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INTEGRATING WRITING INTO THE PSYCHOLOGY COURSE

STRATEGIES FOR PROMOTING STUDENT SUCCESS

Edited by Tara L Kuther
# Integrating Writing into the College Classroom: Strategies for Promoting Student Skills

## Contributors

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At its simplest, writing is a means of communication. It is also a tool for thinking. Writing is an essential skill for all students, regardless of major or field. The APA Guidelines for the Undergraduate Major tasks students with developing competence in scientific writing and the ability to express ideas, arguments, information to multiple audiences (Goal 4). Writing assignments, however, serve many purposes. Through writing students can explore the knowledge base of psychology (Goal 1), practice and develop skills in scientific inquiry and critical thinking (Goal 2), and wrestle with ethical questions and apply standards and values to build diverse and respectful relationships (Goal 3).

Although, as undergraduates, many instructors were assigned the traditional 10-page term paper, writing assignments can take many forms. This e-book is intended as a starting point for instructors who seek to incorporate writing into their courses. It is also a source of inspiration for seasoned instructors, highlighting opportunities to integrate writing in their courses in new ways. Organized into three parts, Integrating Writing into the College Classroom: Strategies for Promoting Student Skills includes best practices, short writing assignments in several subfields, and semester-long scaffolded assignments that can be adapted to any course. An overview of the chapters follows.

PART 1: WRITING IN THE PSYCHOLOGY COURSE

The authors in Part 1 provide an overview of the range of opportunities for assigning writing and best practices for addressing common issues.

Amy Underwood and Lisa Bauer introduce us to the benefits and challenges of integrating writing into the undergraduate psychology course. They also provide an overview of solutions, including advice on creating assignments and grading efficiently.

Stephanie Freis, Jennifer Belding Martin, Kathleen M. Patton, and Melissa J. Beers share advice gleaned from their experience teaching a writing-intensive course. Particularly valuable are their suggestions for how to help students write concisely and attend to their audience.

David Copeland, Mary-Ann Winkelmes, and Kris Gunawan explain that students’ success is often influenced by the instructions instructors provide. They make a solid case for the value of communicating clear expectations and the benefits of transparent writing assignments.

Rebecca Foushee examines the uses and benefits of non-expository low stakes writing assignments. Exploratory writing can foster creativity, creative thinking, and self-awareness within the context of course material.
PART 2:  SHORT ASSIGNMENTS TO HONE STUDENTS’ SKILLS

The authors in Part 2 share some of their favorite writing assignments.

Judith Bryant encourages her developmental psychology students to think creatively and apply research and theory to explain how children might interact with a common object.

Daniel Velasco uses writing prompts to supplement classroom activities that promote cultural awareness and sensitivity.

Stephanie Anderson and Michelle Rosser-Majors help students learn to identify and avoid plagiarism by practicing paraphrasing, fostering an academic voice, and reflecting on academic integrity.

Alisa Miller Beyer explains the value of peer review for teaching students about writing and provides advice for matching students, training them, and supervising peer exchanges.

Kathy Ritchie presents a self-reflective assignment that aids students in processing feedback from instructors and peers and using it to improve their writing. She includes data supporting the efficacy of this assignment.

Elizabeth Weiss Ozorak shares a reflective essay that she uses at the end of each semester to help students identify what they have learned and how they might apply it after the semester has ended.

Rachel Riskind emphasizes the value of daily practice by assigning in-class writing prompts that students complete in notebooks that are collected each day.

PART 3:  MULTISTEP AND SEMESTER-LONG ASSIGNMENTS

In Part 3, authors share sets of assignments that scaffold student learning through part or all of a semester.

Mary Nelson and Sarah Hoegler present a series of low-stake writing assignments that apply Bloom’s revised taxonomy to develop students’ statistical thinking and reasoning skills and improve scientific writing.

Jillian Grose-Fifer and Christopher Davis-Ferreira describe a scaffolded series of assignments to help students learn how to read and summarize primary source articles. They present data supporting the efficacy of these assignments for increasing student learning.
Bernard Gee shares a set of five incremental assignments designed to improve skills that are needed for proficiency in scientific writing.

Katharine Blackwell helps her students learn to write empirical research reports through the use of a scaffolded set of assignments that provide students with opportunities to build skills, reflect on their writing, and improve their writing.

Molly Metz presents a semester-long series of blogging assignments in which students learn to search the literature for breadth and depth, communicate science to a non-expert audience, and learn to evaluate and revise their writing.

Finally, Rebecca Foushee shared a semester-long low-stakes journaling assignment that encourages and facilitates students’ use of various writing styles: descriptive, narrative, reflective, and expressive writing.

Writing is not easy. Helping students learn to write well is even more challenging. It is my hope that this volume provides some ideas, guidance, and assignments that can be adapted and applied in a range of courses at all levels.

Tara Kuther
Western Connecticut State University
Part 1: Writing in the Psychology Course
CHALLENGES AND SOLUTIONS TO INTEGRATING WRITING IN THE CLASSROOM: PERSPECTIVES FROM A GRADUATE STUDENT INSTRUCTOR

AMY L. UNDERWOOD & LISA M. BAUER, UNIVERSITY OF MISSOURI-COLUMBIA

ABSTRACT

Written from the perspective of a graduate student instructor, this chapter addresses some of the major challenges that accompany a writing-focused curriculum. Throughout this chapter, we provide a variety of effective strategies, resources, and solutions that we hope will prove valuable in the creation, implementation and grading of written assignments. Cognizance of these potential challenges and solutions will aid instructors in providing their students with a rich, writing-centered experience.

INTRODUCTION

Incorporating writing assignments into the college classroom is an excellent way to enhance student learning. Writing-centered activities foster students’ critical thinking skills and solidify comprehension of fundamental course concepts (Bean, 2001). Furthermore, the employment of writing within the psychology classroom achieves several American Psychological Association (APA) student learning goals. These skill-based objectives include the promotion of scientific inquiry and critical thinking, enhancement of communication skills, and cultivating a solid knowledge base in the discipline of psychology (American Psychological Association, 2013).

When new to teaching, graduate student instructors are faced with the overwhelming task of creating and implementing an entire course from scratch. This vast responsibility is often coupled with other academic obligations, such as coursework, research, and departmental service activities. These obligations are time-constraining and may result in a hesitation to implement more challenging activities into their course, such as writing assignments. Throughout this chapter, we offer time-saving strategies and resources for the creation, implementation and evaluation of student writing assignments. It is our hope this information will prove helpful for novice instructors who aspire to provide their students with a rich, writing-enhanced learning experience.

CREATING WRITING ASSIGNMENTS

Creating a writing assignment may prove time consuming and difficult to navigate, especially for novice instructors. Even if using an assignment from another instructor or a pre-created assignment from a chosen textbook, the assignment must be tailored to fit a particular lesson or lecture while achieving one or more of your course objectives. When creating an assignment, you may ask yourself, “where do I begin” or “how should I structure the task?” The following section will focus on several strategies and resources that have proven helpful when addressing challenges to the creation of classroom writing assignments.

Correspondence concerning this chapter should be addressed to Amy L. Underwood, Department of Psychological Sciences, University of Missouri-Columbia, Columbia, MO 65211 Email: alu352@mail.missouri.edu
There are various types of writing assignments that can be tailored to classroom demands. The first thing to consider when choosing an assignment is whether a low-stakes or high-stakes assignment would be most appropriate. This decision will be based on several factors, including personal time demands, scope of the course, and specific course objectives. Below, we discuss these types of assignments and provide examples for each. We also suggest additional resources (e.g., textbooks, online resources) that may prove helpful when generating writing assignments for the classroom.

LOW-STAKES ASSIGNMENTS

Low-stakes assignments are an excellent way to gain and maintain student interest on a weekly basis. They demand that students think (and write) critically, reinforcing their overall knowledge and understanding of a given topic. Furthermore, low-stakes assignments are less time-demanding for the instructor compared to high-stakes assignments. Grading practices for low-stakes assignments tend to be less stringent (e.g., counted as a participation grade) and thus less time consuming. Often, these types of assignments are informal exercises that require the student to reflect on recently learned information from lecture, assigned readings, or class discussion (Elbow, 1997). These assignments may be given more frequently (either in or outside of class) and do not have much impact on the student’s final grade. These assignments are often referred to as free-writing exercises or “think pieces” (Elbow, 1997). Below, we share different examples of low-stakes assignments one could implement in the classroom.

THINK (WRITE)-PAIR-SHARE

In this style of assignment, students are given a prompt and then asked to write a response independently for a short period of time, usually a few minutes (this may vary based on the prompt). Then, students pair with a fellow classmate and share their ideas. Students can collaborate their ideas and improve their answers. The instructor can then ask a group to share their collective response with the class.

FIVE-MINUTE REACTION PAPERS

In this low-stakes assignment students take five minutes of class time to respond to a lecture-relevant prompt provided by the instructor. These assignments are appropriate any time during the lecture; often instructors give these assignments at the beginning of class to stimulate thought on a topic or question relevant to that day’s lecture. After five minutes, the instructor may ask for student volunteers to share their prompt responses (e.g., Elbow, 1997).

ONE-MINUTE FEEDBACK PAPERS

A truncated version of the five-minute reaction papers in which students are asked to provide general feedback regarding that day’s lecture. Students can pose a question, offer a critique, or outline different musings regarding the topic of the day (e.g., Elbow, 1997).
JOURNALING

Journaling is another low-stakes assignment that requires students to think (and write) critically about course content. In this type of assignment, instructors ask students to relate a lecture topic to their personal lives, current or everyday events, etc. This assignment can be completed in or outside of class. Prompts for this assignment can be general or freestyle, such as:

“Please relate a concept from today’s lecture to your personal life, an everyday event or recent events you’ve heard about in the media.”

Journal prompts may also be tailored to specific content from lecture or used to stimulate critical thinking for an upcoming lecture. In my (Amy’s) Brain and Behavior course, I’ve provided prompts such as:

“Today, we discussed procedural and declarative memory. Reflect on the last 24 hours of your life. Describe one scenario each where you used your (a) procedural memory and (b) declarative memory.”

“Today, we will begin our chapter on human memory. Please take a moment and consider why memory is important. How does memory play a role in your daily life? How might memory impairment or loss impact your daily life?”

HIGH-STAKES WRITING ASSIGNMENTS

These assignments are given with expectation that the finished product will be a polished, well-composed and accurate piece of writing. These assignments take longer to grade but are an excellent way to foster students’ professional writing practices. Examples of high-stakes assignments include experimental (lab) reports, literature reviews, and annotated bibliographies.

SOURCES FOR GENERATING WRITING ASSIGNMENTS

There are many potential founts of inspiration (e.g., textbooks, other instructors) one can utilize when creating a writing assignment. In this section, we discuss how students and online resources are helpful sources for generating writing assignments in the classroom.

STUDENTS

Students can also participate in the creation of writing assignments. In a previous semester, I’ve (Amy) asked students to recall their favorite writing assignments and describe them. This type of assignment allows you to gauge student preference in assignment style while giving your students a voice in class-related activities. If you choose to employ this strategy, ask specific questions. An example prompt would be:

“Think about all of the academic writing assignments you’ve participated in over the past several years. Pick one you consider a particular favorite and describe it. What class was it for? What was the specific prompt or instructions for this assignment? Why do you consider this assignment among your favorite?”
Once you have an idea of what assignments your students prefer, create from there. Let your students know that their opinion and feedback are valued; when implementing an assignment you’ve created based on their feedback, let them know.

ONLINE RESOURCES

There are a plethora of online resources providing examples and inspiration for classroom assignments. In this section, we provide several websites that may prove helpful when creating an assignment, writing-centered or otherwise.

The Society for the Teaching of Psychology (STP)

STP [http://teachpsych.org/] is an excellent source of inspiration when generating writing assignments. The STP website offers many teaching-related tools in their Office of Teaching Resources in Psychology (OTRP). OTRP is an archive of classroom activities and many other classroom-related materials that have been utilized by instructors in all sub-disciplines of psychology. These resources are free to download. Some examples of these materials can be found in STP E-Books [http://teachpsych.org/ebooks/index.php]. Some we recommend are: 

- *Introductory Psychology Teaching Primer* [http://teachpsych.org/ebooks/intro2013/index.php],
- *Teaching Statistics and Research Methods* [http://teachpsych.org/ebooks/stats2012/index.php], and

Teaching Resources

[http://teachpsych.org/page-1603066]

OTRP Teaching of Psychology Idea Exchange (ToPIX)

[http://topix.teachpsych.org/w/page/19980993/FrontPage]

The Teaching of Psychology Journal (TOP)

The ToP journal [http://teachpsych.org/top/index.php] reports on effective methods in the pedagogy of psychology, empirical research related to teaching and learning, essays on the teaching of psychology, and demonstrations for classroom activities. To receive this quarterly journal, one must be a member of the Society for Teaching of Psychology (APA Division 2).

The Association for Psychological Science: Teaching Psychological Science

This website houses resource pages full of assignment ideas (writing or otherwise) for many topics covered in psychology courses. [https://www.psychologicalscience.org/members/teaching]

Teach Psych Science

This website provides activities that focus on statistics, research methods, and communicating experimental findings. [http://www.teachpsychscience.org/]
IMPLEMENTING A WRITING ASSIGNMENT

Explaining and executing a writing assignment in the classroom is time consuming. Even with what seems to be the most specific of instruction, students can often misinterpret or overlook details essential to the completion of the assignment. In this section, we offer a few suggestions on how to inoculate your writing assignments from unnecessary confusion.

RUBRICS

Rubrics are an excellent way to convey your criterion of excellence for any writing assignment. As a novice instructor, providing students with a standard of expected performance saves time and stress for you and your students. The overarching goal of a rubric is to outline expectations for student performance. When describing expectations within the rubric, employ Bloom’s Taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) to explain what the assignment should accomplish. Using words such as *describe* or *define* can help shape student’s understanding of what is expected in their answers. Empirical research has demonstrated that students prefer a rubric prior to completing an assignment, as the structured nature of the rubric reduces anxiety (Schneider, 2006). Provide this document to the students before you assign the writing activity and discuss your expectations in detail. This gives the students an opportunity to clarify any questions they may have regarding the assignment or criteria listed in the rubric. If the writing assignment is to be completed during class time, provide the students copies of the rubric to guide them. In my course, I (Amy) administer short-answer essay quizzes from time to time. During the time allotted for the quiz, I display my rubric for the assignment on the classroom projector screen. This way, my students know my expectations regarding their written work (an example of this rubric is provided in Table 1).
Table 1
Quiz Grading Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>Excellent (5 Points)</th>
<th>Satisfactory (4 Points)</th>
<th>Good (3 Points)</th>
<th>Needs Improvement (0-2 Points)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>Addresses <em>all</em> main points of the question in a <em>robust</em> manner. This means the answer provided covers <em>all</em> key information needed to fully answer the question. <em>All</em> provided information is correct.</td>
<td>Addresses <em>all</em> main points and covers <em>most</em> key information when addressing the question. <em>All</em> information provided is correct.</td>
<td>Misses <em>one</em> main point and covers <em>most</em> key information when addressing the question. <em>Most</em> information provided is correct.</td>
<td>Does not address <em>multiple</em> points in the question; omits <em>most or all</em> key information when addressing the question. <em>Multiple</em> pieces of information are incorrect.</td>
</tr>
<tr>
<td><strong>Grammar &amp; Syntax</strong></td>
<td>Uses complete sentences; employs appropriate grammar and syntax in the answer provided.</td>
<td>Uses complete sentences; <em>mostly</em> employs appropriate grammar and syntax in the answer provided.</td>
<td><em>Mostly</em> uses complete sentences; <em>somewhat</em> employs appropriate grammar and syntax in the answer provided.</td>
<td><em>Doesn’t</em> use complete sentences and/or appropriate grammar and syntax in the answer provided.</td>
</tr>
</tbody>
</table>

*Note. This rubric evaluates both content and grammar/syntax reflected in student responses for short answer quizzes I (Amy) administer in class. This rubric is designed to reflect the comment codes explained in Table 3.*

Rubrics are also handy when grading written work. Referencing a rubric when grading student work will also speed the grading process, as grading criteria is already conveniently outlined. Rubrics also provide a more objective grading measure for instructors. The Office of Teaching Resources in Psychology (OTRP) offers a Teaching of Psychology Idea Exchange (ToPIX) forum with several peer-reviewed sample rubrics: [http://topix.teachpsych.org/w/page/19980998/Grading%20Rubrics](http://topix.teachpsych.org/w/page/19980998/Grading%20Rubrics)

**EXPLICIT EXAMPLES**

Provide students with a *document of explicit examples* (see Table 2 below) conveying expectations of content and formatting rules to be followed. Using previous student papers (with permission) as exemplars is one way to accomplish this aim and takes minimal effort on the part of the instructor. For example, when a student provides a model answer to an essay question, I (Amy) privately email them and ask to use their answer as a demonstration in future classes. The student is usually happy to do so and appreciates the recognition. In the past, I’ve created a document that provides examples of exemplary and poor work (some provided by students, some that I generated). I review this document with my students during class time to explain why the answers are satisfactory or unsatisfactory.
Table 2
Examples of Student Quiz Responses (used with student permission)

<table>
<thead>
<tr>
<th>Question: Much of what we know about certain types of memory is due to our knowledge of one man, patient H.M. Describe what happened to H.M. after his surgery. What area of his brain was removed and why? What specific memory issues did he have post-op? Be sure to include which memory systems were impaired and which remained intact after his surgery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent response (no codes): H.M.’s hippocampi were removed to stop seizures originating in his temporal lobes. This surgery resulted in his having both anterograde and retrograde amnesia. Anterograde amnesia impacted H.M’s ability to form new memories. Retrograde amnesia impacted H.M’s ability to recall most old memories from before his surgery. The only memories he retained were from decades before he had his hippocampi removed. Following surgery, his declarative memory was damaged but his procedural memory was still intact. H.M. could learn to do new tasks (procedural), yet he did not know that he knew how to do them (declarative).</td>
</tr>
<tr>
<td>Satisfactory response (05): H.M.’s hippocampi were removed to stop seizures originating in his temporal lobes. He suffered from amnesia. Following surgery, his declarative memory was damaged but his procedural memory was still intact. H.M. could learn to do new tasks (procedural memory), yet he did not know that he knew how to do them (declarative memory).</td>
</tr>
<tr>
<td>Good response (01, 06): Patient H.M.’s hippocampi were removed after a bicycle accident in his adolescence that left him having seizures that originated from his temporal lobes. After H.M.’s surgery, he suffered from anterograde amnesia (the inability to form new memories), as well as retrograde amnesia (the ability to recall old memories). He could not play the Tower of Hanoi game.</td>
</tr>
<tr>
<td>Poor response (02, 03, 04): His temporal lobe was taken out. After surgery, H.M. had memory loss:</td>
</tr>
<tr>
<td>-anterograde amnesia (can’t make new memories)</td>
</tr>
<tr>
<td>-retrograde amnesia (can’t remember old memories)</td>
</tr>
<tr>
<td>This response does not address the majority of points in the question nor does it grammatical/syntactical rules. The answer is provided in incomplete sentences. Because the information provided is correct, this student would receive a score of 1.</td>
</tr>
</tbody>
</table>

*I (Amy) share this example document with my students prior to administering the first quiz of the semester. The document provides specific examples of common mistakes and the rationale by which they are coded (see Table 3). Their overall grade for the quiz response is based on the rubric in Table 1, which is organized by the type and amount of comments received*
GRADING WRITING ASSIGNMENTS

Grading writing assignments can be a daunting task, even for a seasoned instructor. In this section, we offer tips and resources that address challenges in grading student writing:

INCORPORATE PEER REVIEW

*Peer-review* allows students to work together to improve their work, solidify understanding of a concept, all the while reducing grading time. When I (Amy) give in-class essay-quizzes, I often leave around 10 minutes for students to collaborate on their answers. This way, they can pool their knowledge and learn from each other. Anonymous grading is a peer-review method the instructor can use to aid objectivity. When employing this approach, the instructor may ask students to submit a type of identifier (e.g., favorite animal, number and color, a student number, etc.) prior to completing the assignment so that each student’s paper can be uniquely identified. Students complete the writing assignment independently and bring a hard copy of the assignment (with their unique identifier) to class. The instructor collects the assignments, shuffles and redistributes the papers, ensuring that students do not receive their own papers. Students then critique and grade the assignment. This method is both time-efficient for the instructor and a good exercise for the student. Note that providing rubrics for this exercise can be helpful when asking students to grade their peers. Rubrics provide guidance on how the assignment should be graded.

Using Google Docs or Dropbox allows students to edit each other’s work remotely in a collaborative manner. If you choose to implement this style of grading in your course, mention this in your syllabus. Thus, students are aware they will be asked to share their work and have it critiqued while evaluating the work of fellow classmates.

PRACTICES FOR MORE EFFICIENT GRADING

Instructors may be hesitant to integrate writing into their course requirements as they may be concerned about the amount of time required to grade writing assignments. Below we provide solutions for providing helpful comments in an efficient manner.

If giving *written feedback* on hardcopy assignments, create a comment paper that houses typical comments/feedback for a given assignment. Comments on the paper are numbered; students receive their hard copy paper with numbers indicating to which comments they should refer on the comment section paper (see Table 3). This reduces the amount of writing the instructor composes on each student’s paper while still providing detailed information on grading criteria for the assignment.
Table 3
Comment Codes

<table>
<thead>
<tr>
<th>Comment</th>
<th>Code Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missed one point of the question</td>
<td>01</td>
</tr>
<tr>
<td>Missed multiple points of the question</td>
<td>02</td>
</tr>
<tr>
<td>Error in employing proper grammar or syntax</td>
<td>03</td>
</tr>
<tr>
<td>Incomplete sentence(s)</td>
<td>04</td>
</tr>
<tr>
<td>Omitted key information</td>
<td>05</td>
</tr>
<tr>
<td>Presented incorrect information</td>
<td>06</td>
</tr>
</tbody>
</table>

Note. Each comment represents a common mistake students make when responding to written quiz questions. To save time while grading, we use these representative comment codes to indicate specific mistakes on student submissions.

