Methods Course

Lionel G. Standing
Bishop's University

This paper describes the considerable benefits which may follow from introducing replication team projects into a research methods course at the intermediate level. At present instructors in research methods too often feel frustrated when confronted with students' individual term projects that are seriously deficient in terms of their rationale, planning, and execution (as noted by Grahe et al., 2012), and with a sample size that is usually too small to permit meaningful conclusions. A semester is not enough time for most students to do a good job when they have to create a meaningful project from the ground up, even though they will manage this when they move on to perform subsequent thesis work, and they often seem overwhelmed.

However, a possible solution to this problem has arisen fortuitously, due to the recent realization that independent investigators fail to replicate many, perhaps most, of the findings that have been reported in the psychological literature (Open Science Collaboration, 2015). We can turn this situation to good account for the progress of the discipline, if as instructors we introduce replication projects into our methods courses and employ them as an exercise in critical thinking. The benefits of class replication projects, beyond their contribution to scientific knowledge, also include: better quality research than projects dreamed up by the student, a manageable study for the student to plan and execute (and for the instructor to monitor), a simpler final report, a more adequate sample size, and cross-checking of validity. How can we use replication projects effectively?

Get the Students Involved

Students generally seem interested to hear about the current replication crisis, and like the idea of checking out ideas that are presented as established wisdom in their course texts. It is wise to allow them to choose between the options of creating their own project, or joining the class replication project, but in my experience they invariably choose the latter. You can describe the use of teams and the opportunity to get practice in collaborative research in a positive way. Emphasize that they should always approach a research question impartially.

Which Study to Replicate?

For variety it might seem desirable for the class to replicate a number of different studies, as with the set of four diverse replications reported by Standing, Grenier, Lane, Roberts, and

Sykes (2014). In practice, however, replicating just one target paper is generally preferable to using several, unless you have a very large class, simply because the sample size will be larger. Since a plausible guideline is that a replication should employ three times the number of subjects that were used in the target study in order to provide a fair test of its claims (Simonsohn, 2015), this is an important consideration. Statistical power calculations using online software can help here (e.g., Allen & Hannent, 2013). The data given in the target article will provide an indication of the likely power if you use a given number of subjects, although the effect size that you actually observe is likely to show a decline effect, thus reducing the power of your replication (Open Science Collaboration, 2015). If a possible target paper contains a number of experiments, choose to replicate the study which produced the strongest results, using the fewest subjects.

The study that you and the class choose to replicate should be fairly simple conceptually and in its design, not requiring special equipment, vast numbers of subjects, or lengthy testing. It should report clear results, with satisfactory significance levels and at least a moderate effect size. As power is always a crucial issue in replications (Maxwell, Lau, & Howard, 2015), a within-subjects design may be preferable to a between-subjects design. The target study should also be based on an idea that most people would find fresh and interesting. Otherwise, the choice is open, but you may note that the success rate is higher for cognitive studies than those in the social area (Open Science Collaboration, 2015).

It is usually best to perform an exact rather than a conceptual replication, or else a between-subjects study where at least one of the conditions replicates the target study exactly. This makes for clearer interpretation of the results and simplifies planning.

Setting up the Replication

The instructor should take responsibility for obtaining all the necessary items or tests, and obtaining ethics approval, preferably before the start of the semester. If necessary, contact the author of the target study to get clarification concerning the details of what was done. Most authors seem happy to oblige, if you approach them in a collegial way ("we are hoping to replicate your interesting finding..."), and will often provide needed information or materials.

Teams and Coordinators

The first step will be to discuss the reasons for the project with the class, to get them involved and to answer their questions. You can then allow the class members to form themselves into teams of the required size (4 - 8 seems about right). Students will join up with their acquaintances, which may promote social facilitation. A color or mascot serves better than a numerical label to identify each team clearly. Appointing or electing a reliable student coordinator for each team (with a reduced testing load) makes it easier to keep everything running smoothly in terms of logistics. Generally you can entrust the coordinators with most day to day operations, and they will need to contact you only to request supplies or obtain help in recruiting subjects, or to deal with unexpected problems. Each student should write a detailed research proposal in APA format, for a grade; this is based directly on the target paper,

to ensure that they start out totally familiar with the aims and procedures of the project, as well as the data analysis to be used.

Collecting the Data

The next step is to meet with the coordinators and run over the rationale for the study and the steps involved in testing, which may help to identify any points for clarification. Then you should meet with each team and repeat this process. Practice sessions are essential, where you walk the team through the whole testing process, from informed consent to debriefing. You should also explain the idea of appropriate demeanor during testing on the part of the experimenter and the subject (no conversations, cell phone usage, or refreshments allowed, for example) and discuss how to handle any issues that might arise. The teams then collect the required data, with members testing subjects (preferably in groups), working either individually or in pairs. Use double-blind testing wherever possible, and remember that it is mandatory if the target paper employed it.

The coordinators should progressively collate the data sheets and consent forms as their team members produce them, and monitor the progress of their team through a testing schedule, with deadlines assigned by the instructor so as to ensure completion well before the end of the semester. The coordinators enter their teams' data into spreadsheets, which you can check and distribute to the whole class once complete.

Analyzing the Data

It is important to plan the data analyses in advance so as to cover those which were presented in the original paper, but also it may be possible to test further points of interest. For example, an experiment on the enhancement of self-control produced by glucose consumption (Gailliot et al., 2007; Study 8) led to a direct replication by Standing, Astrologo, Benbow, Cyr-Gauthier, and Williams (2015), using four teams of five students each. We followed the analyses and graphs from the original paper as an initial model, using templates for SPSS ANOVA and Excel graphs which the instructor prepared in advance. But additionally we classified the subjects according to their gender, which was not examined in the original paper, and then employed it as an independent variable (so that a 2×2 between-subjects design now became a $2 \times 2 \times 2$ design). This analysis confirmed the original result overall, but showed that it occurred only in the female subjects, with a smaller effect size than in the target study, and not at all for males. We also noted that for males the act of writing about death appeared to deplete their self-control no more than did writing about dental pain, a surprising observation which has led to further investigations.