If giving electronic feedback, use online applications or programs that allow for grading ease. Some applications attach verbal comments, insert pre-made comments to save time on typing redundancy, etc. We have enumerated several of these applications below. If you use a third party site (such as some of those listed below), please check that the third party vendor has signed a FERPA compliance agreement with your institution.

Text Expanders (Cisco, 2015) are a wonderful time-saving application. Text expanders allow the grader to import pre-constructed comments for common mistakes. This way, the grader doesn’t spend excess time writing or typing the same comment for each student. These applications enable the grader to type abbreviations for comments. The program will automatically replace the abbreviation with the full length comment. Phrase Express (http://www.phraseexpress.com/) and TypeIt4Me (Ettore Software for Macintosh; http://www.ettoresoftware.com/mac-apps/typeit4me/) are both examples of this type of application.

Voice comments are another time-saving strategy. Written words or feedback resulting from grading may seem harsh to the student; they may falsely attribute a negative tone to the written message in the absence of context. Using voice comments is a more personalized, warm approach to grading. Another perk of this method is that verbal feedback requires the student to make changes manually. This way, students are not able to click an “accept track changes” button on their word processor, thus correcting their errors with minimal effort. Using applications such as iAnnotate (https://www.iannotate.com/), instructors can use their iPhone or iPad to provide and listen to voice comments on PDF formatted files if they have a PDF reader. Kaizena (https://kaizena.com/) can be used by students to brainstorm ideas before writing, especially if the assignment is a group activity. VoiceThread
Voicethread (https://voicethread.com/) enables students to upload typewritten or video assignments. Through this application, students and instructors may provide audio comments on assignment submissions.

Some learning management systems (LMS) enable instructors to leave voice comments on submitted assignments. For example, Canvas LMS has a Speed Grader tool (https://guides.instructure.com/m/4152/l/55016-what-is-speedgrader) and Turnitin has an option called Grade Mark (https://guides.turnitin.com/01_Manuals_and_Guides/Instructor_Guides/Turnitin_Classic_for_Instructors/25_GradeMark) that allow for voice commenting on student work.

**CONCLUSION**

In this chapter, we have provided ideas and sources for creating and implementing assignments, as well as suggestions on how to grade these assignments objectively and provide detailed writing critiques in a timely fashion. Whether you’re a graduate student instructor or more seasoned in your teaching experience, it is our hope that these strategies, tips, and resources will prove helpful to you in the classroom. May these tips better equip you to actively engage your students in their learning—by providing them with a rich, writing-enhanced learning experience.

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MEANINGFULLY INTEGRATING PSYCHOLOGY AND WRITING: LESSONS LEARNED FROM A SECOND-LEVEL WRITING COURSE

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ABSTRACT
Writing presents one of the best means by which instructors can promote and assess a student’s critical thinking skills. When writing is meaningfully integrated throughout a course and not isolated to a few assignments, instructors have the opportunity to help students build many valuable skills and enrich their experience in a course. The purpose of this essay is two-fold: first, we discuss how writing can be leveraged to enhance students’ learning in psychology; second, we discuss how an understanding of psychology can reciprocally improve students’ writing. We draw from our experiences teaching writing-intensive courses to offer strategies and suggestions for meaningfully integrating writing and psychology.

INTRODUCTION

One necessary skill all successful psychologists must possess is the ability to communicate effectively in the written word. We communicate through journal articles, grant proposals, patient records, and even email regardless of whether we work in academia, clinical settings, or industry. Therefore, effective communication is one of the American Psychological Association’s goals for students in the psychology major (APA, 2013); it is also a primary skill that employers seek when hiring any college graduate (AAC&U, 2013). As psychologists, we have a scientific understanding of how communication strategies can convey who we are, how we think, and what we feel to others. Thus, psychology instructors have a unique perspective on writing that can be readily, though perhaps not always easily, incorporated into classrooms.

The authors have all taught writing-intensive psychology courses at Ohio State that meet two of the university’s General Education (GE) requirements: social science and second-level writing. Second-level writing courses build on students’ written and oral communication skills by focusing on writing in a specific discipline(s) (e.g., psychology, anthropology, political science, engineering, communications, or art education, to name a few). Instructors teaching these courses must intentionally and purposefully integrate both writing instruction and course content through the curriculum.

To successfully integrate writing and psychology, an instructor must first clarify the course learning objectives. In this chapter, we articulate how writing instruction can enhance course goals such as critical thinking (including choosing appropriate evidence) and the ability to communicate psychology clearly and concisely. We review how assessments (e.g., papers, essay-based exam questions, class presentations) and in-class writing activities can all provide students the opportunity to practice organizing their thoughts and expressing their ideas regardless of individual course content. We also point out ways in which knowledge of key psychological content and theories can be uniquely applied to enhance communication.
WRITING AS CRITICAL THINKING

Critical thinking is arguably the most common and important learning objective in higher education. To this end, many psychology instructors encourage students to come to their own conclusions by evaluating the world as a researcher would. These instructors may encourage students to consider the validity and design of empirical studies and compare those with psychological theory, personal opinions, and personal experiences. Psychology instructors already frequently discuss phenomena related to these issues, such as the hindsight bias and whether findings of a given study will generalize to other manipulations, people, situations, or times. However, we believe that even experienced instructors can often do more to explicitly link these concepts to the development of critical thinking or communication skills – and writing activities can help.

Writing presents one of the best means by which instructors can promote and assess a student’s critical thinking skills. For example, essay-based testing gives instructors an efficient assessment of students’ critical thinking skills by asking students to synthesize, apply, compare, and create new ideas based on the psychological knowledge they’ve learned. Instructors could also use out-of-class writing assignments to help strengthen students’ critical thinking skills throughout the academic term. For instance, instructors could assign a short paper in which students must analyze claims in the media (Hall & Seery, 2006), evaluate the research supporting or opposing truisms and common-sense sayings (e.g., “Opposites attract” versus “Birds of a feather flock together”), or perhaps even evaluate their own study skills and strategies when faced with poor performance on an exam (Lovett, 2013).

Although psychology instructors may encourage students to improve their critical thinking skills, they are also often aware that students are susceptible to making a variety of errors due to psychological biases in judgment and decision-making, memory, and perception. Psychologists are in a unique position, then, to help students avoid these biases when writing and encourage students to utilize reliable information and sound logic. For example, we can help students overcome confirmation bias (i.e., the tendency to only seek out information consistent with prior beliefs, and/or interpret ambiguous information in a belief-consistent manner) when evaluating and choosing appropriate evidence to defend their positions. These goals can be achieved by many means including peer review activities/assignments, in-class debates, etc. Peer review assignments, in particular, help model the field of science and provide students an experience similar to journal review while also providing a means through which students can improve their writing style. Additionally, assignments can require that students articulate the quality of potential sources, defend their process in choosing evidence for their papers, or discuss how these biases could relate to choosing a side in a debate if one had to write an editorial or outline a research paper. By explicitly teaching students how to identify reliable versus unreliable information and knowing when it is appropriate to use some sources rather than others, psychology instructors can help students improve their critical thinking skills and the quality of their writing.

WRITING AS SCIENTIFIC COMMUNICATION

Just as APA (2013) outlines in their fourth goal for the psychology major, another way the field of psychology judges the effectiveness of communication is in a writer’s ability to present information scientifically. Given that the course we teach is a General Education (GE) course and many if not most students are non-majors, we have found that students may derive little benefit from focusing on the mechanics of APA style. Spending time coaching students from other disciplines on APA publication standards is frustrating for both students and instructors. Over time (one
of us having taught this course for more than 15 years) we have found it more valuable to focus on the values inherent in APA style as opposed to the mechanics of structure and citation. In other words, why does the APA have standards for writing, and what do they convey about what psychologists value in our discipline?

Teaching both social psychology and writing to students outside the major affords us an ideal opportunity to reflect on these questions. We have found it valuable to discuss with students the reasons underlying the conventions of APA style and how our disciplinary values manifest themselves into certain aspects of APA-style writing. For example, psychology as a science values objectivity. Consequently, in formal writing we avoid first- and second-person pronouns. We value specificity, so in research reports we include detailed sections on methods and materials used to undertake a study as well as details on the way data were collected and analyzed. We value empirical evidence, so when we encounter a statement or claim, rather than accepting anecdotal evidence or opinion we want to know how the author knows this or arrives at that conclusion. A psychologist would ask, “Where’s the evidence, and how do we know?” Accordingly, we value empirical evidence and methodological rigor so we can be confident in our understanding of human behavior. Finally, not only do we expect empirical evidence to be used, but also credited. In keeping with our emphasis on the values of APA style, we insist upon sufficiently citing sources of evidence. In an increasingly fast-paced media environment where it can be difficult to discern vetted, validated claims from unsubstantiated ones, it seems especially relevant to instill a writing process that acknowledges any/all source material. Referencing sources allows an interested reader to readily locate the original information and confirm that the evidence is consistent with the claims made. Again, we do not necessarily advocate that sufficiently acknowledging sources necessarily entail APA-style citation mechanics; rather, we value using scientifically appropriate sources, accurately paraphrasing sources, and making it known to readers the reference information of the sources.

THE VALUE OF CONCISI

Concision is another distinctly important quality in psychological writing. Concision allows a writer to make an effective argument clearly, directly, and effectively. One of the challenges we face in our discipline is presenting complex ideas in straightforward ways. Having an understanding and appreciation for the reader's perspective when drafting written documents is essential to clarity and concision in writing. Although it is a hallmark of most psychologists’ writing style, concision is challenging to teach. Students may struggle to recognize that the content and verbosity are orthogonal in the written word. Further complicating matters, students may have been encouraged to write in a more verbose style in other courses or disciplines. Students often presume that using more words (and/or more complex words) implies greater clarity and thoroughness when sometimes it is the very opposite. It is important to teach them that one can cover a lot of content in very few words just as one can cover very little content in far too many words. Achieving concise writing is usually much more effortful for students too, since such a style of writing requires students engage in multiple revisions to condense their initial ideas. Emphasizing the importance of this principle can be incorporated into discussions of psychology course content, including cognition, memory (e.g., primacy and recency effects), social influence, and much more. In short, whenever we discuss how much people think, we can also talk about the benefits of concision.

To develop strong concision skills, students must also frequently practice. This can be accomplished with both in-class activities and out-of-class writing assignments. For example, instructors may walk students through the
The Paramedic Method, a set of concrete steps to help students recognize and remove unnecessary words in a given document (Lanham, 1987). This method has several simple, clear steps to revising text that will maximize concision:

1. Circle all prepositions (e.g., for, on, to, etc.) in the passage and remove as many as possible
2. Draw a box around “is” verbs in the passage and remove as many as possible (e.g., am, is, are, was, were)
3. Ask “Where’s the action?”— In other words, who is actually performing the action in a sentence. If necessary, revise sentence to be active
4. Eliminate any unnecessary elements at the start of a sentence (e.g., “slow wind-ups”) such as, “I believe that...” or “It is the opinion of many people that....”
5. Remove any redundant statements
6. Read for coherence

Instructors can readily integrate the Paramedic Method into a class with a quick review of 15 minutes or less. After reviewing the technique, have students practice editing passages the instructor provides, then their own writing. It can be a friendly competition to see who can edit down a passage to its most concise version. It also can be a useful tool in guiding peer review. Once students are familiar with this way to review and edit their own writing, they can incorporate it into their own revision process for any course (or professional writing endeavor).

Another activity to improve concision could be an in-class “concept speed dating” exercise. Instructors could challenge students to summarize a given phenomenon or article in only a minute or less. In this activity, students form pairs and have 60 seconds to explain a phenomenon to their partner. Once both have attempted this, they switch partners and repeat the exercise. Unbeknownst to them, the instructor then provides only 45 seconds for this second round, which could then be followed by a third round with only 30 seconds each. When the instructor points out how much the time window had changed, students are frequently impressed that they didn’t actually need to use as much time or as many words to convey their ideas when they truly understand them. This activity also highlights the value of revision in writing.

ENHANCING AWARENESS OF AUDIENCE, PURPOSE, AND CONTEXT

Furthermore, when writers wish to ensure that their writing is clear, they must carefully consider the perspective of their readers. Once again, psychology can offer tremendous value in helping students and novice writers develop an understanding and appreciation for others’ perspectives. For example, research on cultural differences, group processes, or stereotypes and prejudice can help address the challenges of tailoring our messages to specific audiences. Of course, students must thoroughly understand the concept about which they are writing in order to use this knowledge of their audience effectively. When a student is able to adjust the complexity in his/her writing to target specific audiences, it signifies that the student truly understands the material at a deeper level than someone who is not able to make such adjustments.

Encouraging students to consider their audience thoughtfully can be accomplished relatively easily in both in-class activities and out-of-class assignments. In these activities and assignments, instructors can explicitly state the intended audience and ask students to adjust their work accordingly. For example, instructors can ask students to
summarize the results of psychological research in a Tweet, a 1-2 sentence summary for a press release, a scientific abstract, a blog post, a letter to a politician, and much more. Indeed, writing in these formats may be more representative of the type of writing our students will do regularly in the future as only a few become researchers themselves.

One way to use our understanding of psychology to improve writing for different audiences is incorporating lessons on concepts such as the Elaboration Likelihood Model (ELM). The ELM is one of the most prominent theories of persuasion and suggests that people will be persuaded differently based on how much they’re thinking about the topic. For example, strong arguments are more likely to persuade people who are motivated and able to think carefully about the message, whereas peripheral cues are more persuasive when motivation and/or ability are limited (see Petty & Cacioppo, 1986). Instructors could ask students to choose a societal issue and then address it through any chosen means of communication. This could lead students to write a letter to their government representatives, design a research project for a grant agency, design interventions for the community, or draft a marketing campaign to address their chosen societal issue on a large scale. In any case, students need to be acutely aware of who their audience is and have an understanding of how that impacts their communication strategy. What evidence will they choose to support their message and why? What level of language complexity and concision will they use and why? These questions help emphasize the importance of integrating psychology and writing instruction.

**ADVICE FROM A WRITING-INTENSIVE COURSE**

Each of us has not only taught this integrated writing-intensive course, we have also served as course coordinators for it. We can attest to the fact that achieving effective integration of writing does not come without sustained effort and collaboration. Our course has a strong partnership with the writing professionals at our university’s Writing Across the Curriculum (WAC) office as well as with our local teaching center. For instructors teaching a course with a writing component, or for anyone who wishes to enhance writing as a component of their course, we urge you to identify these resources at your institution and take advantage of their expertise. Seek out instructors teaching writing-intensive courses in other disciplines to learn more about how they are incorporating writing. Talking with instructors in other fields will help you appreciate both what is distinctive about psychology as well as what the disciplines have in common.

We have found it to be particularly eye-opening to connect with colleagues teaching writing in other departments. We may use certain terms interchangeably with our colleagues in other disciplines, but those terms may, in fact, hold different meanings for us. For example, after we noticed that many of our students were struggling with the expectations for appropriate evidence to support their arguments, we wondered about students’ experiences in their prerequisite writing course, and how they had evaluated sources previously. To answer this question, we met with colleagues from our First-Year Writing program to learn more about that course. We hoped furthering our understanding of students’ foundational experiences would help us improve students’ ability to transfer their knowledge between the two classes. The resulting conversation was both impactful and enlightening for us. Although both courses asked students to provide “evidence” to support their thesis and arguments, both courses held very different expectations and standards for what that “evidence” should be. In psychology “evidence” meant empirical, peer-reviewed, usually quantitative data. In contrast, students had much more latitude in their first-year writing course for the type of evidence they could use to support an argument. This helped us to understand the
importance of clarifying these expectations for students and providing more support around identifying and evaluating sources for projects and assignments that met the conventional standards for our discipline.

If possible, we recommend developing resources within your department that can be shared among instructors teaching the same course or different courses to enhance writing instruction. For example, a few of the strategies we have implemented include:

- Pre-course training for new instructors, including a credit-bearing course for graduate students preparing to teach a writing-intensive course. Such a course can allow instructors to experience several key themes through training that they will inevitably convey to future students, including the value of revising materials, the benefit of peer review in shaping the revision process, and the need for clarity and concision for facilitating understanding.

- Dedicated, coordinated initiatives to assess student learning and growth. Possible assessment strategies may include embedded testing questions, feedback opportunities throughout the semester gauging the effectiveness of writing instruction, and universal rubrics gauging the mastery of the major themes of writing (e.g., clarity and concision; appropriate use of evidence, etc.) that can be attached to specific assignments.

- Professional development events for instructors, including meetings to discuss strategies to enhance how writing is integrated and assessed. Several events were framed with a theme of “Steal My Idea” competition; instructors were encouraged to share ideas that could be widely adopted. The team voted on the most “stealable” idea to identify a contest winner.

- A pool of teaching resources to support writing instruction developed collaboratively by the instructional team, including writing prompts, in-class activities, and rubrics that can be shared among current and future instructors for the course.

It takes time, coordination, and institutional support to develop such resources, but the results are worth it: better materials tailored to the needs of individual instructors and course learning objectives, and instructors who are better equipped with the skills and resources they need to be successful in writing-intensive courses.

Effective writing is one of the most tangible and transferable skills our students should develop. Meaningfully incorporating writing into our classrooms can be an end in and of itself, but it can also be a means by which we achieve our pre-established learning objectives. Psychologists’ understanding of human nature and our ability to communicate effectively gives us unique potential to discuss concepts related to writing that students may otherwise never consider. Many of us already use writing in some way, but we urge instructors to consider using it more frequently — not only in graded assignments and large research papers — to achieve the learning objectives
specific to any given course. Ultimately, when we help students build these skills in our classes, we are also building the skills they will use most frequently in their futures.

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HELPING STUDENTS BY USING TRANSPARENT WRITING ASSIGNMENTS
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The ability to communicate effectively through writing is an important goal for most psychology instructors (Ishak & Salter, 2017). There are many reasons why writing holds such a lofty status - writing is used to demonstrate learning in a college course (e.g., Limke, Holloway, & Knight, 2011), it is used to communicate psychological research findings (Skues & Wise, 2014), and it can improve critical thinking (e.g., Bean, 2001). In the psychology major, writing assignments are used at various course levels (Soysa, Dunn, Dottolo, Burns-Glover, & Gurung, 2013) and some courses are designed specifically to teach writing (Johnson, Tuskenis, Howell, & Jaroszewski, 2011; Limke et al., 2011). Also, developing writing as a communication skill is a student learning outcome that is a part of the APA Guidelines for the Undergraduate Psychology Major (American Psychological Association, 2013). While a lot of the advice in this book is centered on different types of writing assignments, in this chapter we will focus on how instructors can present writing assignments to students. Specifically, we describe a method referred to as transparent teaching, which emphasizes clarity in the instructions that are provided for students (Winkelmes et al., 2016). This teaching method has been applied to writing assignments in psychology courses as well as other disciplines, with demonstrable benefits for student learning (e.g., Gianoutsos & Winkelmes, 2016; Winkelmes et al., 2016). We think that this technique is particularly important for the field of psychology because most psychology instructors consider psychological writing to be different from general writing (Ishak & Salter, 2017); thus, clear assignment instructions are very important for psychology students.

Importantly, this technique can be especially beneficial for underserved and new college students who may not be familiar with some of the “unwritten” rules of college assignments regarding expectations and grading (Winkelmes, 2015). Underserved college students, including first-generation, underrepresented, and low-income students, are half as likely to complete college in four years as their White and Asian peers (e.g., Ishitani, 2006). Because transparent teaching is a technique that provides more clarity about assignments and expectations, it can be helpful for this group of students. Thus, the idea of transparent teaching fits with the notion that college courses should be used to help students learn, not to weed out students who are not as prepared to succeed with assignments (Winkelmes, 2015).

INSTRUCTIONS CAN INFLUENCE OUTCOMES

Studies from different areas of psychology have demonstrated that manipulating instructions can affect performance on various tasks. For example, the inclusion of expanded or explicit instructions (i.e., a detailed explanation or clearer guidelines) can lead to more creative responses (e.g., Hong, O’Neil, & Peng, 2016; Runco, Illies, & Eisenman, 2005). In social cognition it has been shown that embellishing instructions with stereotype information can negatively impact performance (e.g., Rydell, McConnell, & Beilock, 2009). Cognitive research with narratives has demonstrated that people can show different memory patterns (e.g., Anderson & Pichert, 1978) or reading time patterns (e.g., Therriault, Rinck, & Zwaan, 2006) for the exact same text when the instructions are slightly altered. Together, these examples show that instructions can influence how people accomplish a specified task, and that even small changes can alter performance.
In addition to the manipulation of instructions, we can also consider the quality of instructions and how they affect outcomes. Studies examining people’s ability to follow prescription drug instructions have concluded that, while factors like inattentiveness or low levels of literacy can contribute to errors in following instructions, errors are caused by poorly phrased or vague instructions (e.g., Wolf, Davis, Shrank, Rapp, Bass, Connor, Clayman, & Parker, 2007). Research on jury instruction has shown that when the instructions are vague and ambiguous, the decision outcomes of the jury can be unpredictable and sometimes illogical (e.g., Greene & Bornstein, 2000). Many instructors would likely agree that they occasionally see student submissions that seem to miss the intended target, and we would argue that it might be due to the assignment instructions being somewhat vague or ambiguous. Although Speer (1984) originally noted this basic idea about young children, it can apply to college students as well: when instructions are unclear, students can (a) try to use context or other related assignments to make sense of the instructions, (b) guess about the expected goals, or (c) ask questions for clarification.

The challenge of providing specific instructions to enhance student performance can be managed. Yeager, Walton, and Cohen (2013) explained that if instructors want to help students, then instructors need to consider the student’s perspective. For example, what are students concerned about when completing a writing assignment? Is information clear to the students? When only adopting an instructor perspective, assignment instructions may seem adequate because instructors already have all of the information; specifically, instructors know the goals of the assignment, how to do it, and how they will evaluate it. However, if you take the student’s perspective, you might reconsider whether the instructions cover everything that the students need to know. This idea sets the tone for the design of transparent assignments, an idea that is consistent with arguments made by Williams and Colomb (1993) who encouraged more explicitness when teaching writing.

**WHAT IS A TRANSPARENT ASSIGNMENT?**

We have been using a method referred to as *transparent teaching* that encourages instructors to be very explicit when presenting assignments to students (Cook & Fusch, 2016; Gianoutsos & Winkelmes, 2016; Winkelmes, 2015; Winkelman et al., 2015; Winkelmes et al., 2016). In particular, instructors first convey the purpose of the assignment for motivation and how it will benefit students’ knowledge and skill development. After that, instructors provide details about the task itself so that there are no ambiguities that could lead to misinterpretations, and so students can focus the bulk of their time engaged in productive means for producing high quality work. Finally, instructors share with students the criteria used for grading or evaluating the work, along with examples of what those criteria look like in practice, so that students know what aspects are important to the instructor. The following sections explicate the purposes, tasks, and criteria, and we have also included an example of a transparent writing assignment for a psychology course such as Introductory Psychology or Research Methods (see Table 1).
EXPERIMENTS AND VARIABLES ASSIGNMENT

• **PURPOSE:** Psychological research is the foundation of the knowledge that is taught and discussed in courses throughout the psychology major. The purpose of this assignment is for you to practice reading and comprehending peer-reviewed psychological research by demonstrating an ability to identify some of the key components of a psychological experiment. In this assignment, you will apply your knowledge of independent and dependent variables and critically evaluate what those are in a real psychological research experiment.

• **TASK:** Your task is to work by yourself and locate, download, and read a research article from the peer reviewed journal *Psychological Science* that includes an experiment. This journal is available through the library website (a demonstration of accessing and using the library website was done in class; if you have questions, you can ask the instructor or a librarian for assistance). A list of articles that you can use is posted on the course website.

After you read the article, you need to complete the following: (1) Indicate the title of the article, authors, year it was published, and page numbers. (2) Write a short paragraph that describes the basic experiment (please avoid plagiarism – for example, do not copy the Abstract or use words / terms that you do not understand – read the paper and describe it in your own words). (3) Identify the independent variable and the conditions / groups for that independent variable. Be sure to explain why you think that is the independent variable. (4) Identify the dependent variable and explain why you think that it is the dependent variable. (5) Identify what was learned from this study? That is, what effect or question was studied in that experiment?

Your completed assignment should be 2 to 3 pages (typed, double-spaced) with the pages numbered and your full name in the header of each page. It should address the numbered points above in separate paragraphs with headers. You should submit the assignment by October 15th – email a PDF file (with your last name as the file name) to the instructor.

• **CRITERIA:** Your assignment is worth 20 points and will be graded based on the following criteria: (a) Are the study title, authors, year, and page numbers included? (1 point) (b) Is the description in the student’s own words and does the description provide enough context for the reader to understand the experiment? (4 points) (c) Is the independent variable and its conditions / groups properly identified and explained? (5 points) (d) Is the dependent variable properly identified and explained? (5 points) (e) Is the identification of what will be learned reasonable based on what is known about the study? (3 points) (f) Finally, following instructions and quality of writing will be evaluated as well, including proper grammar and spelling (2 points).
PURPOSE

Describing the purpose of the assignment is answering student questions such as, “Why do we have to do this?”, “What am I going to learn?”, and “What skills am I going to use or develop?” In this part of the transparent instructions, the instructor should clearly describe to the students why they are being asked to complete this particular activity. For example, does the activity help students achieve a specific learning outcome for the course? Does the activity provide students an opportunity to demonstrate understanding by describing different perspectives on an issue? Or does the activity prepare students for further growth on a later assignment? What skills will the student practice while working on this assignment, and what knowledge will the student gain that will be useful beyond the context of the specific assignment or course? Whatever the rationale, it should be described in this section.

Oftentimes, even though the instructor has a clear idea for why the activity is assigned, these reasons are not always clear to students. Most instructors design assignments so that they are worth a certain number of points as a way to externally motivate students (i.e., an incentive for completing the assignment correctly); however, providing a reason why an assignment is useful can potentially tap into internal motivation (i.e., a sense of purpose to satisfy one’s desire to accomplish the task; see Ryan & Deci, 2000, for discussion of internal and external motivation). Research that explores goal achievement has suggested that understanding the reasons for completing an activity is an important component to motivating action (see Eccles & Wigfield, 2002 for a review of motivation, and Miller, 2014 for a discussion of techniques to motivate students) and that having a quality purpose can lead to increased persistence and higher performance (e.g., Yeager et al., 2014). It has even been argued that students today, more than previous generations, need to know the purpose of an activity because they are less likely to do something without asking why they are doing it (Twenge, 2013).

One thing that should be kept in mind is that the purpose should be written in a manner that is understandable and meaningful to students. For example, the purpose should not be written by using vague terms or domain specific jargon that are not familiar to students; for example, describing the purpose as, “a pedagogical approach to improve critical thinking skills related to clinical assessment,” would not be a good approach. Instead, the description should be more specific and in terms to which students can relate, such as, “The purpose of this activity is to practice taking different perspectives for scenarios that clinical psychologists often experience, such as...” Our recommendation here is to have a colleague from a different department, who is likely unfamiliar with your field, proofread it for student-friendly comprehensibility. Ultimately, though, students may be the best judges of how transparent an assignment is to them. For example, a Transparent Assignment Template for students can be used to frame conversations about assignments with students before students begin working on them. In addition, Palmer, Gravett, and LaFleur (2016) recently described a checklist that students can use to rate the transparency of an assignment.

A final note about describing the purpose is that explicitly writing it forces the instructor to think deeply about why the assignment is included in the course (Winkelmanes et al., 2015). Many instructors often include class activities because they have always used them, they experienced the same type of assignments as a student, or because they saw another instructor in the department use them. However, none of those reasons necessarily mean that the activity advances student learning or fits with the student learning outcomes for the course. Thus, this is an
opportunity for instructors to rethink which assignments and what types of assignments should be included in their courses.

**TASK**

This section of the instructions contains a clear description of the steps to be taken to complete the assignment. Most, if not all, psychology professors know that APA Style formatting rules (American Psychological Association, 2010) encourage researchers to write a detailed and step-by-step method section so that there is no ambiguity; however, imagine if a method section described an experiment like this, “A list of words was presented to participants and then afterward the participants were asked to recall the list.” In this scenario, readers would not have a clear idea about the length of the list, what types of words were used, or if there was a delay. Similar issues can potentially arise when professors create instructions for a writing assignment; that is, students might not have a clear idea about what they are supposed to do. Because of this, when creating a transparent assignment, the task section should include enough detail so that the assignment is clear and unambiguous to students.

Being clear about the task itself is especially important for courses that are meant for first-year students. The reason for this is that these students have little to no experience with college assignments, and they may not even be aware that certain practices are common or that others are discouraged; for example, students may not be familiar with expectations regarding paraphrasing or the use of direct quotations (Madigan, Johnson, & Linton, 1995). Explicating the expected steps and even warning against likely but unproductive tangents is an inclusive way to insure that all students follow a similar process while working on their assignments. However, keep in mind that even though students in upper level courses have more experience with college assignments, they might not always know what to do; for example, Skues and Wise (2014) noted that some psychology students are not sure how to write about a topic or how to structure papers that they have to write for courses. Also, the assignments that are used in a particular course might be different from those that are included in other courses. So, rather than assume that students know what you want them to do, be explicit about the task in the instructions.

**CRITERIA**

From a student’s perspective, the criteria section might be the most important part. Here, instructors should list what they will be evaluating for student submissions of the assignment. For example, students likely want to know whether they are being graded on content, grammar, and/or formatting. For some assignments, instructors may want to focus on how well students apply APA Style formatting rules (American Psychological Association, 2010), but for other assignments, instructors may only focus on the critical analysis of a psychological issue. The particular focus might be obvious to instructors because they are the ones who created the assignment, but because different instructors grade according to different criteria (Bean, 2001; Diederich, 1974), it is not always obvious to students.

If an instructor is using a rubric to evaluate student work, then it can be helpful for students to see the rubric in this section of the instructions (Greenberg, 2015). Keep in mind that a rubric can be thoroughly developed with well-described descriptions for each rating in each category, or it can be as simple as a breakdown of the evaluation categories. Including a rubric in the instructions can help students to see the specific issues used for grading. It can also remind students, in case they missed it in the task description, about the expectations of what should be included in the paper as well as the relative importance of each aspect. The omission of this section would be
somewhat analogous to tenure-track professors being told that they will eventually be reviewed for tenure, but little to no information is provided as to the type of work that is needed or the relative importance of each (e.g., What is more important – teaching or research? Or are they equal?).

While a checklist or rubric is helpful, it is not entirely adequate for explicating the criteria to students. Many students may never have seen what it looks like in practice to meet the criteria in the context of a psychology project. They may know how to muster evidence to support an idea in a high school essay, but the way evidence is used and cited in psychology papers may be unfamiliar to them (e.g., Madigan et al., 1995). By sharing multiple examples of how the criteria for an assignment can be fulfilled (i.e., good examples of what is expected), an instructor can ensure that all students have an equitable opportunity to succeed on the assignment (e.g., Bean, 2001).

Finally, the criteria section is important for the instructor for grading purposes. Developing and describing grading criteria can improve the consistency of scoring across student papers (Peat, 2006). In addition, the criteria section can be helpful in the case that grade disputes occur after feedback and grades are made available to students (e.g., McKeachie, 2002). If the criteria are explicitly spelled out in the instructions, then the instructor can use that information when responding to students’ questions about their grade. If that information was not included in the instructions, then students could make an argument that they did not know that certain parts of the paper were important, and that was why they focused on a different aspect of the paper. Also, including the criteria (and rubric information, even if it is simple) may reduce the number of grade disputes because, with transparent instructions, students will have a clearer idea of how they lost points and which parts of their work were successful.

**EVIDENCE FOR TRANSPARENCY**

Winkelmes et al. (2016) reported results from an Association of American Colleges and Universities study funded by TG Philanthropy that involved 35 instructors and 1800 students at seven institutions, including community colleges as well as small, medium, and large universities. Importantly, student data were disaggregated so that performance could be observed overall for all students, as well as for first-generation, low-income, and underserved students; this breakdown was used because previous research has shown that those groups of students can potentially benefit more from increased structure in a course (e.g., Eddy & Hogan, 2014). In the Winkelmes et al. (2016) study, instructors who taught two sections of the same course used their original assignments in one section, but in the other section they included at least two revised versions of those assignments that were updated to be more transparent. In particular, they examined (a) academic confidence, which referred to confidence to succeed in one’s major or in school in general, (b) sense of belonging in school, and (c) mastery of skills that employers value (e.g., writing, breaking down problems, learning on one’s own, collaborating with others).

The results (Winkelmanes et al., 2016) showed that students in the transparent courses had higher gains (when comparing their ratings at the beginning of the semester to those at the end of the semester) for all three areas; these gains were significant for the whole group of students, and the gains were larger for first-generation, low-income, and underserved students. These outcomes are important because all of these factors, academic confidence, sense of belonging, and master of skills, are related to college success. Work by Dweck and colleagues (e.g., Dweck, 2006; Paunesku, Walton, Romero, Smith, Yeager, & Dweck, 2015) has demonstrated that students with more of a growth mindset (i.e., confidence that smart effort can improve learning) do better in school. Hausmann,
Ye, Schofield, and Woods (2009) showed that students’ feeling of belonging was related to increased persistence. Finally, because eventual career success is important for college students, it is important for students to have the skills that employers value (Hart Research Associates, 2015).

A simultaneous study by Gianoutsos and Winkelmes (2016) included first-year college students at the University of Nevada, Las Vegas and focused on courses that included transparent assignments. Similar to the study just described (Winkelmes et al., 2016), results included higher academic confidence and sense of belonging for students who received transparent instruction. In addition, this study showed higher retention re-enrollment (freshman to sophomore) rates for students in the courses with transparent assignments, which is an important part of improving college student performance (Ishitani, 2006).

ADDRESSING POSSIBLE LIMITATIONS OF TRANSPARENCY

Is the use of transparent instructions a magic pill that is going to cure all of the problems that instructors and students face regarding assignments? Of course not; for example, students may still misread instructions, skip portions of the instructions, or ignore them altogether. Also, no matter how enthusiastic instructors are about the course material and activities, there will always be some students who are not highly engaged or motivated (e.g., Miller, 2014). However, as noted earlier, including the purpose as part of the assignment instructions may help with this issue.

Some might not think that longer and more transparent instructions are needed because brief, vague, and/or ambiguous (i.e., not transparent) written instructions can be supplemented with extra information conveyed in class. For example, an instructor might make a spoken announcement or answer a question asked by a student. Unfortunately, though, if students do not write the information down, are distracted at the time, or simply fail to encode the information properly, then those spoken instructions may be forgotten when it comes time to apply them (e.g., Jaroslawska, Gathercole, Logie, & Holmes, 2016). Consistent with this idea, Daniel and Woody (2010) showed that even though students showed initial preferences for auditory presentation of material, students remembered more of the information when it was presented as written text. A benefit of transparent assignments is that students can simply refer to the written instructions instead of having to rely on memory.

Another potential issue with transparent instructions is that if instructors are overzealous, descriptions may become overly detailed. In this scenario, it is possible that longer instructions may deter students from reading, as student preferences tend to be shifting toward wanting to read less text (e.g., Twenge, 2013). However, in contrast to that idea, a recent study by Harrington and Gabert-Quillen (2015) showed that when students were presented with short, medium, or long syllabi that described course assignments, the students had a clear preference for the longer and more detailed descriptions of assignments, which supports the recommendations for making instructions more transparent. But, instructors should be careful when using the transparency method in that the instructions should provide meaningful content and not redundant information or needless words.

One criticism of the transparent approach is that it “dumbs-down” or “spoon-feeds” college assignments. Anecdotally, some instructors have mentioned that part of the college experience is that students need to develop skills of learning common practices or procedures, interpreting instructions, and problem solving such as drawing
inferences when instructions are vague. However, this line of thinking has a number of drawbacks. First, it would most likely put first-generation students or students from underserved groups at a disadvantage, as they are less likely to have family members with college experience who can provide guidance (e.g., Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007). If these types of students were weeded out, it could reduce diversity in college student populations; for example, Blasco (2014) suggested that international students have difficulty adapting in courses when expectations are not made explicit to them. Second, as noted by Winkelmes (2015), weeding out these students can diminish an institution’s research productivity. This is because breakthroughs often come from people with different styles of thinking or who have different backgrounds and experiences from traditionally prepared students in the discipline (Gladwell, 2008); consequently, fewer and less diverse students advancing through courses and into research labs could have a negative effect on research. Thus, the use of transparency, particularly in introductory course assignments, can be a starting point for helping underserved students advance into areas such as research.

CONCLUSIONS AND RECOMMENDATIONS

The benefits of the transparency approach are twofold. First, when applied to an assignment, students understand why they are doing the assignment, are able to clearly follow a detailed set of instructions, and can focus on the aspects that the instructor considers to be most important. Second, this approach has a number of advantages for instructors (Winkelmes et al., 2015). By being more explicit with assignments, instructors report fewer questions from students regarding clarifications about what to do or why they are doing it. Instructors also report that transparent assignments lead to higher quality work and higher completion rates, and that the students’ work is easier to grade because of the clearly stated expectations.

As noted by Winkelmes et al. (2015), thinking about teaching from a transparency perspective is not necessarily restricted to the design of writing assignments. That is, adopting this type of approach may lead instructors to reconsider assumptions of their entire course, as they start to ask themselves to be explicit about why they include various activities. As an instructor, asking oneself questions such as, “What is the purpose of this activity?” can help one to reconsider the learning goals, activities, and ways in which student learning is measured for the entire course. Thinking about the assignment purpose can help instructors direct students to the skillsets needed for academic and professional development. Also, by applying this transparency method, instructors can constructively evaluate their teaching style within the class they are currently teaching and they can compare the same course across subsequent terms.

In addition to what has been discussed thus far, we think that transparent teaching can be especially helpful for online courses. While there are a lot of benefits to online teaching both for faculty and students (e.g., Miller, 2014), one concern is that in online courses, instructors typically present assignments to students by either posting the instructions on a website or sending the instructions via email. This can be problematic because, in traditional face-to-face class sessions, students typically have a chance to ask questions about an assignment right after it is announced or shared with the class. Without this opportunity to ask clarification questions, such as “What should I focus on the most for this assignment?” or “It is not clear what is meant by this part of the instructions, could you please clarify?” students may have to make assumptions that are not necessarily consistent with the instructor’s intentions. As a result, the lack of knowledge for what is expected for a task can cause students to deviate from the goals of the writing assignment and hinder students from understanding the importance of an assigned topic. We
suggest that, without the face-to-face presence of an instructor as a motivator, including a clear purpose in a set of transparent instructions is a way to push students to see the value in completing an assignment.

In conclusion, regardless of whether instructors are teaching traditional face-to-face classes or online, we encourage them to use transparent teaching in their courses. The ideas associated with transparent teaching seem simple, but as noted by instructors who have tried it (Winkelmes et al., 2015), applying it to an assignment may lead instructors to not only modify the assignment itself, but possibly other aspects of their courses as well; while this can potentially lead to more work, it could lead to a redeveloped course that has assignments better aligned with the desired learning outcomes. If you are interested in these techniques and would like further information about transparent teaching methods, including videos, examples, or tools regarding transparent assignments, please visit the Transparency in Learning and Teaching (TILT) in Higher Education website: https://www.unlv.edu/provost/transparency/tilt-higher-ed-examples-and-resources

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BREAKING FREE: THE BENEFITS OF NON-EXPOSITORY, LOW-STAKES WRITING ASSIGNMENTS IN PSYCHOLOGY COURSES

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ABSTRACT

In this chapter, I suggest that incorporating low-stakes writing assignments into traditional psychology courses fosters integrative, creative, and reflective thinking, increases students’ comfort with writing, and expands undergraduate psychology majors’ repertoire of writing skills. Low-stakes writing styles are often underrepresented in psychology courses, in contrast with expository writing styles that are heavily emphasized. Expository writing promotes analytical and scientific thinking and represents the primary style of communication among scholars in our discipline. However, multiple empirical investigations suggest that non-expository writing styles encourage positive intellectual, emotional, and psychosocial outcomes, and help foster the development of integrative and creative thought. Given the myriad benefits of non-expository, low-stakes writing assignments, it appears that incorporating these writing exercises into psychology courses can enhance the classroom educational environment and promote students’ intellectual, professional, and interpersonal growth.

WRITING STYLES AND UNDERGRADUATE PSYCHOLOGY EDUCATION

“It’s not the writing but the architecture that strains.” --Virginia Woolf

Once upon a time in a decade long ago, I double-majored in English and Psychology as an undergraduate student. Being educated in both the humanities and the sciences, I quickly learned that much of my cognitive effort would involve code-switching between widely disparate “languages” used within the two disciplines. Navigating both majors provided an opportunity to process how science and humanities scholars differentially construct meaning and represent realities of the human experience using written expression. Weekly English assignments centered on issues of the me, point of view, character development, and emotional subtexts within literature. We debated whether fictionalized representations of human psychological emotions, conflicts, and thought processes accurately reflected real, human experiences that transcend time, culture, and geography. English writing courses outlined a broad range of styles, including technical, business, and creative writing, descriptive prose, argumentation, persuasive writing, narrative, expository writing, and poetry.

In contrast with this humanities training, my psychology courses almost exclusively emphasized technical and expository writing as the gold standard of communication. I quickly realized that “other” writing styles were underutilized and underappreciated in professional discourse. When these styles did appear in published form, they were viewed as informal at best, and sub-standard, or non-academic at worst. Writing for a lay audience with “popularized” psychological concepts was particularly scorned. Korn (1985) uses language usage theory to highlight this contrast between the sciences and humanities. Within this framework, the sciences tend to use cognitive, designative, and functional language (i.e., what my English professors called “dry” writing), whereas the humanities tend to emphasize noncognitive, expressive language styles (i.e., what my psychology professors called “flowery” writing). The humanities focus on the art of symbolism, involvement in life, values, and imagination in the human
experience. In contrast, the sciences are largely concerned with rational logic and the *whats* and *whys* of human experience.

Fast forward 20+ years, and the emphasis on using expository language within psychology has only grown with the proliferation of academic journals in our discipline and the increasing emphasis on empirical articles as the primary mode of scholarly communication. Given these trends, many psychology writing texts understandably emphasize APA style and technical communication (Beins & Beins, 2012; Carson, Fama, Clancy, Ebert, & Tierney, 2012; Dunn, 2011; Rosnow & Rosnow, 2012; Szuchman, 2011), although some discuss alternative types of writing beyond simply APA style (Mitchell, Jolley, & O’Shea, 2013). For example, career development books often contain individual chapters about writing resumes, cover letters, personal statements, and thank you notes (APA, 2007; Kuther, 2016; Kuther & Morgan, 2013; Landrum, 2009; Privitera, 2015).