When they have analyzed the pooled data, students can write up a graded report in APA style, working individually or with partners, so as to present the class results and contrast them with those of the target paper. You can ask them to include any relevant new studies done since the publication of the target article, and to give a short critique of the original paper that goes beyond a passive summary.

It is easy for the instructor to include the different teams as an additional variable, if they each perform the same replication, and to compare their pattern of results for consistency.

Thus a 2×2 design became a $2 \times 2 \times 4$ design in the example given above. Our analysis showed that each of the four teams had successfully replicated the glucose effect. This is helpful in assessing the reliability of replications, and anticipation of this cross-checking may help to keep team members from relaxing their efforts over the course of the testing sessions.

What to do with the Results?

An initial step is to communicate the results to the original author. If the outcome is positive, they will be glad to hear of this, and if negative they should know about it - hopefully leading to discussion as to why this might have occurred. Naturally one should convey to the author that one understands the logical point that a negative result does not prove that the original study was faulty. The next step would usually be to post the results publicly, generally under the authorship of the team coordinators (or members) and the instructor, in a suitable forum such as the PsychFileDrawer website (www.psychfiledrawer.org), which provides a major archive of replication attempts. The process of preparing a short summary of the results is straightforward, and this website provides a simple template to follow. As this archive is cumulative and growing steadily, students may be able to compare their results with those of other researchers. They can also list this report as an online publication on their CVs. An alternative approach, requiring more pre-planning, would be to participate in the APS Registered Replication Reports project (www.psychologicalscience.org/index.php/replication). In some cases it may be possible to publish the results as a short article or note, particularly since some journals are now becoming more open to publishing replications and null results. This would be most likely to occur in cases where the replication includes the exact design of the original study but also extends it with additional conditions or variables, and where all the replication teams have obtained similar results, whether positive or negative.

Do Problems Arise?

Not really, in my experience. Students may start out as partisans, rooting for success or failure of the replication, but the instructor can readily overcome this. Day to day issues can arise, as when unexpected illness strikes, and people will have to fill in for each other. Or the rare individual simply finds that they do not like working with other people, a situation which will probably resolve itself. You must anticipate time pressure on the students, as in any research project. To guard against any concerns that the members of a team may not all pull their weight, it is easy to employ a Herreid appraisal: each member rates all the other members of their team individually for their contribution, according to a standardized scheme (Herreid, 2001). I have done this at the halfway mark, and again at the end of data collection.

Conclusions

The replication team approach has worked well for me, and students have told me that they appreciate its advantages. I see replication team projects as the ideal stepping-stone between the small canned experiments that we often use to introduce research methods, and the thesis or dissertation course where the student will take most of the responsibility for an original study.

Instead of experiencing the stress of trying to get a couple of dozen students quickly launched on individual projects, with marks often awarded for sub-standard work, you can feel the satisfaction of knowing that your class is creating valid psychological knowledge which will enter the public record. The considerable enthusiasm that Frank and Saxe (2012) express for the use of replications in teaching seems well merited. With replication teams, it is easy to develop a climate where the class and the instructor work together in a collaborative rather than a hierarchical relationship. The instructor's task is eased in many ways, while the students benefit in their skills and gain self-confidence. And science marches on.

Author Note

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Chapter 8

No Minorities Allowed! Stimulating Antiracism Dialogue by Examining Psychology's Past

Michelle M. Merwin and Joseph Ostenson

The University of Tennessee at Martin

Researchers have identified the necessity of exploring “White privilege” (Boatright-Horowitz & Soeung, 2009) using such methods as videos to spur conversation, and thinking about the topic (Soble, Spanierman, & Liao, 2011). Research suggests that being part of a group that participated in past racial discrimination may evoke feelings of sympathy or guilt, which are different from those feelings experienced at the individual level (Doosje, Branscombe, Spears, & Manstead, 1998). Students who remain focused on the discriminative acts at the group level rather than at the individual level are more likely to develop feelings of sympathy for the discriminated group and thus, more motivated to assist (Iyer, Leach, & Crosby, 2003). As well, the American Psychological Association task force on undergraduate psychology proficiencies established learning about diversity, and increasing awareness of prejudice and discrimination in self and others as educational goals (American Psychological Association, 2013).

I believe that the discrimination that took place early in American psychology serves as a point for raising awareness of such disparities among our students. Using historical discrimination occurring among early American psychologists, I designed the following classroom experience to heighten student awareness of discrimination. Particularly, I sought to foster student understanding and empathy for early contributors whose work was restricted because of race, ethnicity, or sex, hoping to add an affective element to their intellectual understanding of discrimination in historical psychology. As I discuss, some history of psychology students prepared presentations about minority psychologists, but were prohibited from presenting and did not receive credit, while others assigned typically white, male psychologists were allowed to present and receive credit. I have repeated this activity over several semesters and inevitably, it sparks lively discussion about discrimination, racism and sexism, past and present.

The Experience of Discrimination

On the first day of class, under the guise of an introduction to the course, I assign each student a psychologist from a diverse pool, and instruct the students to prepare a two-minute oral presentation concerning their psychologist's accomplishments. Our textbook serves as their source. I also provide supplemental information to students presenting on African American psychologists not covered in their text (e.g., Guthrie, 1998). Over four semesters, I

have given this assignment to around 50 students; about 17% of all students in my courses were African Americans and 70% were women. While I do make minor changes in the course syllabus each semester, I have always made this a low stakes activity (e.g., 2-point extra credit, 5-point assignment, etc.).

When presenting on their psychologists, students stand in a circle, so that they can see one another. I ask the students to present their information in the first person. Having them read their text in the first person makes the activity feel more personal when I tell several of them that, because of their psychologist's minority status, he or she will not be allowed to present. I play the role of the person overseeing the proceedings (I have considered wearing my regalia) and politely ask him or her to sit down when a student's minority psychologist is called to present. I say something like, "As much as we might like to hear what you have to say, we are unable to accept work from minority participants. Please have a seat. Also, I'm afraid that I won't be able to award you credit, given that you won't be presenting. It's only two points though. I'm sure that you can make them up somehow over the course of the semester." These students sit at the periphery of the room in sections labeled, "Negroes," "Jews," or "Women," depending upon the psychologist's status, and are not awarded points. I do not allow students presenting psychologists who are women or African Americans to present, and I employ a quota for Jewish psychologists. Depending upon the class size, one or two students representing Jewish people may present, but subsequent presenters are prohibited. Some students are not aware of their psychologist's minority status, but I work the information into the discussion as the presentations progress. For example, I say, "Dr. Freud, thank you for your contributions to psychology. I understand that your four sisters were killed in Holocaust death camps. Such sad circumstances for the Jews. Please accept my condolences." I simply ask the next if they are of Jewish heritage before explaining the quota and asking the student to be seated.