**IN DEFENSE OF NON-EXPOSITORY WRITING STYLES**

As a professor of modern psychology, I appreciate that teaching our students how to communicate effectively using technical expository formats is necessary. Having taught university research methods, statistics, and research seminar courses for almost 20 years, I have done my share of teaching students the appropriate technical communication styles that work for our discipline. And in fairness, expository writing works. It is designed to convey the largest amount of information in the clearest way possible. Much like recipe writing, expository writing is plain, technical, and informative, and it provides a necessary consistency for accurate replication of scientific studies across a variety of contexts. Academic journals have become our “cookbooks” and technical manuals for creating and transmitting psychological knowledge from one academic generation to the next. As Ishak and Salter’s (2017) recent data show, most professionals in our field agree that writing well is an important skill for psychologists, and our students concur (Sanders & Landrum, 2012). Numerous empirical investigations have explored ways to improve our students’ knowledge of technical and scientific writing, APA style, and expository prose in psychology courses (Fallahi, Wood, Austad, & Fallahi, 2006; Goddard, 2003; Jorgensen & Marek, 2013; Nadelman, 1990; Skues & Wise, 2014; Soysa, Dunn, Dottolo, Burns-Glover, & Gurung, 2013). Effective writing skills are regularly identified as one of the critical professional skills that psychology students must develop prior to graduation (Appleby, 2000, 2007; Landrum et al., 2010).

However, technical expository writing is but one writing style, and the main question I pose to my colleagues is this: As we teach our students to write within our undergraduate curriculum, is privileging one type of writing style over the others sufficient? To be sure, teaching APA style and expository writing is absolutely necessary for socializing our majors to use a common disciplinary language (Soysa, et al., 2013). But is this sufficient, given the wide range of occupations that our students will embark upon once they graduate? By concentrating writing instruction efforts on building expository, technical writing skills, I worry that we artificially limit students’ intellectual and interpersonal toolbox of skills for personal and professional expression. I lack Nusbaum and Sylvia’s (2008) “weary cynicism” about the state of writing within our field, but share their valid concerns that we unduly emphasize our genre of APA style to the detriment of encouraging other forms of writing. Myers (2007) has previously suggested that we teach psychological science through writing across a wide variety of genres. Korn (1985) poignantly argues that psychology should embrace both rational, scientific, empirical approaches and non-empirical, imaginative, and creative approaches, and that balancing the two ultimately strengthens our science.
Importantly, many psychology majors end their formal education with bachelor’s degrees, and in occupational settings they are asked to communicate using a wide variety of styles. This reality is, in fact, true for any psychologist working in an academic or professional context. In any given year, a typical psychologist engages in writing activities that span multiple genres beyond simply creating APA style journal articles. In many cases, the volume of these assignments far outweighs the number of formal papers submitted for publication. In our professional lives, we write recommendation letters for undergraduate and graduate students, as well as support letters for colleagues and peers. Most faculty regularly write narrative prose for annual faculty activity reports and self-evaluations. Psychologists use explanatory and descriptive writing to create and review trade books and textbooks. Administrative faculty create multiple written documents each year, including (but not limited to) assessment reports, departmental annual reports and budgets, marketing and promotional materials, internal and external department reviews, and support documents for faculty promotion and tenure files. Research psychologists and laboratory PI’s construct grant applications and progress reports for funding agencies, IRB application documents, article and grant reviews, experiment protocols, letters for colleagues and postdocs, and research press releases and summaries for internal and external constituencies. Grant applications, if they are to be funded, almost always require persuasive writing. Applied psychologists write case studies and consulting documents, construct client files, pen promotional materials for their practices, and create technical reports for organizations. Some psychologists also write poetry, short stories, memoirs, and novels in their free time. Everyone must write thank you notes. The reality is that most of these writing exercises require creative writing, narrative, description, explanatory essays, and various other writing forms that expand well beyond expository and technical writing using APA style. This scenario is very likely the case for our psychology students as well. So why do we primarily emphasize expository technical writing in APA style as the most important type of writing in our curriculum?

**THE BENEFITS OF “LOW-STAKES” WRITING ASSIGNMENTS**

Many professors routinely incorporate high-stakes writing assignments into their courses. Elbow (1997) identifies high-stakes writing as assignments that are required to demonstrate learning or concept mastery. Nevid, Pastva, and McClelland (2012) refer to these as “writing to earn” assignments. These assignments are often weighted more heavily in final grade calculations and require APA style research reporting. In contrast, low-stakes writing assignments are frequent, relatively short, and rarely count for a large percentage of students’ final grades (Elbow, 1997). Sometimes they are ungraded altogether and are identified as “writing to learn” assignments (Nevid et al., 2012; Stewart, Myers, & Culley, 2010). Examples of low-stakes writing assignments include in-class free-writing, letters, poems, online discussions, reflection exercises, journaling, short papers, group writing activities, reaction papers, or problem-solving exercises. Often, these assignments are graded with different criteria (e.g., grammar, spelling, word choice) than high-stakes writing, or they may be qualitatively assessed. They are designed to both enhance students’ comfort with expressing ideas and also to increase critical thinking, thoughtful analysis, and integration of course concepts. As previously discussed in this chapter, the actual writing styles that psychologists use in their everyday lives clearly extend beyond expository writing style. Given this reality, I regularly incorporate into my classes a broad variety of assignments that span different genres of writing (see Foushee, 2018 in this volume for an example), and most of these assignments would qualify as “low-stakes” writing. Based on student feedback and performance metrics over the years, it appears that having an opportunity to express emergent ideas, impressions, emotions, and experiences through low-stakes writing exercises fosters students’ integrative, critical, and reflective thought.
Broadly defined, both students and instructors can benefit from incorporating low-stakes writing into psychology courses. From the instructor’s perspective, these assignments are relatively easy to include in psychology courses, and can either be planned ahead of time or spontaneously emerge within class environments as opportunities arise. Because they are typically shorter in length, and are assessed for concept learning, self-reflection, course mastery, or self-expression, they usually do not take significant amounts of time to grade (Gingerich et al., 2014; Nevid, et al, 2012). Due to their expressive, non-expository nature, these assignments sometimes provide opportunities to see students from a different perspective, which can help in building rapport. From the students’ perspective, low-stakes writing can enhance students’ relationship with the writing process, provide psychological and emotional benefits, foster creativity, improve comprehension of course concepts and facilitate active learning, provide opportunities for personal growth and development, and enhance self-awareness.

**ENHANCED RELATIONSHIP WITH THE WRITING PROCESS**

Beyond sharpening cognitive skills, low-stakes writing can positively affect students’ relationship with the writing process itself by enhancing motivation, engagement, and self-regulation strategies (Kaplan, Lichtinger, & Gorodetsky, 2009). For example, MacArthur, Philippakos, and Ianetta (2015) report evidence that teaching students about the writing process itself and fostering an appreciation for how different writing contexts require varying styles, is crucial to building students’ writing repertoires. In this framework, motivation is a key factor in helping students develop their writing strategies and abilities to use content knowledge effectively. In a two-year study, they assessed how utilizing self-regulated strategy development (SRSD) in writing (i.e., instruction that incorporates elements of self-regulation, goal setting, task management, progress monitoring, and reflection) affected college students’ writing performance in first year developmental writing courses. Students who received SRSD writing strategy instruction showed gains in mastery goals, self-efficacy for the writing process itself, and improved writing performance (i.e., writing longer essays and producing essays of higher quality). Similarly, Hemenover, Caster, and Mizumoto (1999) assessed how a low-stakes, 6-step progressive writing assignment affected students’ perceptions of writing and self-reported learning. Student participants who wrote successive sections of a larger paper (examining how psychological concepts are portrayed in popular movies), as opposed to single large papers, perceived that their writing had improved and enjoyed having control over the paper topic. In studying self-efficacy in writing, Boekaerts and Rozendaal (2007) found that students writing in genres in which they perceived they had high capacity and self-efficacy (i.e., e-mail messages and letters vs. important term papers) used different metacognitive strategies to inform their writing. Importantly, they also suggest that when students perceive that acquiring writing skills is important to achieving their personal goals, they work harder to develop writing skills.

**PSYCHOLOGICAL AND EMOTIONAL BENEFITS**

Therapeutic, low-stakes writing exercises have been used for decades to enhance individuals’ well-being, and the various benefits of therapeutic writing are well-documented (Pennebaker, 2004; Pennebaker & Evans, 2014). Smyth’s (1998) meta-analysis of the therapeutic writing literature provides evidence that expressive writing produces health benefits across 4 domains, including reported physical health, psychological well-being, physiological functioning, and general functioning, with fairly robust effect sizes. In an excellent review of established practices for integrating expressive and therapeutic writing into clinical contexts, Kern and Fitzpatrick (2007) suggest that creative and self-expressive writing efforts can be used to promote a matrix of changes across multiple structural dimensions in individuals’ lives. They differentiate between writing designed to help with affective
expression and emotional regulation vs. those that are designed to promote new perspectives and insight via cognitive processing. In this model, therapeutic and expressive writing techniques might include storytelling, journaling, thought diaries, writing about specific events or experiences, poetry, memoir, and free-writing, all of which have been shown to enhance well-being in people who have experienced severe trauma, those with terminal diagnoses, and clients with depression and anxiety (Kerner & Fitzpatrick, 2007). In a recent field experiment, Boniel-Nissim and Barak (2013) examined how therapeutic blogging assisted adolescents with social and emotional difficulties and allowed participants a comfortable space for authentic self-expression. Participants maintaining blogs showed significant positive changes in initial distressful conditions. Similar outcomes have been identified in medical contexts when writing therapy is used to help patients suffering from a variety of physiological ailments (Mugerwa & Holden, 2012) and psychological stress (Ullrich, & Lutgendorf, 2002), although there are variations in how these exercises apply across demographic groups (Lu & Stanton, 2010).

Although therapeutic writing is most often used in therapeutic or clinical contexts, it seems likely that general health benefits from expressive and therapeutic writing would translate to a typical college student population. These studies suggest that incorporating assignments which provide opportunities to blog, journal, discuss, or share personal perspectives may promote students’ social and emotional development, beyond the instructional value of learning how to write in different genres.

FOSTERING CREATIVITY

Some scholars have called for incorporating low-stakes writing activities into the curriculum because they foster “little-c” creative thinking. More than four decades ago, the existential psychologist Rollo May proposed that the creativity required for fostering discovery in psychology, and science in general, requires the freedom to step outside of established and conventional boundaries. He also warned that requiring conformity within mass communication presents a potentially serious danger that can limit creativity and originality in our scientific endeavors (May, 1975). Similarly, Kellogg (1994) suggests that broadening our horizons in creative written expression allows us to more fully appreciate the unique essence of the human experience. Creativity is associated with a variety of personality factors, most notably conscientiousness and openness to experience (Silvia et al., 2014). However, providing students with opportunities to enhance their awareness of various writing forms across genres can itself foster creativity. Graff and Birkenstein (2006) argue that all forms of creative expression, including music, art, and writing, depend on established structures and forms for conveying those ideas to others. Encouraging a larger repertoire of established structures in writing and communication styles for our students can enhance awareness of the writing process itself and allow students to develop multiple modes of creative expression.

Importantly, empirical investigations of low-stakes reflective writing exercises suggest that these writing assignments, such as Chrisler’s (1992) poetry-writing exercise, can be used to facilitate creative expression in classroom contexts. Costa and Kallick (2008) suggest that the act of reflection involves linking current experience to previous learning, and that writing about personal experiences encourages students to make meaningful connections with course concepts, thus fostering positive and creative habits of mind. They further suggest that incorporating strategies and assignments such as interviews, logs and journals, sentence stems and probe questions, as well as group discussion exercises, can facilitate elaborative processing of course material through writing. Although their data represent a K-12 student population, the general themes of discovery through writing likely
ENHANCED COMPREHENSION OF COURSE MATERIAL AND FACILITATED LEARNING

Multiple studies suggest that active instruction in writing styles by utilizing multiple assignment types, including low-stakes writing assignments, improves learning and comprehension of course material (Blevins-Knabe, 1987). Low-stakes writing can be conceptualized as pre-writing that precedes more formal, high-stakes writing assignments. There is evidence that pre-writing benefits developing writers in numerous ways, including enhancing the overall quality of writing, promoting idea development, and improving concentration (Kellogg, 1988). Additionally, assignments that are intentionally designed to help students digest course content, or “write-to-learn” assignments, benefit learning and retention of key, conceptual knowledge (Gingerich, et al., 2014). Recently, Daniel, Gaze, and Braasch (2014) examined how writing cover letters to instructors regarding revisions to APA-Style research papers enhanced the quality of final research papers. Even when students engage in expository technical writing within a traditional research methods course, pairing scientific writing with low-stakes, creative, and non-expository writing assignments (such as letters) appears to facilitate learning. Similarly, Drabick, Weisberg, Paul, and Bubier (2007) found that introductory psychology students who completed short free-writing assignments demonstrated enhanced factual and conceptual learning of course concepts, improved class attendance, and better exam performance than control students who simply thought about course concepts.

Low-stakes writing assignments involving self-study and reflection elements appear to enhance student performance in classroom contexts (Meyer, Fisher, & Pearl, 2007) and improve critical thinking (Wade, 1995). Anderson, Anson, Gonyea, and Paine (2015) recently investigated whether more writing or different types of writing would lead to positive learning outcomes among college students. They examined how interactive writing processes, which involve social elements during early writing stages, and meaning-making writing tasks, which require integrative, critical, or original thinking, affected students’ understanding of course concepts. Their data suggest that the quality of effective writing practices (i.e., those designed to facilitate meaning-making and foster social interaction) were more beneficial for learning than the quantity of assignments among a general college student population. Similarly, studies that incorporate learning journals into classroom contexts suggest that low-stakes writing through reflection exercises and regular journaling helps students develop effective learning strategies. For example, when students use elaborative and organizational strategies in creating journal entries, learning outcomes improve (Glogger, Schwonke, Holzäpfel, Nückles, & Renkl, 2012). Two separate meta-analyses of experimental studies testing the effects of writing on comprehension and reading provide additional evidence that writing about material helps improve comprehension (Graham & Hebert, 2011; Rogers & Graham, 2008). Although these studies examined a pre-college student population, the writing strategy processes at work among elementary and secondary students likely apply to college students as well.

SELF-AWARENESS, PERSONAL GROWTH, AND DEVELOPMENT

Beyond the cognitive benefits for facilitating learning, Anderson et al., (2015) suggest that meaning-making exercises and interactive writing assignments also benefit students’ interpersonal and social development. Specifically, these
low-stakes writing exercises help students formulate a personal code of values, understand themselves, appreciate people from different ethnic and cultural backgrounds, and develop a deeper sense of spirituality. Dunn (1994, 2005) suggests that encouraging students to write for understanding, using techniques such as self-expressive free-writing or narrative approaches to create meaning, understand life stories, and reflect on their own experiences, can help students accurately construct reality and find meaning in their lives. For Chrisler’s (1992) poetry-writing assignment, students reported that the opportunity to write poems about mental illness not only promoted their creativity, but also increased their understanding of and empathy toward people who experience mental illness. Polyson (1985) describes a low-stakes writing exercise in which students write a short 2-page paper about their own peak experiences. Results showed that students enjoyed pairing creative expression with scientific theory, and they perceived that the writing exercise helped them understand Maslow’s concepts; they also effectively framed their past experiences correctly using psychology terminology. Hettich (1990) found that students and teachers believe journaling assignments stimulate critical thinking and allow for self-expression, although self-expression for its own sake may not always be a good thing (Jolley & Mitchell, 1990). Finally, using quantitative text analysis to compare self-assessment assignments to traditional writing assignments, Peden and Carroll (2008) provide evidence that self-assessment assignments encourage students to become more reflective and use more emotion words in their writing.

Collectively, these studies suggest that incorporating self-awareness exercises promotes positive interpersonal development and qualitatively different outcomes than traditional expository writing assignments. By focusing predominantly on expository style, we may ultimately limit students’ creativity in writing personal statements and narratives, cover letters, and a wide variety of other interpersonal communication exercises they will need throughout their lives. Artificially narrowing the range of expression for our majors possibly does our students a disservice, both in their academic lives and in their personal growth and development. College students experience a period of significant identity development and personal transformation (Jones & Abes, 2013). Using low-stakes writing assignments such as journals, reflection exercises, and non-expository essays to help students become comfortable with self-expression through writing may facilitate this process.

**POTENTIAL CHALLENGES**

In light of the known benefits of low-stakes writing exercises for promoting cognitive, interpersonal, socioemotional, and professional growth, encouraging our students to develop a broad range of writing skills should be standard practice for psychology instructors. However, incorporating these writing assignments into courses does present some notable challenges. First, low-stakes writing assignments occasionally involve asking students to write about life events, experiences, perspectives, or perceptions that are more personal than traditional assignments. In these cases, assignments may involve self-disclosure that could be potentially uncomfortable for both instructor and student. It is critical that students know their self-expression is “safe” with instructors if they choose to self-disclose highly personal information (Haney, 2004; Polyson, 1985). For instructors who find themselves in that situation, Haney (2004) provides many helpful suggestions for handling ethical dilemmas that might arise in the context of these types of assignments.

Second, from a logistics standpoint, expanding our writing toolkit may be a difficult proposition. Some psychology professors may experience hesitation when deciding whether or not to include non-technical writing assignments that they perceive to fall outside our usual academic purview or jurisdiction (Soysa et al., 2013). Others may expect
our colleagues in English departments and campus writing centers to fill in the gaps. Or we might assume that our majors and alumni will simply “pick up” other writing styles once they land in their respective employment settings. We may perceive that adding “extra” writing assignments will overburden already heavy teaching and grading responsibilities. Regardless of why we might avoid other writing forms, I would argue it is important to include a variety of writing styles in our courses, for all the reasons outlined in this chapter. Teaching APA style to our majors is certainly important. But it is only one type of writing among a myriad of styles that are required for success in both professional careers and personal lives. As with many things in life, it is easy to fall into the trap that more is better – that adding additional writing assignments or lengthening page limits is better for teaching students how to become good writers. I would urge caution with this line of thinking, as emerging research suggests more of a good thing is not necessarily better for improving our students’ writing skills. As Anderson et al., (2015) suggest, the type of writing assignment is equally important in terms of fostering a variety of skills related to self-expression, creativity, intellectual development, and personal growth.

Finally, it is important to consider the relative academic sophistication of our majors across the curriculum. Along with Soysa et al., (2013), I recommend using a developmental approach to stacking low-stakes writing assignments throughout the curriculum. Early inclusion can facilitate comfort with the writing process itself, help students process and learn disciplinary content, encourage self-expression and identity development, and foster creativity. Perhaps training students in expository APA style is more effective in upper-division courses in the major, once students have already become comfortable with the process of writing and self-expression.

FINAL RECOMMENDATIONS FOR INSTRUCTORS

In modern psychology, we have increasingly emphasized one specific type of writing – technical expository writing – as the primary style for communication. Like May (1975), I would argue that technical writing is certainly efficient for succinctly expressing theoretical perspectives and for conveying the results of empirical investigations, meta-analyses, and qualitative literature reviews. However, our typical APA style publication is but one of many styles for communicating. When we privilege that form of expression above all others in our writing instruction, we miss opportunities to broaden our students’ perspectives in communicating across genres.

As May (1975), Korn (1985), McGovern and Hogshead (1990), and Myers (2007) have eloquently discussed in past decades, by privileging the expository mode of communication in our field we are, perhaps, missing alternative ways to express our knowledge and ideas to current and future generations of psychologists who read our collective body of work. I share their concern. As psychologists, we are humanists by training who scientifically analyze, but also describe and encapsulate, important elements of the human experience. There is an elegant simplicity in uniformly reporting these elements via APA-style articles and empirical reports. However, when we choose to construct meaning about the range of human experiences using only one “language,” we potentially miss the subtle nuances that emerge from alternate writing genres and styles. I also worry that by privileging technical communication we have somewhat lost our connection with the humanities and the arts – our fellow humanist disciplines in academia. Perhaps by incorporating non-expository writing into our courses, and emphasizing the full range of written expressive styles in our assignments, we can introduce the next generation of psychologists to a broader view of what we do and what we know.
REFERENCES


RECOMMENDED ONLINE RESOURCES

University of Waterloo Centre for Teaching Excellence
https://uwaterloo.ca/centre-for-teaching-excellence/wac

Purdue Online Writing Lab (OWL)
https://owl.english.purdue.edu/owl/resource/670/01/

Harvard Writing Lab
Part 2: Short Assignments to Hone Students’ Skills
WHEN IS A PAPER TOWEL TUBE NOT A TUBE? A DEVELOPMENTAL ANALYSIS OF AN EVERYDAY OBJECT
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ABSTRACT
I developed this writing activity to give students in Developmental Psychology the opportunity to apply course content in a fun and creative way. To do so, they must integrate material from different parts of the course. An April 2017 Baby Blues comic strip depicts 6-year-old Hammie asking his mother for a paper towel tube. She inquires whether he plans to pretend that it’s a telescope, megaphone, kaleidoscope, tunnel, or tower. In fact, he uses it as a weapon to clobber his older sister on the head. This cartoon aptly suggests that, because of their different interests and developmental levels, a youngster and an adult can view and use a simple object in quite different ways. Students explore this notion in the present activity. In their paper, students consider how individuals at two ages might interact with a common object. Their analysis must reflect an understanding of facts and theories about important developments at those two ages as they relate to possible interactions with the object.

I initially devised this assignment in part because students did not seem to be integrating information across my developmental course. Whether I taught topically or chronologically, they often compartmentalized what they learned into domains or ages. This assignment forces students to juxtapose multiple domains and ages. Another motivation for creating this assignment is that it pushes students to go beyond demonstrations of basic knowledge (the lowest level of Bloom’s taxonomy of learning) and to utilize the more sophisticated skills of application and analysis. It enables both majors and non-majors to begin thinking and writing about developmental psychology without worrying about reading primary sources and using APA style. Finally, I hoped that they might come to appreciate that even the most simple, everyday object can serve important developmental functions.