Generally about 50% of the psychologists I assign did not face discrimination (e.g., G. Stanley Hall, William James, Edward Thorndike, John Watson, Lightner Witmer). I divide the rest into Jewish psychologists (e.g., Sigmund Freud, Alfred Adler, Abraham Maslow), African Americans (e.g., Frances Sumner, Ruth Howard Beckham, Kenneth Clark), and women (e.g., Helen Woolley, Mary Calkins, Margaret Washburn). As I don't want the students to immediately catch on to what I'm doing, I call first on a few in a row who faced no discrimination. The first student presenting a minority is asked to tape a sign labeling the minority psychologist's status on the desk, indicating where others will soon sit. Those presenting African American women may chose to sit in either section. After the students representing non-minority psychologists present, we discuss discrimination and write about the experience. As well, students respond to an essay question on the first exam.

Processing the Experience

As an essay question on the first test, students are asked to cite two examples of discrimination (name and situation), to describe what a person could learn about discrimination from actively engaging in the activity, and to describe what a person could learn from being in each group (those who presented and those unable to present). I analyzed responses spanning two semesters and found three themes. The first was an affective response, involving feelings

that it was “unfair,” or unjust not to give credit to those who earned it; frustration involving not being able to present completed work, or with those who didn’t protest injustice; helplessness and the role of luck or chance (referring here to a seemingly arbitrary quota), and empathy for those discriminated against (discouragement, resentment, anger). One student commented, “[Students] got to feel what it was like for [those discriminated against]. If we were just told they were discriminated against, we probably would have forgotten.” Another wrote, “Without participating in this activity, people might not take [inequality] seriously, or not let it affect them.”

Historical consequences emerged as the second theme. Students noted that the activity enhanced understanding of the historical context and importance of zeitgeist; skepticism about whether people were appropriately credited for work (for example, men receiving sole credit when women contributed); appreciation for the depth, breadth, and recency of discrimination; lost potential knowledge or advances in the field of psychology and the larger society due to discrimination.

Deriving personal meaning emerged as the third theme. For example, students wrote about the admiration and respect they developed for those who persisted and accomplished despite discrimination. Many acknowledged the challenges faced by some psychologists. I have repeatedly observed that during the broader discussion, students who were scheduled to present minority psychologists try their best to insert accomplishments into the discussion. It is as if they insist that others be told about their psychologist’s accomplishments.

I conduct this activity every semester. Each semester I approach it with excitement and trepidation. I never know how a class will respond. I understand that I risk losing rapport with students the first week of class. I have established a comfort level in my teaching that allows me to reestablish any lost rapport and I have found students to be very forgiving. Even those who do not receive credit see the lesson as being worth the cost. The loss of points appears secondary. Students will say such things as, “I spent all that time writing and rehearsing and I don’t even get to present!” I do later let them present, but do not award points. I have asked students whether I should award credit later, but they indicate that the activity is more effective because the points are never awarded.

If you choose to use this activity, you’ll need to prepare to manage the discussion. This discussion provides an excellent forum to clarify misconceptions about discrimination and civil rights changes. For example, many times students will say, “Why didn’t he or she protest?” or “Why didn’t they band together and stand up for themselves?” In one class, a student mistakenly attributed too much credit to Rosa Parks (a single person) as a sole force in advancing civil rights, while ignoring the larger foundational movement. Although I lead the discussion, corrections about such misinformation are best when they come from other students.

As I’ve continued to use this activity over subsequent semesters, I have found it extremely meaningful, both for the students and for me as the instructor. Though it does present a unique set of challenges in the classroom, the strong emotions and real sense of injustice that the students experience reward each of us with a new, more profound understanding of discrimination, both in the past and in the present. Part of our role as instructors of psychology is to provide our students with this sort of new understanding; an

activity like the one discussed here has proved to be an effective and very practical way of doing so.

Author note

Portions of this essay were presented at the American Psychological Association annual convention. Washington, D.C., August 2014.

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Chapter 9

E-xcellence in Writing: Reducing Undergraduate Writing Apprehension with the Basic Psychological Needs

Shannon Hayden, Adena Young-Jones, Jacqueline Byrket, and Taylor Smith
Missouri State University

Teachers are perpetually confronted with undergraduate students' lack of proficient writing skills even in upper level college courses across the United States (Bartlett, 2003). Despite this deficiency, graduate faculty expect a high degree of writing expertise from incoming students. Overall, graduate degree programs are known to be writing intensive; this is especially true within the social sciences (Bartlett, 2003; Can & Walker, 2010; Karakaya & Ulper, 2011; Torrence, Thomas, & Robinson, 1992; Wingate, 2010). Interestingly, a substantial percentage of students aspire to attend graduate school. Currently, 1.7 million students are enrolled in graduate programs according to a press release by the Council of Graduate Schools and Graduate Record Examinations Board (Allum, 2014). In response, numerous studies identify best practices for teaching composition to meet the demands for skilled writers. Their suggestions include evaluation of instructor style (Kahn & Holody, 2009), feedback effectiveness (Fallahi, Wood, Fallahi, & Austad, 2006; Gielen, Tops, Dochy, Onghena, & Smeets, 2010), course pedagogy (Stellmack, Keenan, Sandidge, Sippl, & Konheim-Kalkstein, 2012), and degree specific instruction (Morgan, Fraga, & Macauley, 2011). However, few studies investigate the underlying problem of students' motivation and attitudes toward writing. When preparing students for the substantial task of scientific writing, it is imperative for us to examine why students feel inadequate, avoid writing, and lack motivation to write. We examined these factors within the Self-Determination Theory (SDT) framework and include brief recommendations for improving student perceptions of writing abilities.