APA GUIDELINES
This lesson meets the following APA Guidelines for the Undergraduate Psychology Major:

- 1.1 Describe key concepts, principles, and overarching themes in psychology
- 1.3 Describe applications of psychology
- 2.2a Read and summarize general ideas and conclusions from psychological sources accurately
- 4.1 Demonstrate effective writing for different purposes
LEARNING OBJECTIVES

After completing this activity, the student will be able to:

• explain or predict interactions of two different age groups with a simple, everyday object using specific developmental theories and facts drawn from class lectures and the text
• evaluate an everyday object with respect to its appropriateness, safety, and appeal for two different age groups
• describe an everyday object in sufficient detail to help readers understand the arguments made about its use by different age groups

LEVEL AND COURSE RECOMMENDATIONS

Undergraduate: all levels
Child Psychology, Developmental Psychology, Lifespan
Topically- or chronologically-organized classes

DETAILED EXPLANATION OF ASSIGNMENT

I assign each student a common item (e.g., a music CD). First, students choose two ages from a set of options (e.g., 6 months and 15 years). Second, students choose at least two domains from a set of options (e.g., social and cognitive). For both domains, students describe and explain at least two examples of ways individuals at the two ages (or others interacting with them) could use the item to reflect or promote development. Finally, students consider the item’s strengths and weaknesses with respect to appropriateness, safety, ease of use, and appeal. Students may only use and cite information from lecture or the textbook (as well as common sense) in completing this assignment. That is, they are not required or permitted to use additional sources. What follows is the specific assignment I give my students.
Developmental Analysis Assignment

This assignment requires you to demonstrate your understanding of concepts covered in lecture and your textbook and to apply these concepts in a practical way. More specifically, you will discuss how a specific item might be used by individuals of two different ages (or by these individuals interacting with someone else) to reflect or stimulate their development in at least two ways in two different domains.

Here is an example of how you might think about this assignment:

A paper bag, beyond being a common, utilitarian item, could have several different developmental functions, depending on the age of a child. For example, a 4-year-old girl might use a paper bag to carry small toy animals because she is learning about classification. Figuring out which toys would fit without spilling out or ripping the bag might stimulate her conservation, quantitative reasoning, and perceptual skills, all of which are developing in the preschool years. Trying to coordinate one hand to keep the bag open while using the other hand to place toys into the bag would stimulate her fine motor skills. She could pretend the paper bag is a hat and wear it while playing dress-up with friends, thus demonstrating her language, representational, and social skills. That is, she is developing communication skills as egocentrism declines, and she particularly enjoys pretend and role play at this age. If an infant interacted with the bag, one might expect very different behaviors.

A mother might use the bag to play peek-a-boo with her 6-month-old boy, stimulating his cognitive and social skills since he is now able to participate in reciprocal games. Vygotsky would have argued that the mother is helping her son develop an interaction system that sets the stage for later learning. Attachment theorists and others would argue that this interaction is an opportunity for the mother to demonstrate sensitive care, which is critical for secure attachment. If the boy reaches for the bag and grasps it (creating a crinkling noise), this activity might further stimulate his emerging intentional reaching, releasing behavior, and depth perception. Piaget’s notions about secondary circular reactions could explain his behavior. His mother could see whether he can recreate the crinking effect with other bags or in different contexts as his memory becomes less context-bound and he can retain memories longer. For both children, the paper bag is a stimulus that could be used to reflect and facilitate development in different, age-appropriate ways.

Your analysis must clearly distinguish ways your assigned item could be used differently and have different effects at these two ages. Your analysis must reflect an understanding of facts and theories about the important developments in those age periods. You must refer explicitly and specifically to those important developments.

You must choose at least 2 of the following developmental domains for your analysis: perceptual, motor, cognitive, language, social, emotional. For both domains, describe at least 2 different ways the item could be used to stimulate development. Your analysis must explicitly discuss specific facts about development within these two domains and the mechanisms through which interaction with the item promotes development.

Writing the Paper

This analysis requires a comprehensive description and evaluation of the item. There are no specific right answers for this assignment, so feel free to be creative. In completing your analysis, you should consider the following:
• Promotion or reflection of development [this is the most important part of your paper] – In what ways could the individuals use the item (independently or with the help of an older child or adult) to promote or reflect specific aspects of development? How does it promote those developments? What specific theories or facts about development are relevant to your argument?

• Strengths of the item for the intended age groups – Is it safe and easy for the individuals to use? Is it interesting for the individuals?

• Weaknesses of the item for the intended age groups – Why might it not be appropriate for the individuals? Why might it not be appealing to them or to parents?

You may only use information from your textbook and lectures (as well as common sense and creativity!) to complete this paper. That is, you may NOT use any sources other than the textbook and lectures. Make sure to cite specific page numbers and specific dates when drawing from information presented in your textbook or from lectures (e.g., “text p. 32,” “lecture October 17”).

You will probably find it helpful to examine the object you were assigned. Playing with and exploring it may give you insights into non-obvious possibilities for interactions.

Again, you should be sure that your paper includes these elements:

<table>
<thead>
<tr>
<th>Age 1</th>
<th>AND</th>
<th>Age 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain 1</td>
<td>Domain 2</td>
<td>Domain 1</td>
</tr>
<tr>
<td>Use 1</td>
<td>Use 2</td>
<td>Use 1</td>
</tr>
<tr>
<td>Use 1</td>
<td>Use 2</td>
<td>Use 1</td>
</tr>
</tbody>
</table>

Strengths and Weaknesses

Paper Feedback
Although you are not required to do so, it is highly advisable to discuss your paper ideas with your instructor well before it is due. She will be able to provide constructive feedback that should improve the quality of the paper.

Format
The paper must be TYPED with one-inch margins, double-spaced, use a 10- or 12-point font size, and be a maximum of 3 pages in length. You must upload your final paper to Canvas. When you do so, you must certify online that you were academically honest in preparing the paper.

Paper Due Date
The paper MUST be submitted electronically to the class Canvas site no later than xxxxx. LATE PAPERS WILL NOT BE ACCEPTED.
Evaluation of the Paper

You may earn up to xx points on this assignment. Please note that the most vital component of your paper is your analysis of the item for individuals of 2 different age groups in light of their skills and behaviors in at least 2 different developmental domains. Only projects that include this component will receive the full xx points. Grades will be determined as follows:

xx points = Excellent:  
- **Content** – the item is presented in a complete and detailed manner; relationship between the item and development is carefully explained using details about normal developmental skills for 2 age groups citing specific information from the text/lectures and specific details about relevant characteristics of the item analyzed; **Logical Reasoning** – paper shows obvious thought and understanding of relevant research; has creative descriptions of typical individuals’ activities; is organized with a brief introduction and conclusion; demonstrates understanding and analysis of strengths, weaknesses and expected components (2+ examples in 2+ domains, 2 ages); **Form** – typed, with 1 inch margins, double spaced, and no smaller than 10 point font; no spelling or grammatical errors; 2-3 pages; submitted on time

x points = Adequate:  
- **Content** – the item is presented in a complete and detailed manner; the item is not related adequately to development or the relationship is incompletely explained; minimal referencing from text/lectures; lack of specific details about item or child behaviors; full expectations for paper are not present (2 ages, 2 examples in 2 domains, strengths, weaknesses); **Logical Reasoning** – paper shows thought and some understanding of child development but does not fully articulate this understanding; paper is organized; descriptions of children’s activities with item are unlikely or inappropriate for the age group; discussion is general or disorganized; **Form** – typed; no spelling or grammatical errors; 2-3 pages long; uses extra-large margins or font above 12 point to “appear” of appropriate length

x points = Inadequate:  
- **Content** – the item is generally described with only occasional detail; the item is not related to development or the relationship is not explained; only 1 age group or 1 developmental domain is discussed; strengths and weaknesses are not clearly explained; no detail about child’s behaviors at developmental ages selected; **Logical Reasoning** – limited analysis or explanation of the item with no application of information from lecture or text; no clear organization; expected components are absent; paper does not clearly address the assigned topic; **Form** – typed; minimal spelling or grammatical errors; inappropriate length; uses extra-large margins or font above 12 point to “appear” of appropriate length

1-2 points = Poor:  
- **Content** – the topic is generally described without detail; generalizations are made that do not demonstrate specific knowledge of the item or development; consideration of the item or child development concepts is too general or incomplete; application to an age group or developmental domain is vague; **Logical Reasoning** – limited or no analysis/explanation of the item or child development; no clear organization; expected components are absent; **Form** – poorly typed or handwritten; spelling or grammatical errors are distracting to the reader inappropriate length; uses extra-large margins or font above 12 point to “appear” of appropriate length

0 points = Unacceptable:  
- **Content** – the topic is not related to the assignment or paper concerns an item that was not assigned; **Form** – academic honesty statement is not answered; **Punctuality** – paper is late
ADVICE BASED ON MY EXPERIENCES

A number of strategies can promote creativity. Simpler items (e.g., a music CD, a yo-yo) appear to elicit more creative ideas than more complex items (e.g., a doll), perhaps because non-literal uses are easier to recognize. Urging students to explore an actual example of their assigned item is helpful, as is requiring them to include a description of the physical properties of the item in their papers. You can maximize developmental contrasts by providing at least 5 age group options that most clearly connect to age divisions in the course. I require my Developmental Psychology students to choose 2 of 5 options (i.e., 6 months, 2 years, 4 years, 10 years, 15 years) for their analysis.

You can help ensure that students carefully consider items by selecting items that students are likely to have at home or could readily obtain. I go through my office and home to generate such objects. Items I have assigned include:

10 pipe cleaners  a roll of aluminum foil  lid
a chair  a manila folder  a bowl of Jello
a comb  a sponge  a CD
an orange construction cone  a yardstick  a conch shell
a whiffle ball  4’ of string  an umbrella
a spool of thread  a baseball cap  a ball point pen
a newspaper  a pair of socks  a large beach towel
a CD  a sheet of paper  a hair brush
4 ribbons  a water bottle  a bar of soap
sunglasses  a pair of chopsticks  a 3-ring binder
a drum  a yo-yo  3 clothes pins
a shovel  a trowel  a pinecone
a skateboard  a scarf  a styrofoam egg carton
a sheet of plywood  a bowl of dry Cheerios  a metal ladle
a deck of cards  a skateboard  an aluminum pie tin
a bowling pin  a Frisbee  an oven mitt
a soup spoon  a handful of Styrofoam  a sneaker
a flower pot  peanuts  a 3’ ladder
a feather  a Slinky  a garden hose
a mixing bowl  a dish brush  2 crayons
a straw  a lacrosse stick  finger paints and paper
an empty yogurt carton and  a rattle
8 wooden blocks  a swing set
a jack-in-the-box  a box of paper clips
a basketball hoop and ball  a rolling pin
a toy xylophone

To reduce cheating, select the number of items to be assigned to students such that relatively few students in a class write about a given item. Change the list of items each semester.

When I began assigning this paper, I required students to use APA-style citations to support their points about development. However, many non-majors in my classes have not learned APA style, and students appeared to be expending more effort on citation style than on content. More recently, I have asked students to acknowledge sources more simply (e.g., “Lecture, October 7,” “Text p. 132”). This scaffolding encourages them to begin thinking and writing about psychology without being overwhelmed by APA style. Furthermore, some students are particularly uncomfortable that they cannot just compile facts and that there is no one correct way to complete the assignment. Bringing a number of paper bags to class and letting students generate ideas for possible uses by people of different ages helps them get a feel for the assignment before the instructions are made available. Another strategy I have employed is to allow students to turn in drafts of their papers to get feedback about whether they are on the right track. In the end, most students appear to enjoy the assignment.

GRADING RUBRIC

A readily-used grading template lists specific requirements within each of the paper’s components. The syllabus informs students of both the specific requirements and grading criteria. Also, a copy of the grading template is located on Canvas so that students can use it as a self-assessment prior to submitting their papers. The instructor may upload the completed template to Canvas or give it to students in hard copy.
Template for Grading

Developmental Analysis Paper

Course Name – Semester

Name: ________________________________.

Assigned item: ________________________.

[Check criteria that are fully met and note deficiencies, if any, next to each criterion.]

**Evaluation of Content**

1. the item is described in a complete and detailed manner
2. full expectations of the paper are met
   - 2 ages (6 months, 2 years, 4 years, 10 years, 15 years)
   - 2+ examples in each of 2+ domains (perceptual, motor, cognitive, language, social, emotional)
   - strengths and weaknesses are noted
3. relationship between the item and child development is carefully explained using details about normal developmental skills
4. discussion of relationship between the item and child development cites specific information from the text or lectures
5. specific details are presented about relevant characteristics of the item analyzed

**Evaluation of Logical Reasoning**

1. shows evidence of thought and understanding of relevant research
2. has creative description of typical children’s activities
3. is organized with a brief introduction and conclusion
4. demonstrates understanding and analysis of strengths, weaknesses and expected components (2+ examples in 2+ domains, 2 ages)
Evaluation of Form

1. typed, with 1 inch margins, double spaced, and no smaller than 10 point font
2. no spelling or grammatical errors
3. maximum of 3 pages
4. academic honesty statement is confirmed
5. submitted on time

Points: ________________.
ENHANCING INTERCULTURAL COMPETENCE THROUGH WRITING

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ABSTRACT

Given globalization, increasing awareness and sensitivity has become important activities for instructors. This chapter describes several intercultural communication activities that can serve as writing prompts that promote cultural sensitivity.

INTRODUCTION

Globalization has brought forth greater mobility and technology, but has also challenged education systems around the world by bringing together diverse student populations with various levels of knowledge, experiences, and language skills. This diversity poses challenges for instructors, as many must find a delicate balance between allowing students to make sense of their worldviews and guiding them in considering and reconsidering topics that are quite personal to them. This is where writing comes in. This chapter presents several class activities that can prompt reflective as well as more formal writing in and out-of-class in order to enhance students’ cultural sensitivity.

There are several reasons for incorporating intercultural communication activities into the psychology course, such as promoting personal growth via cultural understanding and increasing a sense of social responsibility (Baldwin, Coleman, Gonzalez, and Shenoy-Packer, 2014). Intercultural communication activities can enhance skills essential to becoming an ethical student of culture, such as practicing self-reflexivity, learning about others, listening to the voices of others, and developing a sense of social justice (Martin & Nakayama, 2014). The intercultural communication exercises not only introduce a cultural aspect to writing assignments, but also social issues that invariably arise in discussions about diversity. Each of these assignments can take the form of in-class or out-of-class writing, and as low or high stakes assignments.

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ALIGNMENT TO APA GUIDELINES FOR UNDERGRADUATE EDUCATION

This lesson meets the following APA Guidelines for the Undergraduate Psychology Major (2013):

- 3.2 Build and enhance interpersonal relationships
- 3.3 Adopt values that build community at local, national, and global levels
- 4.1 Demonstrate effective writing for different purposes
- 4.3 Interact effectively with others

LEARNING OBJECTIVES

After completing the exercise and writing assignment, students will be able to:

- Describe a key finding in intercultural communication to his or her peers.
- Explain the importance of culture.
- Analyze culturally sensitivity as it pertains to their life experience.

COURSE LEVEL AND RECOMMENDED COURSES

This activity can be applied to any psychology course whose goal is to increase sensitivity to diversity and intercultural communication competence. These activities have been used in undergraduate and graduate university courses within English and Psychology departments, as well as English-language acquisition classes, including English-as-a-Second-Language learners.

DETAILED EXPLANATION OF ASSIGNMENTS

Below are several intercultural communication activities, each with a writing component that can be adapted for use in or out-of-class and as low or higher stakes assignments.

ASSIGNMENT 1: EAD INTERCULTURAL COMMUNICATION ACTIVITY

One effective exercise for enhancing students’ intercultural communication skills is the E.A.D. (Evaluate, Analyze, Describe). Explain to students that “they are going to see an object, photograph or short video, or hear a scenario (e.g., a case study), and that the goal is to first evaluate or judge it, then analyze it, and finally describe it in the simplest of terms” (Velasco, 2015, pp. 88-89). The E.A.D. asks participants to evaluate an object, photograph, video clip, or song first, immediately expressing their own opinions about the objects, individuals, or situations displayed. From there, students are asked to take a step backwards and analyze the stimulus, attempting to explain and interpret it, without judgment. That is, students must attempt to put their prior judgment aside in analyzing the stimulus. Finally, students step back again to simply describe the stimulus - what they see or hear. This last part is usually the most difficult, as people are prone to quickly judge something that has been introduced to them and it is often difficult to disentangle objective observations from prior judgments. However, the evaluation and analysis have already taken place, so describing the focus of the assignment comes much easier.
After the exercise, students process their thoughts, feelings, and experience through freewriting or journaling. Both allow students to write whatever comes to mind without concern over grammatical rules, spelling errors, and cohesion. The goal is to assist students in managing their complicated and sometimes confusing responses in order to increase their cultural awareness and sensitivity, and without getting bogged down with grammar and spelling rules. Encourage students to share their responses in pairs or small groups, and then to the class.

A wide variety of conversations can emerge, from respectful conversations about a particular culture to racially charged discussions on politics and human rights violations. The challenge is to provide the students with a safe place to openly discuss these issues, but at the same time be respectful of their classmates’ opinions (in other words, promote intercultural, or culturally sensitive, communication).

A short paper can be assigned as an out-of-class activity to support the E.A.D. activity. Students can write a letter to a child or adolescent, defining cultural sensitivity and explaining its importance. Alternatively, students may be instructed to locate an article related to a topic discussed during the activity and summarize and apply the contents in their letter. Approved sources for articles might vary with the course and level of student from web pages to newspapers to peer reviewed journals.

**ASSIGNMENT 2: CULTURAL MISUNDERSTANDING CASE**

In this activity, students write a case study. Small groups of students are given the following task:

Think of a real or imagined scenario that involved a cultural misunderstanding. Some examples include not taking off shoes in a Japanese household, asking an American about finances or political affiliations, or misunderstanding a British expression, such as “I’ll knock you up in the morning” (Fish, 2010). Discuss the scenario with your group members and prepare a short write-up of the case, including a detailed explanation of the issues involved (e.g., what is misunderstood as well as the course content that best applies to the case), and an action plan for dealing with the situation.

Each group will present their issue and their action plan, soliciting input from the class. Finally, each student will write a short 1-2 page editorial-style paper explaining their topic, the issues and course topics or principles illustrated in the case, the positions taken by the group and class, and the student’s own perspective.

**CONCLUSION**

Incorporating writing into intercultural communication activities aids students in processing their thoughts about challenging topics, becoming more aware of multiple perspectives, and more sensitive to diversity. In turn, instructors can make writing more engaging by basing their prompts on exercises that teach intercultural communication skills, and develop cultural awareness and sensitivity.
REFERENCES


THE CASE OF THE PLAGIARIZED PARAGRAPH: A PRACTICAL EXERCISE TO DEVELOP ACADEMIC VOICE

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ABSTRACT

Though most students recognize word-for-word copy and paste presentation of work without proper citation constitutes an act of academic dishonesty, a variety of additional practices may also be construed as plagiarism (Turnitin, 2012). Paraphrasing, or the expression of another’s thoughts using one’s own words, is an especially important ability for students to acquire as they develop academic voice. This skill-building assignment presents a paragraph demonstrating various types of plagiarism. Students must identify the errors and rewrite the paragraph appropriately, avoiding various pitfalls outlined by Turnitin (2012) and applying in-text citations, in addition to creating a properly formatted reference page. In addition to this exercise, students reflect on ethical accountability, identifying potential consequences for violations, discussing key features of academic writing, and suggesting strategies to ensure successful application of academic voice to their own work.

While it is difficult to accurately evaluate the prevalence of plagiarism amongst undergraduate students, incidences of this “spreading infection” (Ziman, 2005) are substantial, if not alarming (Walker, 2010). While students do bear responsibility for this lapse in ethical judgment, their transgressions may be due to ignorance (Power, 2009). With strategic effort, educators can address this lack of knowledge by employing active tactics aimed at helping students develop the skills necessary for academic writing (Choo & Paull, 2013).

OVERVIEW

This assignment affords students the opportunity to develop their writing skills by applying knowledge about plagiarism to a paraphrasing exercise. Specifically, students are exposed to an elaborated explanation of plagiarism and directed to resources that assist in proper academic writing (paraphrasing, citing, etc.). They are then asked to locate a paragraph from a scholarly source and paraphrase it appropriately. Finally, students provide a reflection on the topic of ethics as it applies to the use of academic voice. The goal of this exercise is to support the development of academic writing, providing early intervention if needed and limiting future instances of academic dishonesty.

APA GUIDELINES

This writing assignment meets the following APA Guidelines for the Undergraduate Psychology Major:

- **Goal 3: Ethical and Social Responsibility in a Diverse World**
  - 3.1 Apply ethical standards to evaluate psychological science and practice
  - 3.2 Build and enhance interpersonal relationships
- **Goal 4: Communication**
  - 4.1 Demonstrate effective writing for different purposes
LEARNING OBJECTIVE

After completing this activity, the student will be able to effectively implement ethical writing practices, demonstrating professional communication skills.

COURSE AND LEVEL RECOMMENDATIONS

This assignment is best suited for the undergraduate student in an introductory-level course, as it assumes only a basic understanding of academic writing and awareness of plagiarism with a primary aim to develop paraphrasing skills.

This assignment could easily be tailored to more advanced students, focusing on nuanced elements of academic voice, such as seamless integration of research.

Specific courses in which modified versions of this assignment have been implemented include Introduction to Psychology, Social Psychology, and Organizational and Industrial Psychology. In our program, these are the first, third, and seventh courses in a series, although students may take them out of sequence.

MODE OF DELIVERY

This particular assignment was designed for online delivery. It could easily be translated into a traditional classroom setting.

THE ASSIGNMENT

This writing assignment (designed by the authors and property of Ashford University) is composed of two distinct pieces: a practical application designed to develop academic voice (specifically, the skill of paraphrasing) and a reflection designed to emphasize the importance of academic integrity (specifically, avoiding plagiarism). See Table 1 for details.

To orient students to the general topic, they are first directed to the APA Ethical Principles of Psychologists and Code of Conduct (2010). Plagiarism, one of the more likely student violations in an academic setting, is defined and real-world examples are presented (Silverman, 2012). Multiple forms of plagiarism are distinguished (Turnitin, 2012). Finally, students watch a video (Plagiarism 2.0: Information ethics in the digital age, 2011).
Students are then asked to locate a scholarly article. (This particular task has the added benefit of introducing the student to the notion of scholarly work, and getting him/her to visit the library.) Students select a paragraph from the article and paraphrase it. Links to resources from the Writing Center explaining paraphrasing, in-text citations, and APA formatting are provided.

Finally, students reflect on the topic, considering the ethical responsibility of psychology students and professionals, as well as potential consequences of plagiarism. Students are asked to apply this insight to their own personal area of interest/career aspirations. The assignment and rubric follow.
Assignment

Ethics: The Case of the Plagiarized Paragraph

To prepare for this assignment, please read *Ethical Principles of Psychologists and Code of Conduct* (APA, 2010) and “Journalism’s Summer of Sin Marked by Plagiarism, Fabrication, Obfuscation” (Silverman, 2012). Finally, review Instructor Guidance and Announcements.

The American Psychological Association has adopted a code of ethics, the *Ethical Principles of Psychologists and Code of Conduct* (2010). In addition to governing the behavior of professionals, the five general principles and ten specific ethical standards contained in this code of ethics extend to all those who study or practice psychology. In academia, perhaps the most relevant ethical breach occurs in the context of plagiarism, which involves taking credit for someone else’s work (thoughts, words, etc.). Unfortunately, this practice can and does occasionally occur outside the classroom too (See the chronology in “Journalism’s Summer of Sin Marked by Plagiarism, Fabrication, Obfuscation”; Silverman, 2012). Although most people recognize word-for-word copy and paste presentation of work constitutes an act of dishonesty, a variety of additional practices may be construed as plagiarism as well. Review “The plagiarism spectrum: Tagging 10 types of unoriginal work” (Turnitin, 2012) and watch the video “Plagiarism 2.0: Information Ethics in the Digital Age” (2011).

A common mistake concerning ethics is the application of paraphrasing. When a writer, researcher, or student paraphrases, (s)he is expressing the meaning of what (s)he has read using his or her own words. It is an especially important skill for students to acquire. With accurately applied and properly cited paraphrasing, students and other writers can avoid the consequences of plagiarism. Learning how to paraphrase correctly can also help one avoid the appearance of presenting a series of direct quotes. This important skill builder is designed to help you achieve success in this area throughout your academic experience, as well as in your current and future careers.

Thus, in this activity, you will apply ethical considerations by relating course content to a realistic scenario.

1. First, locate a scholarly article in the Ashford Library. This source can be on any topic you choose. You may wish to utilize recommended articles for this course, or you may instead locate an article that includes information that aligns with your own interests.
2. Next, copy and paste either the abstract or one paragraph from the body of your selected article into your paper with the heading “Original Work”.
3. Then, write a paragraph in which you paraphrase under the heading “Paraphrased Paragraph”.
   - Be sure to avoid the common mistakes outlined by Turnitin (2012).
   - Apply in-text citations appropriately.
   - Remember to include a separate reference page with the full citation information for your selected article, formatted according to APA guidelines.
4. Then, reflect on this topic using your own academic voice and applying in-text citations. Relate your thoughts under the heading “Reflection”. In your reflection (4-5 paragraphs), address the following:
   - Illustrate how plagiarism, even when unattended, violates the ethical responsibility of a psychology student or professional.
   - Predict potential consequences to other persons (e.g., research participants, patients, clients, students, etc.) when this violation occurs.
   - Apply this knowledge to your own personal area of interest as identified in the Introduction Discussion. What additional ethical concerns are or will be especially relevant to you given your aspirations?
The Assignment

- Must be at least 2 to 3 double-spaced pages in length (not including title and references pages) and formatted according to APA style as outlined here in the Ashford Writing Center.
- Must include a separate title page (APA style) that includes the following:
  - A header
  - Title of paper
  - Student’s name
  - Course name and number
  - Instructor’s name
  - Date submitted
- Must begin with an introductory paragraph that has a succinct thesis statement.
- Must utilize academic voice.
- Must paraphrase material, avoiding direct quotes.
  - For more information about how to synthesize your writing, please visit the Ashford Writing Center.
- Must address the topic with critical thought.
- Must end with a conclusion that reaffirms the thesis.
- Must use, at minimum, the APA Code of Ethics and the chosen article as sources. Additional scholarly sources are encouraged. Be sure to integrate your research smoothly rather than simply inserting it.
  - The Scholarly, Peer Reviewed, and Other Credible Sources table offers additional guidance on appropriate source types. If you have questions about whether a specific source is appropriate for this assignment, please contact your instructor. Your instructor has the final say about the appropriateness of a specific source for a particular assignment.
- Must document all sources in APA style as outlined here and here
- Must include a separate reference page that is formatted according to APA style.
- Must be submitted to Grammarly for review and correction prior to submitting.
Rubric: The Case of the Plagiarized Paragraph

Total Possible Score: 5.00

Copies and Pastes a Paragraph Word for Word

Total: 0.50

Distinguished - Copies and pastes a paragraph word for word from the chosen article into the paper. All details are present and accurate.

Proficient - Copies and pastes a paragraph from the chosen article into the paper. Minor details may be missing.

Basic - Partially copies and pastes a paragraph from the chosen article into the paper. Relevant details may be missing.

Below Expectations - Attempts to copy and paste a paragraph into the paper; however, significant details may be missing and/or the source of the paragraph is not indicated.

Non-Performance - The copied paragraph is either nonexistent or lacks the components described in the assignment instructions.

Paraphrases Paragraph, Avoiding Plagiarism

Total: 1.00

Distinguished - Effectively and accurately paraphrases the paragraph, clearly avoiding plagiarism. All details are present and accurate.

Proficient - Paraphrases the paragraph, avoiding plagiarism. Minor details may be unclear.

Basic - Partially paraphrases the paragraph, generally avoiding plagiarism. Relevant details may be missing/unclear.

Below Expectations - Attempts to paraphrase the paragraph; however, some elements of the passage are clearly plagiarized. Significant details may be inaccurate, missing, and/or unclear.

Non-Performance - The paraphrase of the paragraph is either nonexistent or lacks the components described in the assignment instructions.

Explains How Plagiarism Violates Ethical Responsibilities

Total: 0.50

Distinguished - Thoroughly explains how plagiarism violates ethical responsibilities.

Proficient - Explains how plagiarism violates ethical responsibilities. Minor details may be unclear.

Basic - Partially explains how plagiarism violates ethical responsibilities. Relevant details may be missing/unclear.

Below Expectations - Attempts to explain how plagiarism violates ethical responsibilities; however, significant details may be inaccurate, missing, and/or unclear.

Non-Performance - The explanation of how plagiarism violates ethical responsibilities is either nonexistent or lack the components described in the assignment instructions.
Predicts Potential Consequences to Other Persons

Total: 0.50

**Distinguished** - Fully predicts potential consequences of plagiarism to other persons (e.g., research participants, patients, clients, students, etc.).

**Proficient** - Predicts potential consequences of plagiarism to other persons (e.g., research participants, patients, clients, students, etc.). Minor details may be unclear.

**Basic** - Partially predicts potential consequences of plagiarism to other persons (e.g., research participants, patients, clients, students, etc.). Relevant details may be missing/unclear.

**Below Expectations** - Attempts to predict potential consequences of plagiarism to other persons (e.g., research participants, patients, clients, students, etc.); however, significant details may be inaccurate, missing, and/or unclear.

**Non-Performance** - The prediction of potential consequences is either nonexistent or lack the components described in the assignment instructions.

Applies Knowledge to Personal Area of Interest and Includes Additional Relevant Ethical Concerns Given Career Aspirations

Total: 0.50

**Distinguished** - Comprehensively applies knowledge to personal area of interest and includes additional relevant ethical concerns given career aspirations.

**Proficient** - Applies knowledge to personal area of interest and includes additional relevant ethical concerns given career aspirations. Minor details may be unclear.

**Basic** - Partially applies knowledge to personal area of interest and includes additional relevant ethical concerns given career aspirations. Relevant details may be missing/unclear.

**Below Expectations** - Attempts to apply knowledge to personal area of interest and include additional relevant ethical concerns given career aspirations; however, significant details may be inaccurate, missing, and/or unclear.

**Non-Performance** - The application of knowledge to personal area of interest and inclusion of additional relevant ethical concerns is either nonexistent or lack the components described in the assignment instructions.

Applied Ethics: Ethical Issue Recognition

Total: 0.25

**Distinguished** - States ethical issues when presented in a complex, ambiguous context and recognizes interrelationships among the various issues.

**Proficient** - States ethical issues when they are presented in an ambiguous context or recognizes cross-relationships among the issues.

**Basic** - States basic and apparent ethical issues and understands the complexities or interrelationships among the issues.
Below Expectations - States apparent ethical issues but fails to recognize their complexity or interrelationships.
Non-Performance - The assignment is either nonexistent or lacks the components described in the instructions.

Applied Ethics: Application of Ethical Perspectives/Concepts
Total: 0.25

Distinguished - Independently applies ethical viewpoints to an ethical question correctly and considers the full ramifications of the application.
Proficient - Independently applies ethical viewpoints to an ethical question correctly, but does not consider the specific ramifications of the application.
Basic - Applies ethical viewpoints to an ethical question with support, but is unable to apply ethical perspectives/concepts independently.
Below Expectations - Inaccurately constructs ethical viewpoints to an ethical question.
Non-Performance - The assignment is either nonexistent or lacks the components described in the instructions.

Reading: Reader’s Voice
Total: 0.50

Distinguished - Discusses texts with an independent intellectual and ethical style to further or maintain subject matter conversations.
Proficient - Discusses the texts to deepen or augment a continuing discussion.
Basic - Discusses the texts in a way that contributes to a fundamental understanding of the text.
Below Expectations - Inadequately discusses the text and fails to integrate the text to the assignment.
Non-Performance - The assignment is either nonexistent or lacks the components described in the instructions.

Written Communication: Control of Syntax and Mechanics
Total: 0.25

Distinguished - Displays meticulous comprehension and organization of syntax and mechanics, such as spelling and grammar. Written work contains no errors and is very easy to understand.
Proficient - Displays comprehension and organization of syntax and mechanics, such as spelling and grammar. Written work contains only a few minor errors and is mostly easy to understand.
Basic - Displays basic comprehension of syntax and mechanics, such as spelling and grammar. Written work contains a few errors which may slightly distract the reader.
Below Expectations - Fails to display basic comprehension of syntax or mechanics, such as spelling and grammar. Written work contains major errors which distract the reader.
Non-Performance - The assignment is either nonexistent or lacks the components described in the instructions.
Written Communication: APA Formatting
Total: 0.25

**Distinguished** - Accurately uses APA formatting consistently throughout the paper, title page, and reference page.

**Proficient** - Exhibits APA formatting throughout the paper. However, layout contains a few minor errors.

**Basic** - Exhibits limited knowledge of APA formatting throughout the paper. However, layout does not meet all APA requirements.

**Below Expectations** - Fails to exhibit basic knowledge of APA formatting. There are frequent errors, making the layout difficult to distinguish as APA.

**Non-Performance** - The assignment is either nonexistent or lacks the components described in the instructions.

Written Communication: Page Requirement
Total: 0.25

**Distinguished** - The length of the paper is equivalent to the required number of correctly formatted pages.

**Proficient** - The length of the paper is nearly equivalent to the required number of correctly formatted pages.

**Basic** - The length of the paper is equivalent to at least three quarters of the required number of correctly formatted pages.

**Below Expectations** - The length of the paper is equivalent to at least one half of the required number of correctly formatted pages.

**Non-Performance** - The assignment is either nonexistent or lacks the components described in the instructions.

Written Communication: Resource Requirement
Total: 0.25

**Distinguished** - Uses more than the required number of scholarly sources, providing compelling evidence to support ideas. All sources on the reference page are used and cited correctly within the body of the assignment.

**Proficient** - Uses the required number of scholarly sources to support ideas. All sources on the reference page are used and cited correctly within the body of the assignment.

**Basic** - Uses less than the required number of sources to support ideas. Some sources may not be scholarly. Most sources on the reference page are used within the body of the assignment. Citations may not be formatted correctly.

**Below Expectations** - Uses an inadequate number of sources that provide little or no support for ideas. Sources used may not be scholarly. Most sources on the reference page are not used within the body of the assignment. Citations are not formatted correctly.

**Non-Performance** - The assignment is either nonexistent or lacks the components described in the instructions.
EXPERIENCE, ADVICE, AND BEST PRACTICES

We implemented the described assignment in the first course in a sequence of bachelor’s-level courses in the psychology undergraduate program at an online university in mid-2016. Modified versions were subsequently introduced in Social Psychology (the third course in the program) and Industrial and Organizational Psychology (the seventh course in the program). (Students may take these courses out of order; for example, IO Psychology is often taken earlier by students in other majors who have selected this as an elective.). All courses are offered online only in five-week sessions, with new sections beginning nearly every week.

We chose to include variations of this writing assignment in multiple courses for multiple reasons. First, we recently revised our program learning outcomes to align with the APA Guidelines for Undergraduate Education (2010), which emphasizes ethical responsibility and the development of communications skills. This additional exercise captures these goals in a succinct and direct manner. Second, as a fully-online program, the importance of developing a strong academic voice simply cannot be overstated. Students must be able to express themselves clearly in written format. Accordingly, faculty in our program place a strong emphasis on this skill and have embraced this objective enthusiastically. And finally, students may enter our institution with transfer credits and/or may not need a particular course. Our goal is to infuse information about and opportunities to develop academic voice throughout the program, giving students in any course (or program, if a student from another field chooses to take a psychology class) practical experiences along with useful resources that may be beneficial beyond any individual course.

A major advantage of implementing this assignment has been the opportunity for individual instructors to identify and address ignorance of proper writing practices early in the course/program. In addition, if and when later violations occur, instructors can point back to the completion of this first assignment and the resources that were identified to support it. Future research will examine whether introduction of this assignment translates into actual success in the form of fewer violations of academic standards in current and future courses.

When grading this particular assignment, it may be helpful to utilize a document comparison service (e.g., copyscape.com, available at https://www.copyscape.com/compare.php). Students could be instructed to utilize this service as well in order to evaluate their own paraphrasing work prior to submission.

A word of caution: Some websites offering paraphrasing services will “rewrite” student work by substituting synonyms. Students who have utilized this service will often submit paraphrased paragraphs with awkward wording. (For example, when entered at http://articlerewritertool.com/, the previous two sentences are revised to read “An expression of alert: Some sites offering rewording administrations will "change" understudy work by substituting equivalent words. Understudies who have used this administration will frequently submit reworded sections with clumsy wording.”). As this workaround defeats the purpose of developing student skills, an instructor might advise students against this or perhaps suggest ways in which such a service (or other resources, like the thesaurus) could be appropriately and effectively utilized.

A revision of this exercise might provide a specific paragraph for students to paraphrase, as some select poor exemplars (from extremely technical articles or including multiple facts, rather than ideas which are more easily
adapted to this assignment). Examples from literature (e.g., nursery rhymes, fables, or fairy tales) or popular culture (e.g., movies or book plots) would be engaging and perhaps allow students a more obvious opportunity to practice and demonstrate paraphrasing, since they would not have to first attempt to understand the material but could instead focus on the skill.

Best practices with regard to this assignment specifically and the goal of developing academic voice more generally include directing students to useful resources and services. For example, students may be encouraged to utilize online services such as Grammarly (to support academic writing generally) or turnitin (to identify poorly paraphrased work by identifying similarity with published, online or other student writing samples, specifically), in addition to institution-specific resources. All in all, we advise implementation of a targeted attempt to explain appropriate strategies for academic writing, rather than reliance on assumptions about what students should know or be able to produce with regard to this skill. We suspect that this practice will be particularly beneficial when introduced early in a program and reinforced and enforced throughout the academic experience.

REFERENCES


ABSTRACT

This chapter focuses on how to develop and use peer feedback to improve the quality of student writing. Instead of students walking the “peer” alone, the chapter focuses on steering the course for improved writing quality. I share tips and resources for promising principles and include pointers addressed at struggling student writers.

In developing writing assignments, I have embraced the idea of “writing to learn and learning to write” with the expression stemming from “writing as a mode of learning” (Emig, 1977, p. 122). Nearly every course I teach has some sort of low-stakes classroom assessment techniques, term papers, extended assignments with multiple drafts, and/or multiple writing assignments to give additional feedback opportunities for students to learn how to write while they expand their knowledge of psychology. With repeated writing opportunities, the course emphasizes writing can always be improved and writing is a process that is learned (Dunn, 1994). Sometimes, however, when I am grading students’ papers, I ask myself what more could I have done to guide the student in creating a better final product. Was I doing enough to set them up for success? When I started using the write to learn and learn to write approach, I gave students detailed instructions. I wanted them to have a solid understanding of that particular assignment. I then shared rubrics, as well as example papers, for students to further their knowledge of my expectations for grading. These activities also helped students better understand and assess what is considered strong writing. In completing these activities and practices, students navigate where to focus their efforts, and ultimately improve students’ paper quality (Cartney, 2010; Greenberg, 2015). I felt like I was giving good feedback in initial drafts, but was there something peers offer that I could not?

So, a few years later, I took a more active learning approach to the classroom and I incorporated peer feedback activities. To me, peer feedback was an added learning tool, created more engagement, and helped with my grading load. The term “peer feedback” is used in students’ offering evaluations, comments, and edits on work by peers. Students give formal peer feedback and edits to written work prior to the final deadline (along the way students also get some feedback from me). I give students repeated opportunities for writing along with peer feedback that includes evaluation of peers’ work and suggestions how to make it better. Repetition and peer engagement seems to be a good approach to improve student writing quality (Fallahi, Wood, Austad, & Fallahi, 2006; Johnstone, Ashbaugh, & Warfield, 2002). With my first attempt, I quickly realized that more training was involved than a
“read each other’s papers, give feedback how to improve the paper, and here is a check list to help you out” kind of approach. I was not giving students enough opportunities to grasp writing is a process, and training was needed. I now feel closer to finding the most successful course to improved writing.

Here I share recommendations with you in hopes our students don’t feel alone in the writing process, but experience greater success because of their journey. This chapter aims to identify best practices in utilizing peer feedback to enhance the quality of student writing, particularly acknowledging ways to help the lower quality writer improve.

A COLLABORATIVE CREW MEMBER CRITIQUE: BENEFITS OF PEER FEEDBACK

You might have asked yourself is peer feedback worthwhile? The process of evaluating other students’ papers has been shown to boost students’ paper quality compared to students reading the peer paper or only rating the peer paper (Cho and MacArthur, 2011; Lu and Law, 2012). Peer feedback on written assignments can be just as effective for revisions, and viewed as helpful as instructor feedback (Cho, Schunn, & Charney, 2006; Patchan, Charney, & Schunn, 2009). Although some research has shown students prefer instructor feedback verses peers (Topping, 1998; Ertmer, Richardson, Belland, Camin, Connolly, Coulthard, Lei, & Mong, 2007; Kaufman, & Schunn, 2011), other work has shown that students include more revisions from peer feedback as compared to instructor feedback (Yang, Badger, and Yu, 2006). The quality of the peer feedback may not be the same as the instructor (Topping, 1998) or subject matter expert (Cho et al., 2006), but the turnaround time, opportunity for more frequent feedback, reduced workload for instructors, and receiving feedback from more than one person are incentives to using the peer feedback approach (Topping, 1998).

Peer feedback is also a learner-centered approach where students take in the skills used in writing to critique and analyze others’ work. Peer feedback enhances students’ critical thinking, assessment, and communication skills. Peer feedback gives students more power to learn through doing rather than from being told, and to critically examine others’ work leading to further self-assessment (Sadler, 2010). The same skills learned for peer feedback also help students with self-monitoring, proof reading, and revising their own papers. In using peer feedback students are recognizing what good writing looks like, taking in where work might be needed, and offering advice. Faculty find poor proofreading ability and inability to properly revise rough drafts as common gaps or student failures in the writing process (Landrum, 2013). Peer feedback can help with this. Receiving a possible solution suggested by the peer reviewer could boost the student’s writing quality, particularly for low ability writers who are more likely to skip over feedback than their peers (Patchan, Schunn, & Correnti, 2016). Taking in feedback takes reflection. Further, integrating the feedback can be hard work as revisions are made, or self-negotiated, after receiving feedback. It can be challenging for students to reflect on peer feedback, evaluate what was recommended, and then take remedial actions to revise. During peer feedback, they learn how to deliver and accept criticism, justify one’s position, and reject suggestions during the feedback and revision process (Topping, 1998). Peer feedback encourages the repetitive nature of working to improve writing, but it is done in a more communal way so students don’t feel isolated in the writing process. When students are not understanding the writing process, they may feel that the comments are exhaustive and no further editing is needed beyond what was indicated (be that from instructor or peer). Engaging students in a multi-process, peer reviewed writing assignment may help alleviate these issues and assist students in becoming better writers. In utilizing peer feedback, students also gain skills in editing etiquette and communicating feedback. After the review(s) are completed, students need to share their feedback in a way that is understandable and helpful.
SELECTING THE CREW: SETTING UP PEER FEEDBACK TEAMS

I have a few pointers for setting up and scaffolding the peer feedback. Studies have shown multiple peer feedback is as effective as instructor feedback (Cho & Schunn, 2007). Setting up peer feedback exchanges between more than two students is beneficial for getting more comprehensive feedback. Having three to five students exchange papers and give peer feedback is appropriate, with considerations of how much in-class time is devoted to the activity. Camplese and Mayo (1982) suggested a “Colleague Swap” activity where peers evaluate three to five papers. Patchan and colleagues (2016) had four students swap their 3-page papers. Having multiple reviewers may decrease a particular writing style preference as Stellmack, Keenen, Sandidge, Sipple & Konheim-Kalkstien (2012) found that ratings of students’ improvements in revisions may be biased by the paper editor. Multiple reviewers even out the concern of variability in peer editing quality. With student concerns about feedback from low ability peers not giving enough elaborated and specific feedback (Strijbos, Narciss, & Dunnebier, 2010), multiple reviewers and training can help alleviate these concerns. Multiple reviewers may decrease concern of a peer not giving instructor quality feedback or the student being less accepting of feedback from their peers (Strijbos et al., 2010). Students might also listen more to feedback from the peer than instructor due to the comradery in sharing the task. So my first suggestion is to have multiple reviewers.