What Does Self-Determination Theory Propose?

According to Deci and Ryan's (1985, 2002) Self-Determination Theory (SDT), reaching the highest potential in terms of academic motivation necessitates fulfillment of basic psychological needs, autonomy, competence, and relatedness. As students' satisfaction of these needs increase, they are expected to become intrinsically motivated, which is defined as a self-determined state of flow that originates from an internal and self-perpetuating source (Deci & Ryan, 2000, 2002; Deci, Vallerand, Pelletier, & Ryan, 1991; Levesque, Copeland, Pattie, & Deci, 2010). Intrinsically motivated students have increased self-efficacy and well-being. They also tend to enjoy coursework more and maintain a high grade point average. In contrast, students reside in a state of extrinsic motivation or amotivation when their basic needs are deprived. Extrinsic motivation occurs when individuals are enticed by external sources such as

rewards, punishments, a means to an end, or guilt among other influences. This leads to students' difficulties attending class, completing assignments, and may eventually cause them to drop out. Additionally students could experience amotivation, an apathetic attitude toward education, when the academic environment does not satisfy the basic psychological needs.

We hypothesized these principles apply when addressing specific academic tasks (i.e., writing). Individuals who experience multiple positive writing and feedback encounters are more inclined to obtain need satisfaction within this domain and, therefore, are more likely to be intrinsically motivated to write. Conversely, students who have few, or negative, occurrences will not possess need satisfaction, driving them to the opposite end of the motivational spectrum. Thus, students retaining extrinsic motivation, or amotivation, toward academic writing could struggle to initiate writing tasks.

Survey Findings

We sampled both lower- and upper-classmen for this investigation (Hayden, Young-Jones, & Byrket, 2015). Participants were presented with four questionnaires: Academic Motivation Scale (AMS), the Basic Psychological Needs Scale (BPNS), the Daly-Miller Writing Apprehension Test (WAT), and a demographic form in which students' writing avoidance behaviors were assessed using "yes/no" questions. We found a small percentage (26%) of students avoided a class due to the writing requirement. However, the study revealed half (50%) of our participants preferred to work on a presentation rather than a paper, but the majority (80%) planned to apply for graduate school. Both upper- and lower-classmen indicated that good writing skills are vital in the field of psychology, their bachelor's degree, and life in general. Interestingly, upper-classmen consistently assigned more importance to each scenario than their lower-classmen peers; yet, students did not seek to improve writing skills outside of course requirements considering only one third (34%) of participants wrote for projects beyond class obligations. While half (50%) planned to utilize a potential writing tutor within the psychology department, significantly fewer (28%) sought writing assistance from campus resources (i.e., tutoring service). This reveals that students do not access resources readily available on campus.

With regard to participant self-perceptions of writing skills, most students exhibited Average Apprehension (AA; 109, 59%) on the writing apprehension measure. Daly and Miller (1975), authors of the WAT, argue this is the appropriate category for the majority of student writers. The remaining individuals scored within the High Apprehension (HA; 22, 12%) and Low Apprehension (LA; 55, 30%) classifications. Both LA and HA categories predict difficulties in compositional tasks. LA students may exhibit overconfidence, thus, leading them to approach the task in a haphazard manner or disregard proper preparation. HAs are overwhelmed by assignments and struggle to initiate projects. Both categories tend to procrastinate, albeit, for different reasons. Students outside the AA category frequently submit a lower quality product which does not truly reflect their overall abilities.

We randomly sampled the AA category to create even groups for comparison of motivation factors. WAT scores negatively predicted academic motivation; lower writing apprehension correlated with more intrinsic forms of motivation. When analyzing the three basic psychological needs, we found that competence was a positive predictor, relatedness was

a negative predictor, and autonomy exhibited no relationship with writing apprehension. These findings support our initial hypothesis that basic needs exert an influence on student perceptions of composition adequacies.

Awareness of students' academic motivation allows for insight to our previously mentioned questions. Based on the present results, we propose that students avoid writing because they have either too high or too low a level of apprehension toward the task. Consequently, we believe that students lack motivation to write because they have an insufficient sense of competence within the compositional domain. This is a double edged sword because students' are unable to increase proficiency without practicing and developing their abilities. Receiving expert feedback is crucial to improvement that cannot occur in isolation. We propose that academic writing interventions should be targeted to facilitate this process, while also interrupting the avoidance cycle, and redirecting hesitation tendencies.

Recommendations to Increase Writing Motivation

According to Deci and Ryan's SDT (1985, 2002), different types of motivation are situated on a full spectrum. A student may progress or regress along the continuum and experience various levels of motivation in distinct phases of life. Therefore, students may be on the intrinsic motivation portion of the spectrum for attending graduate school but reside on the extrinsic or amotivation portion for academic writing. They may not connect these two aspects of their lives. Subsequently, instructors should convey and demonstrate the necessity of writing; this can prompt and encourage internalization of sufficient practice. To do this, we recommend that teachers incorporate at least one writing assignment into introductory level courses and increase the depth and/or complexity of compositions for upper level courses. Professors must emphasize writing as an essential skill for all college graduates; this is especially true for students planning to apply for graduate programs. Hence, we believe all individuals, regardless of post-graduation plans, will benefit from immediate development of writing proficiency. College instructors can provide students with resources and suggestions through independent writing projects, visits to campus writing experts, collaborative assignments among students of similar skill levels, and reviser/submit requirements.

When students successfully complete the aforementioned tasks, there will be a positive impact on their needs for competence. Since competence fulfillment is a negative predictor of writing apprehension, interventions targeted at increasing students' sense of writing competency could reduce writing apprehension. Deci and Ryan (2002) assert that competence requires the pursuit of challenges at optimal capacity while also actively enhancing skills. Students with strong apprehension toward writing do not feel a sense of competency because they avoid, procrastinate, or feel anxious about writing assignments. Professors should reduce writing projects into smaller components thus assisting HA and LA students to remain on track and ultimately promote a stronger sense of competence. Additionally, instructors can offer support through comprehensive, detailed, and constructive feedback in order to facilitate the reviser/submit process. This practice gives students the opportunity to reflect and learn from expert advice. Conversely, assignments without appropriate feedback or resubmission obligations diminish academic growth and development, specifically for writing tasks. We also encourage instructors to support autonomy by allowing students to choose their writing topic,

providing flexible deadlines, and/or permitting a selection between independent versus collaborative work. Students become extrinsically motivated or unmotivated to write when they are not interested in their projects or when the projects are perceived to lack relevance.