Before grouping students together for peer feedback, make sure you have well designed instructions to decrease concern for low ability students giving lower quality feedback (Strijbos et al., 2010). We see a relationship between student writing ability and their reviewing quality with poor writers being poor reviewers and vice versa (Patchan et al., 2016). If you choose to do random assignment for peer groups, multiple reviewers may even out the quality of feedback (even when all are given training and expectations). Another consideration is to match up students by skill level (after initial writing assignment assessed). Cho and MacArthur (2011) found that students writing quality correlated with prior writing skills, as well as the number of comments generated, detections, and solution comments during peer review. By matching writers whose capabilities are nearer to those in the group, all members may have similar quality papers and similar cognitive challenges with editing. Patchan and Schunn (2016) found low ability writers benefited from low ability peers (attending to more low level comments), but high ability benefited from both.

SETTING OFF: SETTING THE COURSE

Given that students sometimes don’t even read the feedback they are given from instructors (Laflen & Smith, 2017), and that they may feel that what is marked is the only work that needs to be done, a top level review approach as the instructor, worked well for me for paper drafts. As the instructor giving feedback, I am focused on expression of ideas and making sure they have captured the recipe for that section of the paper. When instructors review drafts it eliminates extra time spent copy editing as the focus is aiding the student to develop a strong, well thought out (section of the) paper. Students can focus on content from instructor feedback with only errors highlighted if there are serious grammar issues. When following up with students it may be wise to be explicit in considerations of where to work the most on their papers. Low ability students may not make the connections on which aspects to revise that will generate the biggest impact. By using this model for your review of the drafts, you as the instructor decide when to add in more time for developed comments and where to direct their efforts to improve their writing.
After giving students time for revisions, as well as training students on evaluation, critique, and editing tactics, peer feedback is engaged with expectations that students subsequently continue to proof read and revise their paper. This multistep process may help low ability writers by reinforcing strategies and solutions for revising (Patchan et al., 2016). Additionally, training students on how to provide meaningful peer feedback improves the chances of its usefulness and value for subsequent revisions (Patchan et al., 2009; Topping, 1998).

**STAYING ON COURSE: PEER FEEDBACK TRAINING**

Quality training is important (Topping, 2005). Once an understanding of the assignment requirements and expectations for quality of work are understood (rubric, discussion, showing high and low quality papers for class to evaluate), the next step is training students on effective peer feedback. Students need to understand the activity is meant to foster respectful criticism while being assistive and opportunistic. It is common for students to view the peer feedback process as only a corrections activity (Brammer and Rees, 2007) if not given more training on its purpose. Training students to review papers with two level passthrough approach may help ensure peers are giving high level and low level feedback. It is often easier for students to give low level feedback (e.g., copy edits), but the most impactful feedback is from high level prose (e.g., evaluation). Peer read over the paper twice with a different intention each time. The first pass is a low level read looking for issues with spelling, punctuation, word usage, and APA style edits. Copy editing should not be corrections, but alerting the writer to allow the writer to learn and reflect on the feedback given. I ask students not to make corrections as this allows the peer learner to internalize corrections needed from the peer feedback given. Students could also be instructed to look for unknown terminology or nomenclature that should be elaborated on. The second pass is for evaluating and critiquing the paper. The second pass would be for meaning making and a high level read (argument building, counter arguments, transitions). This passthrough includes identifying requirements for the paper have been completed, which may be overlooked (especially in online courses where even with instructions, videos and emails, students may miss assignment guidelines).

Having a two level passthrough approach for giving feedback may help reviewers with weaker writer skills give as much guidance as possible to their peer. Research has shown that students with strong writing quality are typically strong reviewers and vice versa (Patchan et al., 2016). Strong reviewers give more constructive feedback and solutions than low quality reviewers (Patchan et al., 2016). Research has consistently indicated that students who provide feedback and construct comments in turn write better papers than those that just detect errors or rate the quality of the paper (Cho & MacArthur, 2011; Lu & Law, 2012).

During peer edit training, encourage students to use localized comments in addition to solutions and explanations of their feedback as these are important for the writer’s implementation of the edits (Nelson & Schunn, 2009). Localized comments (i.e., writing in the margins, direct quoting, and indicating paragraph number) help the writer identify the error. In terms of editing online, this would be error-flagging with comment or highlight of the error. It is useful for the student to see the comment connected to where the error is in the paper, particularly if reviewing a paper that is three pages or longer. Patchan and colleagues (2016) found that localized comments from peers more likely to be implemented (although fixing localized comments did not impact the quality of the revision). While students are detecting errors and evaluating the paper, they should provide constructive and directive feedback. Directive or solution based comments are helpful for revisions (Cho, Schunn & Charney, 2006; Patchan et al., 2016). Instructors may explain the importance of directive comments that aid the writer to reflect and improve upon their
work (Cho, Cho & Hacker, 2010). Directive comments move beyond describing or alerting them to an error, they offer a solution, or directive comment. By providing more elaborative comments and providing explanations, students learn rather than just revising to improve performance, and they become more aware of skills needed (Nelson & Schunn, 2009). Although challenging for students to tackle, providing high level prose comments impact the quality rating of the revised draft (Patchan et al., 2016). Without a solution and further comment, a low level writer may simply delete or ignore these comments as they are not a simple fix with grammar or correcting a citation.

Part of editing etiquette is providing praise in addition to criticism. Praise is typically well received, considered helpful, and may bolster motivation (Cho, Schunn & Charney, 2006). Students tend to praise their peers more so than instructors when giving feedback (Cho et al., 2006; Patchan et al., 2009). Patchan et al. (2016) examined peer feedback for a 3-page paper written on evaluating a digital news article applying concepts from the introduction to psychological sciences course. Students reviewed four other peer papers, and Patchan and colleagues (2016) found that praises were 64% of total comments, with 52% of all comments being pure praise and 12% of those being mitigating praise. I often will sandwich criticism to students with some praise at the start and end with some critical points in the middle. Interestingly with student feedback in this study (Patchan et al., 2016), students were less likely to implement the criticism when it was mitigated with praise! While praise may be preferred feedback and motivating to students, it has less impact in improving students’ quality of writing compared to when high level prose and solution comments were addressed (Patchan et al., 2016). Bottom line acknowledge there is a role for praise in giving feedback but it is important to be evaluative and give students directive comments to improve their quality of writing.

TIPS FOR THE CREW: PEER FEEDBACK EXCHANGES

Students prefer reading and editing others’ papers than to getting feedback from their peers (Ludeman & McMakin, 2014). Thus, we will also address how to make the feedback useful and used. Emphasize the importance of clear, specific, and explanatory feedback as these are all preferences students have (Lizzio & Wilson, 2008; Ferguson, 2011). Students engaging in feedback discussions ensure the writer comprehends the peer’s evaluation and suggestions for their writing. This can be an important closing step. In some cases, the review exchange could be as short as 5-minutes (Ludemann & McMakin, 2014). For face to face classes, giving some structured class time for peer editing and feedback can ensure that students are able to follow up after the feedback process.

However, some instructors have also gone to using a more anonymous review process, or double-blind, for peer review as students may see peer editing as an intimidating process (Reese-Durham, 2005; Haaga, 1993). If using the anonymous process, you may wish to have an added summary form for the reviewer to fill out in addition to instructions on how to take on and master peer editing. Regardless of the peer review mode, without organization or guidance, feedback can leave the writer feeling helpless or overwhelmed. For anonymous feedback without the peer interaction after the review, feedback should include a short summary of the feedback (what was read, the level of review given), sharing of the checklist or notification of edits with grammar, spelling, or APA, specific instances where the issues were (localized comments), and suggestions on how to improve their writing (directive or solution based comments). It is also important for the reviewer to note if repeated issues occurred with edits to encourage the student to further engage in self-assessment (Nelson & Schunn, 2009). An evaluation ticket or summary form may be helpful for peer reviewers (see Table 1).
Table 1

Evaluation Ticket

<table>
<thead>
<tr>
<th>Evaluation Ticket</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Quick summary of what your reviewed (page numbers, section headers, etc):</td>
</tr>
<tr>
<td>• Specific issues that need to be addressed (remember to note those on the draft):</td>
</tr>
<tr>
<td>• What does the student need to review further for (repeated errors)?</td>
</tr>
<tr>
<td>• Your suggested references from class or course materials to help out writer:</td>
</tr>
<tr>
<td>• One compliment for the writer:</td>
</tr>
<tr>
<td>• Quick checklist: If N, please add comment.</td>
</tr>
<tr>
<td>o Followed APA format? Y or N  Comment?</td>
</tr>
<tr>
<td>o Appropriate citations used? Y or N  Comment?</td>
</tr>
<tr>
<td>o No issues with grammar? Y or N  Comment?</td>
</tr>
<tr>
<td>o Followed assignment instructions? Y or N  Comment?</td>
</tr>
<tr>
<td>o No issues with organization? Y or N  Comment?</td>
</tr>
</tbody>
</table>

TRACKING THE JOURNEY: ONLINE OR PAPER EXCHANGES?

Another decision with peer review is whether to have students exchange drafts online versus working with a paper copy. The traditional feedback is for students to mark up a peer paper with (red) pen markings, and have the comments inserted into the document. With online tracking, there are different programs that can be used (i.e., Turnitin.com, Peerceptiv, Calibrated Peer Review, PeerGrade, or college Learning Management System) or using track changes in Word. See Table 2 for technology options for grouping students with additional considerations depending on your campus Learning Management System. Students can also highlight repeated APA errors rather than correcting when editing online documents – just as one could with a paper formatted version. If the editing is done online, it is important for peers to avoid using track changes that may make it superficial for students to revise as students may just accept changes without reviewing them. If students edit with abbreviations, it is important to share a list of common ones as it may be hard for students to understand. Mandernack, Zafonte, and Taylor (2016) include a list of codes and comments for comment errors in their article appendix for use.
## Table 2

Technology Options for Peer Editing

<table>
<thead>
<tr>
<th>Program/Website</th>
<th>Purpose</th>
<th>Info</th>
<th>Free?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATME SMARTER Teamwork</td>
<td>Tool to help set up effective teams for classes/projects</td>
<td>Tool to build teams, evaluate teams (includes rater practice), teamwork training and meeting support</td>
<td>Yes</td>
</tr>
<tr>
<td><a href="http://www.catme.org">www.catme.org</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn it in</td>
<td>Plagiarism, Revision assistant (instant feedback to student), Feedback studio (give comments and feedback)</td>
<td>Several different tools in addition to plagiarism checks, can be integrated into Learning Management System</td>
<td>No</td>
</tr>
<tr>
<td><a href="http://www.Turnitin.com">www.Turnitin.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peerceptiv</td>
<td>Peer assessment tool, double-blind peer assessment</td>
<td>Based from SWoRD Peer Assessment, includes instructor analytics, student reviews and</td>
<td>No, but includes from free resources (e.g., handout on being a good reviewer)</td>
</tr>
<tr>
<td><a href="https://go.peerceptiv.com/">https://go.peerceptiv.com/</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calibrated Peer Review</td>
<td>Peer review tool where students given training and peer review</td>
<td>Instructor provides assignment and rubric (program includes assignment library), Students go through training and then do peer review, Receive feedback and “back evaluate”</td>
<td>Yes, institutional package pricing</td>
</tr>
<tr>
<td><a href="http://cpr.molsci.ucla.edu/Home.aspx">http://cpr.molsci.ucla.edu/Home.aspx</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PeerGrade</td>
<td>Peer feedback tool, has a set up option and a live option (no set up or student log ins), given basic data on feedback</td>
<td>Instructor adds in feedback rubric, Student can evaluate and interact with feedback they receive, can self grade, has a flag system for instructor to intercept, has calibration component</td>
<td>Yes for basic feature version</td>
</tr>
<tr>
<td><a href="https://www.peergrade.io/">https://www.peergrade.io/</a></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Even if using online software, an instructor could use class time for peer meetings to review feedback or use online meeting software or chat space for students to have an exchange if there are further questions. There has been some research to suggest that students make more revisions using online blogs than in-class paper feedback (Novakovich, 2016).

With either online or paper editing, it is important that the feedback is clear and encouraging. Students prefer developed points rather than short-hand comments for instructor feedback (Lizzio & Wilson, 2008; Ferguson, 2011), which is likely the case as well for peer feedback. Although students prefer more elaborative comments, short comments may be alright for short papers as McGrath, Taylor, and Pychyl (2011) found no difference in revisions for a 1-page paper with the use of short comments verses fully developed and elaborative comments.

**Charts and Maps: Handouts and Other Activities**

For understanding expectations of the peer feedback activity, handouts and examples are helpful. During the peer training students could be shown an example edited paper along with comments or have the class in small groups do a two level pass through of an example paper together. The added training may help students with review quality as well as their own writing practices. The handouts peers use to help them with editing also give structure for feedback to the writer. Although Gielen and DeWever (2012) did not find differences in revision quality between structured and unstructured feedback, structured feedback gives guidance to weaker writers who may need more scaffolding. Instructors can provide sections for editing comments and a checklist for the first pass. The first checklist could include APA style. The handout would also have a section for high level/critical comments for the second pass, and another check list that includes expected components of the paper based on the instructor guidelines.

In consideration of what to add in the handout, Landrum (2013) surveyed Society of Teaching Psychology faculty to find the largest gaps identified between writing skills and faculty views of importance. Common issues included: claims were being made without appropriate supporting evidence, issues writing an abstract, not using direct quotes appropriately/sparingly, not using terms like significant and correlation properly, using personal opinions presented without appropriate framing, using phrases like “psychologists prove ...”, and not properly hedging of conclusions (Landrum, 2013, p. 263). It is also important to instruct students on more high level feedback. In their article appendix, Patchan and colleagues (2009) provide instructions for feedback reviewing for understanding, logic and argument, as well as insight. I have incorporated an example handout for the two pass approach including a checklist with Landrum’s points (Table 3).
Table 3
Sample Two-Pass Peer Handout and Checklist

Reviewer:

Whose paper are you editing:

Directions: Follow the two-pass approach to the review of your peer’s research paper and give constructive criticisms. First review for grammar, basic readability, APA, and other considerations for ease of reading (low level). Alert students to grammar, word use, and APA errors but do not fix/correct. Then take a second read of the paper focused on construction, organization, clarity, transitions, appropriate evidence, and counterarguments (high level).

Remember to give comments directly where you see issues (localized comment) to help alert the writer to the suggestion/correction. Remember the more feedback you give them, the more improvements they will have for revising their paper. For most questions, circle most appropriate response and give suggestions for improvement.

What sections of the paper did you review? (Yes or No)
- Title page? Y or N
- Abstract? Y or N
- Introduction? Y or N
- Method? Y or N
- Results? Y or N
- Discussion? Y or N
- References? Y or N

Student checklist for Introduction section of empirical write up:
- Introduced topic? Y or N
- Problem or importance of topic included? Y or N
- How many articles presented in literature review?
- Is current research cited? Y or N
- Theories adequately described? Y or N
- Provided adequate definitions? Y or N
- Considered strengths/weaknesses of previous work? Y or N
- Measures used in research project mentioned from previous studies? Y or N
- Moves from topic to topic NOT citation to citation? Y or N
- Logical flow to introduction? Y or N
Inclusion of supporting evidence leading to hypothesis? Y or N
Inclusion of replication study or basis of current research? Y or N
Avoided quotes? Y or N
Statement of hypothesis/purpose of study? Y or N

Comments for the Introduction:

References:
Follow APA? Y or N

General Comments:
Strong organization? Y or N
Strong overall grammar? Y or N
Follow APA for headings? Y or N
Follow APA for title page? Y or N
Cited sources when needed? Y or N
Written in past tense? Y or N

Was there jargon or acronyms that were unfamiliar to you? Y or N [if Y, note those terms in comments section]

No use of prove/proves? Y or N

If personal opinion stated, it is appropriately framed? Y or N

Comments:
Remember offering suggestions and solutions for their corrections helps the writer. Also please end with a note of praise or something you took away from the paper that will help you as you are editing your paper.

Your suggested references from class or course materials to help the writer:

Praise:

Thank you for your thoughtful considerations and critical review!
With shorter writing assignments, one type of peer feedback worksheet could be a pre-printed guided evaluation ticket (Campese & Mayo, 1982). The evaluation tickets contain spaces for them to note positive and directive comments for negatives about the paper, as well as a checklist for the peer reviewer to use. Feedback could include general open-ended questions such as: What did the writer do well and why? What did the writer not do as well and why? What would you do to fix improve the paper? Did the writer fulfill the requirements of the assignment – why or why not?. All of these steps can also help with advancing (or raising) the self-monitoring process. This process could still use the two level pass through approach to editing, with a shorter checklist.

Peer feedback can be used in earlier stage of writing (during free writing), emphasizing the expression of ideas rather than editing. Free writing exercises are useful for students to start putting their ideas together. It can be as simple spending around 10 minutes continuously writing without breaks and putting down what comes to mind focused on your paper topic or section of the paper (Dunn, 2013). After students have completed freewriting, peer feedback would concentrate on examining the writer’s expression of their ideas and putting together an evaluative reaction, rather than a copy edit approach (Dunn, 2013). In a free writing approach students are working to build their main points and opening up the writing process for discussion with peers to make sure their ideas are being expressed strongly.

**EVALUATION OF THE EVALUATION: DO I ASSESS THE QUALITY OF THE PEER FEEDBACK?**

Another consideration is whether or not, and how to, assess peer feedback. Students may put forth additional effort knowing instructor will review and grade their feedback. Reviewing feedback can also be insightful for where to improve upon in the training. In some cases, an overall grade is based on reviewing what comments were made and quality of the review. Some instructors ask peers to rate the feedback given and then take that into account when scoring the students’ feedback given. Other instructors allocate points for the activity but may not evaluate the peer feedback, or there are not points given and the peer feedback activity is not graded (Ludermann & McMakin, 2014). Although it adds to the instructor workload, reviewing peer feedback may encourage students’ efforts the student in building reviewing skills, and in turn writing skills. Consideration of grading could include word count (if electronic), use of: criticism and solutions as well as praise, identification of errors, completion of APA checklist, localization of points, and completing the question prompts given. There may also be a system in place in your Learning Management System or peer review program that could help lighten the load for evaluating and grading the peer feedback (Table 2).

**PROVISIONS AND INSURANCES: FINAL THOUGHTS**

If you want another step as insurance that students read and account for feedback given, a final activity shown to be successful for students making revisions after feedback is the use of cover letters (Daniel, Gaze, & Braasch, 2015; Haaga, 1993). Daniel and colleagues had students write a cover letter that reflected upon changes incorporated into their paper following instructor feedback. This same process could be used for post peer revisions and submitted to the instructor for a separate grade. A follow up cover letter encourages further self-review and implementation of feedback given. In the cover letter, students can clearly express agreement when subsequent revisions were made, or express disagreement to peer feedback and expand on why revisions were not made.
In conclusion, establishing effective peer feedback requires preparation and class time for organization, training, and monitoring, but provides relatively low cost opportunities to increase students’ writing skills as well as critical thinking skills in evaluating written work (Nicol, Thomson, & Breslin, 2014). Adding in peer feedback may support students to become better self-reviewers by applying the process used in these peer review activities to their own written work (Dunn, 1994). The entire process teaches students that writing is a process, and may help destigmatization the drafting process. When students interact during peer feedback, they learn and do, rather than just being told how to write better.

Take time to explain and show students expectations for writing assignments with rubrics and examples. Several psychology faculty have shared rubrics in their publications, and there are resources out there for creating rubrics (e.g., Arter & Chappuis, 2007; Gottfried, Johnson, & Vosmik, 2009). Stellmack, Konheim-Kalkstein, Manor, Massey, and Schmitz (2009) have an APA style rubric that can also be used for students APA style editing. Greenberg (2015) provides a task-oriented rubric for the introduction of a research paper in a table from her study. Covill (2012) provides a simple analytical rubric for students to use as a self-assessment tool. In additional to rubrics, example papers give undergraduates a better understanding of what good quality writing is to examine for style, content, and fulfillment of paper requirements. Although not from a psychology course, Cho and MacArthur (2011) share their peer feedback instructions and rubric, as well as examples of good, medium, and poor quality introductions (from a physics lab write up), in the article appendices.