In addition to focusing on student improvement, professors should also consider their own compositional skills. Previous research indicates that faculty members struggling with their sense of writing competency may not feel capable of appropriately supporting students (Boice, 1990). Faculty are expected to write academically in terms of publications and critiquing students' assignments. Sadly, some contend with their own writing anxieties just as much as students. When this occurs, students are underserved. Regardless of writing ability, we suggest that professors take advantage of opportunities for professional writing development. Pursuit of external training is an excellent way to lead by example.

In conclusion, when instructors effectively illustrate the writing process and seek to promote basic psychological needs, they prompt students to evaluate their writing and address individual weaknesses. An assignment that lacks feedback is not productive as it impedes personal reflection and improvement. A beneficial writing regime requires active and productive involvement by both the professor and their students. Through incorporation of these recommended practices, we believe writing struggles in the social sciences, and overall, will diminish. Most importantly, we propose these techniques will improve overall academic motivation and generate value in a previously underdeveloped skill.

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Chapter 10

Service Learning Research Projects: Student Satisfaction and Tips for Educators

Lindsay A. Phillips
Albright College

The National Service Learning Clearinghouse defines Service Learning as “a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities” (2012, para. 1). While service learning is widely used, there is a paucity of literature on using this pedagogy to teach research methods and statistics.

In this article, I address how other psychology educators can partner with agencies in their communities to provide a research project that is not only an educational experience for their students, but also a valuable service to the agencies. Additionally, I address student satisfaction with service learning in research design and statistics courses by describing the methods and results of a preliminary student satisfaction survey.

The applied research and statistics course at the center of this project and resultant evaluation is called, Program Evaluation. The service learning project gave students the opportunity to conduct an actual evaluation of a program to assist an under-resourced program in their community. The students were working adult undergraduate students in an Applied Psychology program.

I modified the existing course to include service learning, partnering with a program, conducting the modified course, and gathering quantitative and qualitative satisfaction data from students.

By conducting this course with a service learning component, students were able to complete a full program evaluation of an actual program (an applied experience which does not always occur in Program Evaluation courses), were able to assist a program in their pursuit of improvement, and were able to contribute to all stages of a program evaluation (including, interviewing program staff, developing a satisfaction measure, going through institutional review, collecting data, analyzing data, completing a results section, and completing recommendations for the program as a result of the findings).

Satisfaction Evaluation

After the course ended, students received an email requesting their voluntary completion of a survey to assess their satisfaction of the Service Learning component in Program Evaluation. Seven students (out of the nine students in the cohort of adult students who completed the service learning project) responded to the survey.

Evaluation Results

Students indicated a high level of satisfaction with the Service Learning component in Program Evaluation on close-ended questions (rated on a Likert scale). All seven students who completed the evaluation either strongly agreed or agreed with statements indicating that they learned more about program evaluation, enjoyed the project, felt that the service learning component let them apply what they learned in text and lecture, and enjoyed assisting a community agency that was in need. All participants strongly agreed that they “learned more by doing an actual evaluation than” they would have learned “without this opportunity.” All seven students either strongly agreed or agreed that students should have more opportunities to experience service learning pedagogy.

Although these responses were overwhelmingly positive, one student might have preferred to research their own topic, rather than have the entire class assigned to a pre-determined program to evaluate. Additionally, one student was not certain that this would help them in their future endeavors. These findings also emerged in responses to open-ended questions.

Responses to open-ended questions were, again, overwhelmingly positive. I identified prominent themes in student responses through phenomenological analysis, utilizing the process outlined by Creswell (2007). This method involves compiling a list of statements that participants used to describe their experience and organizing the important statements into commonly experienced themes.

To begin, four of the seven student respondents explicitly stated that helping a community partner by conducting an actual program evaluation for them gave students an applied, real-world experience:

- “I highly enjoyed being able to put what I was learning to a real life situation. I feel I learned more helping this community agency than I would have trying to make a hypothetical program evaluation for an agency.”
- “I feel I learned more about simply conducting a survey than if I only read about how to do it in a textbook.”
- “It was real-life hands on learning.”
- “We got to apply our knowledge to a real world issue.”

When asked to identify limitations of the experience, as previously noted, one would have liked to have chosen their own area of interest for a program evaluation project and two others wished they could have helped the program more (by getting more data or by providing an ongoing evaluation).

Six out of the seven respondents indicated that they believed that this experience would help them in their future careers in some way.

Suggestions to Instructors

Although both qualitative and quantitative responses to this experience were overwhelmingly positive, there are some suggestions for future instructors who may wish to incorporate a service learning component into their Program Evaluation courses.

1. Students are likely to appreciate applied experiences, whether it is by seeing examples of actual program evaluations or by having the opportunity to conduct an evaluation for a community program, as was done in this experience.
2. Students may appreciate being surveyed well in advance of the course to see if they would be interested in a service learning component, and if so, what their areas of interest are. It would be difficult to find a group of students with identical interests, so while an interest survey might be helpful, it might not change the fact that some students may not find the service learning project to be in an area of interest or beneficial for their future careers.
3. Students want as many responses to their program evaluation surveys as possible. Future instructors could evaluate whether the community programs have an ample number of potential participants and whether the program participants are a population with a strong likelihood of responding to a program evaluation survey.
4. Students may wish to have opportunities to interact with the program beyond the class. They might like to learn more about how their final report was used to help the program. An option for doing this might be to gather email addresses of students who want updates about the program they assisted.
5. Careful planning and communication with students is necessary so that students understand how helping a community program is beneficial for the program, and for the students to get an applied program evaluation experience.

While I hoped to receive satisfaction data from both the community partner and the students, only students responded to the request to complete a satisfaction survey. The community partners did, however, repeatedly express their satisfaction and gratitude informally.

Limitations of this evaluation include the small sample size, self-reporting biases, and volunteer bias (for example, it is possible that satisfied students were more likely to complete the evaluation than dissatisfied students). These current findings are also limited by the lack of the community partners' perspectives and from only looking at satisfaction, while not assessing whether the Service Learning component enhances learning more than the class without a Service Learning component. Future research should look beyond satisfaction to see if students who have the service learning experience learn more about Program Evaluation than those who do not.

In spite of these limitations, these results provide preliminary evidence that students may enjoy service learning in similar courses. Future research should investigate the educational effectiveness of service learning (i.e., beyond satisfaction data) and endeavor to get satisfaction data from community partners.

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Suggested Resources for Service Learning

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Chapter 11

Margaret Floy Washburn's Facebook Friends: Telling the Stories of Psychology's Women and Minority Pioneers

Deborah A. Gagnon

Psychology, Wells College, Aurora, NY

Students hearing about the 'long past but short history' (Ebbinghaus, 1885) of psychology that is typically told in history and systems courses or read about in introductory psychology textbooks can come away with the impression that the story is exclusively peopled by males of European origin. The long past starts with the Greek philosophers Plato and Aristotle; the short history begins in 1879 Germany with Wilhelm Wundt opening the first academic research laboratory, followed by an immigration of his protégés to a white, male American academe. But women and people of color also made lasting and significant contributions to scientific psychology, contributions that might have given them prominence in today's textbooks if only their skin and/or gender had been different at the time those contributions were made. Their stories, lives, and contributions deserve to be told, known, and celebrated in their own right, but also because a diversity of ideas and perspectives makes for a healthier science.

A meaningful way of achieving this 'consciousness raising' was devised in the context of a foundations and methods in psychology course that I teach at Wells College (NY). I first retell the history of scientific psychology using the '*psychology has a long past but short history*' quote as a structure. I describe how Plato and Aristotle posed questions about human behavior, nature versus nurture, and epistemology that psychologists are still trying to answer today, how psychology as a field was 'born' in 1879 in Leipzig, Germany to a male father (Wilhelm Wundt), and how the nascent field migrated to the United States through the embodiment of men such as Edward Titchener, followed by a long litany of names that likewise tend to be male and of European descent. Because the institution that I teach at was 'home' to the first female Ph.D. in psychology (Margaret Floy Washburn) whose first job after earning that Ph.D. (from Cornell University, working under Titchener) was to serve as professor and chair of the psychology, philosophy, and ethics department (1894-1900), I always make mention of this resident heroine almost as a point of trivia because while she may be notable to my students given her connection to our institution, few besides them will be hearing her story. I then throw up a slide containing head shots of all the people we just discussed – Plato, Aristotle, Wundt, Fechner, Wertheimer, Pavlov, Watson, Skinner, James, Chomsky, among others – and ask them what they see. The students almost always point out that every single one of the individuals is white, middle aged or older, and male (sometimes they point out that most are sporting a beard too). I then question the students about what impact such a homogenous group could have on the development of a field. Would their presumably similar perspectives

lead to a tunnel vision of sorts? What would happen if other voices were part of the story? Are there other voices and whose were they?

I have long made this awareness a part of my own version of the history psychology, but a chance conversation with a friend who teaches in the field of American history gave me an idea for a more personally meaningful and impactful way of imparting that message to my student: Ask them to create and share Facebook profiles for the women and minority figures whose stories are seldom told in order to learn about their lasting and important contributions to the field.

Methods: Learning through Telling their Stories

Students are assigned the task of researching a woman or minority figure in the history of psychology of their choosing, and then creating Facebook pages to represent their lives and contributions; the pages include Timelines, Walls, Friends, Books/Music/Movies, and Photos. For candidates to study, I refer them to resources such as Guthrie's *Even the Rat Was White* (1976) and Scarborough and Furomoto's *Untold Stories: The First Generation of American Women Psychologists* (1989; see Appendix A for a list of some of the historical figures students chose). Facebook is a social media tool with which today's students are facile; when told to create Facebook pages for their historical figure, they need little instruction on how to do this. Rather than create 'live' Facebook pages for real people (which would be prohibited), students create static pages using a template that I provide. Such 'Fakebook' templates are readily available on the internet (I chose one that illustrated John F. Kennedy's fictional Facebook pages).

Students were instructed to 'be creative' in developing realistic pages for their historical figure. The real work for the students was doing the research: digging deep into the lives of their historical figure in order to understand the social, political, and cultural context, pressures, and influences in which these individuals lived and worked. What books, movies (imagining their availability at the time), and music might this person post on their Facebook pages? What 'Likes' would they have? Given the notable events in their life and work, what Timeline and Wall postings might they have made? Who might their 'Friends' be? Instructions: Be fun, creative, and imaginative!

Presenting the finished Facebook pages to their classmates allowed students to share what they learned and for everyone to gain a deeper appreciation of these under-represented historical figures and their contributions to psychology. All along, students were asked to consider: how would psychology be different today if these diverse voices had been heard or given more coverage? I describe Guthrie's argument that who asks the questions makes a difference in what the questions are, how the questions get answered, and which participants get studied (Guthrie, 1976). I further make the point that even what gets measured (reaction time, accuracy), and measurement itself, is the product of a western viewpoint (Gagnon, 2007). This can lead to a discussion of the differing philosophies and principles behind quantitative and qualitative methodologies.

To assess the effectiveness of the assignment, students were asked to provide feedback via a questionnaire administered at the end of the course that asked them to make 5-point

scale ratings as well as to endorse statements and provide qualitative comments about the project.

Objectives and Results

I propose that through researching the life of an under-represented figure in the history of psychology and presenting the results of that research through the creation of Facebook profiles, students would:

1. gain better insight into how the types of questions asked in psychology and the approaches to answering them depend on the person doing the asking/answering;
2. gain a deeper appreciation and understanding for the lives of the under-represented in the history of psychology;
3. provide a more effective and enjoyable learning experience

Were these objectives achieved? Results of the post-project assessment revealed that students felt the project helped them in learning about under-represented contributors in the field (4.0), raised their awareness of these contributors (4.4), raised their awareness of under-representation in the history of psychology (4.7), and allowed them to come to a better understanding of the questions and approaches of minority and women figures (88%). They endorsed that this was a more enjoyable method for learning about the history of psychology and hearing about their classmates' historical figures (81%); they especially enjoyed the creative element to the assignment (94%). They did not, however, endorse that the technique was an overall effective method for learning about the individuals (60%), and my evaluation of their learning at test via a 20-item matching exercise bore this out. It seems that the students were not quite clear just what details of the individual's lives they should focus on while learning about them. This leads to my final conclusions.

Conclusions and 'Lessons Learned'

Researching and presenting Facebook profiles allowed students to gain a deeper appreciation of under-represented historical figures in psychology and their contributions to the field; in particular, in raising their awareness of both these individuals' lives and of a more diverse history of psychology. Students strongly endorsed the creative element to this project and appreciated working in a context with which they were familiar. Qualitative comments regarding effectiveness of the method revealed that for many of them, while they enjoyed learning about their own historical figure in this way, they did not feel they learned as much from hearing about others in this format as they would have from a traditional lecture. Nervousness in presenting detracted from absorbing the lessons from others. However, they certainly appreciated the creativity and 'less dry' aspect of this method. In evaluating students' learning, it was clear that students did not know what 'facts' to capture from their classmates' presentations. Lesson learned: Be more intentional in sharing the expectations of what is to be learned from the project.

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Author's note

Portions of this essay were presented at the 2014 National Institute on the Teaching of Psychology conference in St. Pete Beach, Florida. I would like to thank and credit friend and history professor Holly Dawson for the idea of creating Facebook pages as a way of learning about historical figures. Holly has used this technique in her American history courses at Erie Community College (NY) to help students learn about African-American and Native American under-represented voices in that history.

Appendix A. Women and Minority Figures in Psychology

Inez Beverly Prosser	Charles Henry Turner
Mami & Kenneth Clark	Robert Guthrie
Janet Helms	Derald Wing & Stanley Sue
Mary Ainsworth	Herman George Canady
Christine Ladd-Franklin	David Matsumoto
Margaret Floy Washburn	Martin Jenkins
Leta Stetter Hollingworth	Claude Steel
Mary Whiton Calkins	
Anna Freud	
Melanie Klein	
Karen Horney	
Sandra Bem	
Carol Gilligan	
Helen Bradford Thompson Woolley	
Maria Montessori	
Lillian Moller Gilbreth	
Florence Goodenough	
Charlotte Bühler	
Beth Wellman	
Millicent Shinn	
Ethel Puffer	
Francis Cecil Sumner	

About the Authors

Jacqueline Byrket is a graduate student in the experimental psychology program at Missouri State University in Springfield, Missouri. She obtained her Bachelor of Science in Psychology May 2012 from Missouri State University. Her research focus is a combination of social psychology and physiological psychology to evaluate obstacles in student success and academic motivation.

Kristie L. Campana received her Ph.D. in Industrial-Organizational psychology from the University of Minnesota, and is currently an Associate Professor at Minnesota State University, Mankato. She typically teaches undergraduate courses in introductory psychology, personality psychology, IO psychology, and social psychology, as well as graduate courses in statistics and employee selection. Dr. Campana is passionate about helping students learn how to apply their knowledge to solve practical problems, and enjoys working with students in the Organizational Effectiveness Research Group, a student-run IO consulting business housed at MNSU.

D. Lisa Cothran received her A.M. and Ph.D. from the Social and Personality Psychology Program at Washington University in St. Louis. Since 2005, she has taught courses across the curriculum including General Psychology, Social Psychology, Personality Psychology, Research Methods, Psychology of Women, and Psychology of the Black Experience. She is an Associate Professor of Psychology at Alabama State University. Her research interests are in personality and emotion, prejudice and attitudes, and innovative ways to teach the psychology of black women.

Deborah Gagnon is Associate Professor of Psychology and Chair of the Division of Social Sciences at Wells College (Aurora, NY). She is primarily responsible for the biological and cognitive psychology curriculum at the college, but also teaches a 200-level course in foundations and methods in psychology which all majors are required to take. The course provides grounding in history and systems and methodology beyond what is covered in the introductory psychology course. Professor Gagnon is also Coordinator of the Cognitive and Brain Sciences and the Science, Health, and Values programs at Wells and a member of the Health Sciences faculty.

Elizabeth Harwood, Ph.D. is an Assistant Professor of Psychology at Rivier University in Nashua, NH. Having taught since her first year of graduate school, Dr. Harwood has developed a true appreciation and love for the art of teaching. Her desire to improve her craft has led to her line of research on the scholarship of teaching and learning. Dr. Harwood has also conducted research on various areas in clinical psychology including depression, attachment and eating disorders. Her proudest accomplishments are projects that include the contributions of her students.

Shannon Hayden is a graduate student in the experimental psychology program at Missouri State University in Springfield, Missouri. She graduated with a Bachelor of Science in Psychology from Missouri State University in May 2013. Her research interests involve the use of contemplative practices in educational settings with a specific focus on mindfulness and student well-being.

Walter L. Isaac is a Professor of Psychological Science at Georgia College in Milledgeville, Georgia. Earning his B.S. (1978) in Psychology at the University of Georgia, his M.A. (1983) and Ph.D. (1989) in Physiological Psychology at the University of Kentucky, he joined the Georgia College faculty in 1998. He currently involves undergraduate students in his comparative research studying learning and behavioral pharmacology in House crickets and Betta fish.

Ana Kehrberg is an Assistant Professor of Psychology and Neuroscience at Muskingum University in New Concord, OH. She earned her Bachelor's degree in Biology at The College of Wooster and her Ph.D. in Neuroscience at The University of Iowa. Her teaching rotation usually includes Introduction to Psychology, Physiological Psychology, Psychopharmacology, Learning and Memory, Advanced Experimental Psychology, and Topics in Neuroscience. Her research focuses around fetal alcohol syndrome, including alcohol's effects on the developing brain and people's attitudes toward alcohol use during pregnancy.

Michelle M. Merwin is a Professor of Psychology at The University of Tennessee at Martin, where, among other classes, she teaches clinical psychology and the history of psychology. Her teaching and research interests include the teaching of psychology, humanistic-existential psychology, and neuropsychology.

Joseph Ostenson is an Assistant Professor of Psychology at The University of Tennessee at Martin, where, among other classes, he teaches experimental and developmental psychology, and the psychology of marriage. His interests in the teaching of psychology extend beyond issues of the classroom to issues related to culture generally, and academic culture specifically, and how they affect education at all levels.

Bonnie M. Perdue is an Assistant Professor of Psychology and Cognitive Neuroscience at Agnes Scott College in Decatur, GA. She earned her M.S. in Experimental Psychology and Ph.D. in Cognition and Brain Science from Georgia Tech. She has taught a range of courses including Introductory Psychology, Research Methods, Research Statistics, Learning and Memory, Cognitive Neuroscience and Animal Behavior. Her research interests include comparative cognition and animal behavior and welfare.

Lindsay A. Phillips, Psy.D., ABPP is an Associate Professor of Psychology at Albright College and is in private practice as a licensed psychologist in Pennsylvania. She earned her doctorate in Clinical Psychology from Chestnut Hill College and is board certified in Clinical Psychology. Lindsay received the Judy E. Hall, Ph.D., Early Career Psychologist Award from the National Register of Health Service Psychologists in 2012. Having clinical experience with individuals who are incarcerated and individuals with mental illness and substance use disorders, her research

focuses on community integration of these populations and stigma. She has presented on and published several peer-reviewed articles and chapters focusing on these topics. She also enjoys organizing service learning activities for her working adult students, and has presented and published on using service learning pedagogy in the teaching of psychology. The project discussed in this article won an Honorable Mention from the Society for the Psychological Study of Social Issues' 2013 Innovative Teaching Award

Taylor Smith is a graduate student in the experimental psychology program at Missouri State University in Springfield, Missouri. She graduated with a Bachelor of Science in Psychology from Missouri State University in December 2013 and upon graduation took a year and a half to focus on research within Educational Psychology. Her interests include minority populations, diversity issues, and social relationships.

Lionel G. Standing is a Professor of Psychology at Bishop's University, in Sherbrooke, Québec, Canada. He obtained a doctorate in experimental psychology from Queen's University in Ontario, and has also spent time at the universities of Manchester (UK), St Andrews (Scotland), Sussex (UK), and Rochester (US). He currently teaches courses in research methods, cognition, social psychology, and health psychology, and has also taught perception, computing, introductory psychology, and statistics. His research interests range over experimental methodology, self-control processes, human memory for pictures, self-serving bias, and psychohistory.

Adena Young-Jones is an Associate Professor in the psychology department at Missouri State University in Springfield, Missouri. She graduated with a Ph.D. in Educational Psychology from Texas A&M University-Commerce in May 2008 and upon graduation was employed at Missouri State University. Her research interests include diversity issues and academic motivation with an emphasis in the combined impact on student achievement, retention, and success.

About the Editors

William S. Altman is a Professor in the Psychology and Human Services Department at SUNY Broome Community College. Dr. Altman earned Ph.D. and M.S. degrees in Educational Psychology and Measurement, and an M.P.S. in Communication Arts (Organizational Communication) from Cornell University, as well as a B.A. degree in History from the University of Pennsylvania. His research interests include effective teaching and learning, and creativity. Bill currently serves as the Society for the Teaching of Psychology (STP)-National Institute on the Teaching of Psychology (NITOP) Liaison, and the co-editor of STP's *E-xcellence in Teaching*. He also has served as the consulting editor for two introductory psychology textbooks, and has created numerous learning and teaching materials for several publishers. In addition to scholarly publications and presentations, Dr. Altman has written for several non-scholarly publications, spent over a decade sharing information about education, technology, and psychological science on local radio, been a professional photographer, and performed in theater and as a standup comic (ostensibly to work on classroom presentation skills, but mostly because it's fun). In addition to presenting many workshops and seminars about effective teaching and learning, he has also contributed over a dozen videos on effective teaching, as part of the [Wadsworth Guest Lecture Series](#). Dr. Altman also consults on the development of effective teaching materials and techniques for applications in other fields. For example, he assisted the New York State Department of Environmental Conservation in developing their training manual for nuisance wildlife control operators (available online at [NWCO.net](#)) and in creating and validating their statewide licensing test. Most recently, with award-winning science fiction author Jill Shultz, he began offering workshops to train fiction writers and actors to use psychological science for character development. Bill Altman is driven by a wide and unpredictable curiosity, an almost pathological need to solve problems, and a sense that it all ought to be fun.

Lyra Stein is currently a faculty member in the Psychology department at Rutgers University. Dr. Stein earned a B.S. degree in Psychology and Biochemistry and Molecular Biology from Rutgers University, an M.S. in Neuroscience from Albert Einstein College of Medicine and an M.S. and Ph.D. in Social Psychology from Rutgers University. Her research interests include performance and learning based on personality orientation. Dr. Stein currently serves on Society for the Teaching of Psychology's (STP) early career psychologist committee and is the co-editor of (STP)'s *E-xcellence in Teaching*. In addition to publications, presentations and advising student projects, Dr. Stein consults on instructor resource manuals and testing materials for a variety of psychology textbooks. She is currently working to enhance online education and online course conversion, including the Rutgers University signature course Soul Beliefs. In 2012, Dr. Stein won the Rutgers University award for distinguished contributions to undergraduate education and has developed many new classes including Psychosocial Foundations of Medicine and Myths and Misconceptions in Psychology.

Jonathan E. Westfall is an Assistant Professor of Psychology at Delta State University in Cleveland, Mississippi. A native of Ohio, Dr. Westfall earned his B.A. in Psychology at The

University of Akron, and his M.A. and Ph.D. in Psychology at The University of Toledo. After finishing his Ph.D., he spent 3 years as the Associate Director for Research and Technology at The Center for Decision Sciences, at Columbia Business School in New York. Dr. Westfall's research is centered around judgment and decision making, specifically individual differences and consumer financial decision making. In addition to his work in psychology, Dr. Westfall is also a Microsoft Certified Systems Engineer on the Windows 2000 platform, and an active writer and editor in the field of information technology. More information on his activities both within psychology and technology can be found on his blog at JonWestfall.com.