Good instruction along with the coach and peer feedback approach can improve students’ writing, communication, and negotiation/assertion skills (Topping, 1998). These skills are clearly essential for the classroom and beyond one’s academic years with echoing endorsements from the American Psychological Association (APA, 2007), the Association of American Colleges and Universities (AAC&U), as well as employers/workplaces (Hart Research Associates, 2015; Landrum & Harrold, 2003). We, as instructors, can help students to further hone in on these skills by taking class and prep time to develop peer editing tactics.

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METACOGNITIVE WRITING ASSIGNMENT: HOW INSTRUCTORS CAN HELP STUDENTS HELP THEMSELVES WITH A SELF-REFLECTIVE ESSAY FOR UNDERSTANDING FEEDBACK

KATHY L. RITCHIE, INDIANA UNIVERSITY SOUTH BEND

ABSTRACT

A metacognitive process for improving student writing and effective use of instructor comments is introduced using the Self-Reflective Writing Essay assignment. The assignment not only addresses learning objectives focused on writing skills in psychology classes, but also the development of critical thinking, self-regulatory skills, and independent learning processes. After completing a short paper, students reflect on instructor feedback and make a plan to improve on subsequent papers. As part of a Scholarship of Teaching and Learning (SOTL) project, student outcome data was gathered across several courses and paper assignments. Results demonstrated improvement in student grades and confidence in writing after completing the Self-Reflective Writing Essay assignment.

As with most psychology departments, writing is a major component of the learning objectives at Indiana University South Bend. Suggested APA guidelines for psychology programs include learning outcomes that students will be able to demonstrate effective writing by “constructing arguments…using evidence based psychological concepts and theories” (APA, 2013, Learning Objective 4.1A, p.30) as well as “using expert feedback to revise writing…” (LO 4.1g, p.30). Both of these learning outcomes are a part of the natural progress of writing papers in many psychology classes. Instructors assign papers for which students are expected to gather and use theoretical and evidence based materials to critically analyze and formulate arguments about psychological concepts; students write the papers, and instructors comment on the papers while grading them. But, do students actually benefit from the feedback? Do they use it to improve their writing? And, are students using psychological content to make effective, evidence based arguments consistent with critical thinking learning objectives?

Most instructors hope that students make use of the comments they write on student papers. And there is evidence to suggest that students actually value instructor comments and use them to revise their papers (Treglia, 2008; Walker, 2009; Weaver, 2006) often resulting in better performance (Butler & Winne, 1995; Hattie & Timperley, 2007). However, students also often misinterpret the feedback they receive from instructors (Butler & Winne, 1995; Walker, 2009; Weaver, 2006). The process of commenting on student papers is static rather than dynamic, especially when multiple drafts of a paper are not required. Instructors comment and students are expected to learn from this single instance of feedback. If students do not understand the instructor’s comments,

Kathy L. Ritchie, Department of Psychology, Indiana University South Bend. I would like to thank Carolyn Schult for advice on an earlier draft of this manuscript as well as thank my students for allowing me to constantly assess their learning as well as the honor of helping guide them through their learning. Correspondence concerning this article should be addressed to Kathy L. Ritchie, Department of Psychology, 1700 Mishawaka Avenue, South Bend, IN 46634. E-mail: kritch@iusb.edu
then they cannot improve their writing for the future. In addition, students often view such static, one-time comments not as invitations to learn, but rather in an emotional way. They often interpret comments in terms of why they got certain grades rather than as opportunities for improvement (Best, Jones-Katz, Smolarek, Stolzenburg, & Williamson, 2015). Moreover, negative comments may discourage students rather than motivate them to change their writing (Weaver, 2006).

Students also have preferences for certain types of comments they regard as helpful, but instructors do not always use these types of comments. For example, students find vague comments very unhelpful and prefer comments that are specific and promote skill development by explaining what the student did wrong, what is expected, and how to reach those expectations (Hattie & Timperley, 2007; Walker, 2009; Weaver, 2006). It should provide specific advice and constructive criticism about how to improve or “reduce the gap” between the student’s writing and what is expected from the assignment (Lunsford, 1997; Weaver, 2006). Language that is too vague is often not anchored in the student’s text (Sommers, 1982) and thus can be difficult to interpret. Comments which are not connected to assignment criteria often lead to confusion about the assignment and how to improve (Weaver, 2006). General statements about good writing do not help students improve for that assignment. Students also like positive comments that point out in what ways they wrote well, once again focusing on giving specific contextualized details rather than broad comments (Nicol & Macfarlane-Dick, 2006; Weaver, 2006). When students are given vague, decontextualized comments, they often focus more on their grades rather than improving their writing. In a static situation when students receive a grade and comments, students may be unlikely to view the comments as learning opportunities.

In such cases, the static nature of instructor comments also misses the opportunity to achieve another important goal. Not only do students fail to improve their writing, they don’t take ownership of their own learning. The goal is for students to learn how to write better by using feedback to identify issues in their writing and then learn how to correct these issues themselves (Lunsford, 1997; Nilson, 2013). Metacognitive processes, including self-regulation, help students to achieve this goal of independence in learning and performing better on academic tasks (Nilson, 2013). Part of self-regulation and metacognitive processes is self-reflection and efficacy (Feltham & Sharen, 2015; Panadero, 2017; Sitzmann & Ely, 2011), monitoring (Butler & Winne, 1995; Sitzmann & Ely, 2011) and planning or goal setting (Panadero, 2017; Sitzmann & Ely, 2011). Receiving comments on a paper acts as an external source that can activate internal monitoring processes in the student (Butler & Winne, 1995). However, in the typical process involving instructor feedback on written work through comments, this feedback might provide only minimal guidance in how to monitor writing problems. For learners, the feedback process should be much more deliberate (Butler & Winne, 1995), including instruction on how to complete self-regulatory metacognitive processes such as monitoring and planning. To develop writing skills, instructors should give useful and understandable feedback (Hattie & Timperley, 2007), but students must also be trained to use it as an autonomous, independent learner (Butler & Winne, 1995; Hurd, 1998) by training them how to regulate their own writing development and how to use and understand feedback (Feltham & Sharen, 2015; MacArthur, Philippakos, & Ianetta, 2015; Nicol & Macfarlane-Dick, 2006; Weaver, 2006).

Learning is often a transactive process by which students engage in dialogue with a more knowledgeable individual who guides them. Comments written on a students’ paper often lack that conversational, transactive nature (Fife & O’Neill, 2001). Feedback should not be unidirectional, but rather should encourage instructor and student dialogue (Nicol & Macfarlane-Dick, 2006; Straub, 2006). Such dialogue encourages instructors to guide students through the
process of learning to write in their own voice. We need “to position students to speak authoritatively not only through their writing, but also about their writing (emphasis in original; Fife & O’Neill, 2001, p. 303). Thus, we need a method of commenting and giving feedback that encourages dialogue between the instructor and student, while helping students to have primary ownership of their own texts and learning through metacognitive, self-reflective, processes.

There are many ways to help students develop the ability to effectively understand and use feedback to improve their writing. For example, Daniel, Gaze and Braasche (2015) had students write cover letters, similar to journal editorial processes in professional settings, when responding to feedback on an earlier rough draft, and it led to better writing on the final draft in experimental methods classes. But, what about cases for which multiple drafts are not required, or in courses not focused on methodology? The general goal should be an approach which can be used for multiple assignment formats and also which leads to a dialogue between instructor and student that is focused on teaching students how to improve their own writing rather than focusing on grades. Such an approach should also help students become more metacognitively aware of their own writing skills, taking ownership of the need to improve as an independent learner. One such potential approach is to use metacognitive or self-regulated learning approaches designed to help students focus on the feedback they receive and interpret it in light of their own learning. In particular, focusing on the metacognitive skills of monitoring and planning might help students in revising their writing. Students must think through and plan how to revise their own papers, and also how to learn from that process. I use such an assignment which I call the Self-Reflective Writing Essay.

THE SELF-REFLECTIVE WRITING ESSAY ASSIGNMENT

The Self-Reflective Writing Essay assignment is embedded within and can be used with ANY other writing assignment. For the purposes of this discussion, the term “essay” will refer to the actual Self-Reflective Writing Essay Assignment, and the term “paper” will refer to the writing assignment in which this process is embedded. Though the self-reflective essay can be used for any paper assignment, it works best if students will be turning in drafts of a single paper or, as in my classes, several small papers throughout the semester. More specifically, students write repeated, small papers synthesizing course content and an activity. The assignments and the rubrics for each vary across classes, but in order to meet my learning objectives, each has two elements.

First, students complete a hands-on activity with real world connections. For example, in Marriage and Family classes students might attend a family dinner of a friend, ride a city bus while observing families, or even pretend they are applying for public aid. I also teach a freshmen only Parenting course in which students read a comic strip and make repeated journal entries about the strip. Students in my Lifespan Development course interact with individuals of different ages doing observations on play grounds for peer development, life interviews of elderly individuals, or observations of infants as they learn a physical skill. All of these are focused on hands-on activities that take the student OUTSIDE of the classroom. However, the activity for which I started the Self-Reflective Writing Essay assignment is the Virtual Child Papers assigned to my Child and Adolescent Development students (Ritchie, 2017). Students complete an on-line program that simulates raising a child from birth to 18 years old (Manis, 2015) and then write five papers throughout the semester about the child’s physical, cognitive, and social development.
Second, for these papers, students MUST make explicit connections between course material and the activity, specifically explaining HOW the activity is linked to the course content. They cannot simply use a term and define it. They must critically analyze how the activity demonstrates the term and definition. This critical analysis is highlighted in assignment instructions and rubrics. Unfortunately, it is also the part of these assignments with which most students struggle and is the primary reason I started using the Self-Reflective Writing Essay assignment.

The actual Self-Reflective Writing Essay assignment is done AFTER the first short paper has been completed and returned to the students. We then discuss general comments or trends in class about this paper. Because the Self-Reflective Writing Essay is embedded in a paper assignment, it is important for students to complete a written paper assignment, receive feedback, and then complete the actual Self-Reflective Writing Essay assignment. In my class, after students receive this feedback on a paper assignment, they immediately write the Self-Reflective Writing Essay in class answering these three questions:

1. What was a comment that I wrote that you thought was important?
2. What is your interpretation of that comment?
3. What is your plan to either improve or maintain your writing quality based on this comment?

Upon completing the Self-Reflective Writing Essay, there are three options for how to give it to the instructor. Students can turn in the essay right away and the instructor can then give them feedback specifically on how they interpreted a comment and on their plan; the feedback can be done verbally and immediately. Or, the instructor can collect the essays and then write feedback about the plan on to the actual Self-Reflective Writing Essay to give to the student at the next class. These two options allow instructor and student to develop a dialogue in which the instructor becomes a mentor while also allowing the student control over the process. Another option is for students to keep the essay and turn it in with the next paper assignment with an explanation of how they implemented their plan. This option allows greater depth to the metacognitive process as they must now explain their thinking about how they implemented the plan and also continues to encourage students to control the process of writing. It is similar to Daniel, Gaze, and Braasche’s (2015) cover letter practice discussed earlier.

With any of these options, after writing the essay, students complete the next short paper assignment and I then check whether they achieved their goals or not based on their plan in the Self-Reflective Writing Essay. If not, I can give clearer feedback about why not. If so, I gave feedback on exactly how the student did achieve the goal. This step is critical. Giving students feedback about their metacognitive processes is important if they are to become independent learners.

The process can then be repeated for each paper assignment or draft if necessary, though I usually only do so for students who struggled with the first self-reflective essay. I do, however, often have the class complete a second self-reflective essay for a paper in another class, a report they might write in the future as a professional in their own field, or about their writing in general. The purpose of this general self-reflection is to encourage them to see writing different reports as interconnected, such that what they learn about writing on one paper can be used to plan for future papers.

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This Self-Reflective Writing Essay assignment has several strengths, which also connect well with several APA suggested student learning objectives (see APA, 2013).

The self-reflective essay is geared to help students improve their own writing, and as previously discussed helps meet the suggested guidelines for student learning objectives for writing (see APA, 2013, learning objective 4.1), in particular how to effectively use expert feedback to improve writing. An important goal of the Self-Reflective Writing Essay is to help students learn to effectively use my comments and feedback, by applying them to papers not only in my own classes but also to their writing in general. Students sometimes need to be taught how to analyze their own writing and understanding of instructor feedback (Hattie & Timperley, 2007; Nilson, 2013). By giving students the Self-Reflective Writing Essay, we can give students two levels of feedback. First, we give feedback on the original paper assignment, but we also then give further feedback on the self-reflective writing essay itself, that is, about their plans and interpretations of the original feedback. Thus, we engage in a dialogue guiding them in the process of how to make revisions to their writing using instructor comments and feedback (Nicol & Macfarlane-Dick, 2006; Straub, 2006). In essence, we help them learn how to do self-reflection and metacognitive processes about their own learning and writing. They learn which comments might be most important, how to interpret the comments, and most importantly how to revise their writing in terms of the comment. They take ownership of the process of revision, which then leads to even further engagement with learning (Hattie & Timperley, 2007).

Another component of the Self-Reflective Writing Essay assignment concerns critical thinking. In order to use expert feedback effectively and more importantly make concise and clear arguments using psychological theories and evidence, students must be able to critically analyze the psychological material and the expert feedback, discern what are the most important concepts, and then integrate them using the feedback into a revision or future papers. Critical thinking is also important in the APA guidelines (see APA, 2013, LO 2.1 – 2.5 and 4.1A). The goal to encourage critical thinking in our students includes the ability to “develop plausible behavioral explanations that rely on scientific reasoning and evidence rather than anecdotes or pseudoscience” (p.20) as well as engaging in integrative thinking while problem solving and incorporating socio-cultural factors into analyses understanding how personal biases can impact thinking (see also, APA, 2013, LO 3.3). Thus, students are encouraged to use evidence based information, to analyze that material beyond their own personal experiences, and integrate that material into a coherent argument. The Self-Reflective Writing Essay encourages students in this critical thinking process because students must reflect on whether or not they have achieved this goal, and if not, must plan how to do so on future papers. Thus, linking psychological course content with their arguments and narratives is an important goal in my writing instruction. In fact, a common interpretation students give on the Self-Reflective Writing Essay is the need to better integrate psychological content into their papers as evidence of their points.

A second way critical thinking is integrated with the Self-Reflective Writing Essay is that it encourages problem solving and the metacognitive processes of monitoring (Butler & Winne, 1995; Sitzmann & Ely, 2011) and planning
The particular format of the Self-Reflective Writing Essay assignment is designed to heighten both these elements of critically thinking through a problem. Students must first decide which feedback is most important and interpret it, a process of monitoring their own learning. Second, this essay assignment makes them construct a plan for a future paper. Then, the instructor can assess how well the student implemented that plan and re-comment. This “re-comment” is essentially monitoring the students’ implementation of the plan, once again highlighting both monitoring and planning processes in problem solving. Thus, students are given feedback on metacognitive learning processes themselves, an important step to helping students become self-regulated learners and critical thinkers with effective problem solving skills.

INDEPENDENT LEARNERS AND METACOGNITIVE PROCESSES

The last goal that I employ in all my courses is to help students develop as independent learners. Ultimately, my students are in charge of their own education, and this includes their writing. The Self-Reflective Writing Essay encourages students to take control over the process and more importantly to become self-aware about their own learning and writing. APA suggested guidelines for student learning recognize this important idea (see APA, 2013, LO 5.2, and 5.3). Students should be able to “accurately self-assess performance quality” as well as “attend to and monitor the quality of their own thinking (i.e., make adaptations using metacognitive strategies)” (p.34). In addition, self-regulation is an important goal. My role is as a guide and mentor in their own learning process. To achieve this goal, I give assignments that encourage them to think critically about their own experiences, to achieve understanding of the psychological content of the course, and to write effectively. And, I then give them feedback on how well they have achieved these goals. However, it is their responsibility to use that feedback to self-regulate and assess their own performance, making changes when necessary. For many students, this self-regulatory metacognitive process is still developing and we as instructors must guide them in the steps to accomplish this independence, helping them to become both more competent writers as well as more confident in their own abilities. The Self-Reflective Writing Essay is an important tool to help them learn how to regulate their own writing as it teaches them the steps necessary to write effectively.

Moreover, the Self-Reflective Writing Essay assignment encourages students to be independent learners because it is student driven. One of the greatest benefits of this process is that it results in the kinds of feedback that students actually prefer and find the most helpful. Students prefer contextualized, less vague comments which explain what is wrong and how to improve it without actually correcting the problem (Walker, 2009; Weaver, 2006). By giving feedback on the self-reflective essay, the instructor is commenting on the students’ interpretations of previous comments. Thus, the second wave of comments are grounded within the context of the previous comment and are geared toward further explanation of how to improve. Moreover, it is grounded in the students’ own voices. A critical problem for many instructor comments is that students often feel the need to change their writing to the comment in order to get a particular grade, even if the comment does not reflect their own ideas and directions (O’Neill & Fife, 2006). The self-reflective essay allows instructor and student to enter a dialogue focused on student thinking, interpretations, and plans (Nicol & Macfarlane-Dick, 2006; Straub, 2006). The student is in the driver’s seat; thus, the student’s voice and ideas are at the center of revisions rather than the instructor’s ideas. This process focuses on the student’s ability to become an independent learner.
SCHOLARSHIP OF TEACHING AND LEARNING (SOTL) DATA

In order to test how effective the Self-Reflective Writing Essay assignment was in improving student writing in my courses, I gathered data from paper grades, the self-reflective essay and students’ attitudes about their writing.

PARTICIPANTS AND METHODS

Though not all the potential student learning outcome goals were assessed in my courses, I did assess improvement in writing ability and in students’ reflections of their ability. Across the 195 students in eight participating classes, 95 students completed both the self-reflective essay and a pre- and post-test measure of their attitudes concerning their writing. Another 25 students completed just the pre- and post-test but did not complete a self-reflective essay. These 120 students constituted the sample, including 47 students across two sections of Child and Adolescence, 18 students in Life Span Development, 39 students in two sections of Marriage and Family Relations, and 16 students in one freshmen-only section of Parenting. Of those who completed the self-reflection, eight (8.4%) did not achieve their goal; 22 (23.2%) partially achieved their goal but need further development, and 65 (68.4%) did achieve their goal. These three groups along with the group who did not complete the essay formed the groups for the statistical analyses.

The methodology for assessing writing improvement and student attitudes began when students completed a pre-reflection measurement of their attitudes about their own writing within the first two weeks of class. The measure consisted of 22 to 31 separate ratings on a variety of topics, though this analysis only focused on six ratings made on a likert scale from 1 (strongly disagree) to 5 (strongly agree). Students rated their general attitudes about how well they write, how often grammar is a problem, how confused they are about instructor comments on their papers, how much they dread writing, whether they wished they wrote better, and how cohesive is their writing. Sometime in the following weeks, students wrote a short (1-3 pages) paper as part of the class assignments. After grading the paper and making comments on a hard copy, I handed back the papers and we discussed them in class. At that time, students completed the Self-Reflective Writing Essay in class. I collected them and made additional comments on the essay, which I passed back at the very next class after making a copy for my records. In a few weeks, students wrote a second paper assignment, which I graded providing feedback as well. Then, I turned to the copy of their self-reflective essay and made additional comments on that copy based on whether or not the student had achieved the goal. Next, I handed back the copy of the self-reflective essay and their second paper. In the last week of the semester, students again completed the attitude ratings as a post-reflection measure.

RESULTS

STUDENT OUTCOMES

From the self-reflective essays, 64 out of the 95 students (67.4%) who completed an essay made goals focused on linking conceptual material from the class to the assigned activities, a component of critical thinking. In addition, 23 (24.2%) noted that they needed to read the assignment and/or rubrics more carefully in order to complete all elements of the assignment, an aspect of planning and monitoring their writing. Also, 42 (44.2%) felt they needed
to address structural changes in their paper including writing better introductions, reorganizing around main themes or conclusions rather than simply describing the activities, properly explaining quotes, and writing conclusions which synthesized the main conclusions of the paper, all basic writing skills. Another 32 (33.7%) felt they needed to give more details or better examples to properly support their main themes or draw the links between course material and the activity a little better, again focusing on critical thinking. Only 11 (11.6%) mentioned needing to work on grammar. Thus, the majority of students focused on structural and conceptual improvements to their paper that should lead to more critical thinking and application of the course content rather than just grammatical issues. This point demonstrates that students were reflecting on their writing with depth, trying to understand my feedback more fully. In the literature, students often struggled in interpreting instructor comments (Butler & Winne, 1995; Walker, 2009; Weaver, 2006); however, by using the Self-Reflective Writing Essay in class, students were able to use course discussions to reflect more immediately about their own instructor comments, perhaps understanding them more completely.

Moreover, a 2 (Paper Time) x 4 (Achievement Status) repeated measures ANOVA comparing pre-reflection to post-reflection paper grades shows that those that achieved their goals improved scores more than those who did not achieve it, achieved it partially, or did not complete the reflection, $F(3,115)=8.826, p<.001$. Interestingly, those who only partially achieved their goal actually saw a decrease in paper grades (see Figure 1). A post-hoc analysis of student goals demonstrated that those who did not achieve their goal often did not understand my feedback, made goals that were very vague, or wrote goals that did not quite pull out every aspect of my comments (e.g., they wrote about needing to bring in course material but not to explain how it related to the activity in detail). Thus, these students needed more help understanding the feedback. Though this data is limited by the non-experimental methodology, it is interesting to note that those who did not complete the Self-Reflection Writing Essay assignment started with similar first paper grades as others, but did not improve.

Figure 1

![Means Across Two Paper Grades by Achievement Status](image-url)
Students demonstrated improvement in their writing through the self-reflection by the high percentage who attained their goals and by increases in paper grades for those who achieved their goals, but I also wanted to see if the self-reflection would change students’ attitudes about their own writing. In order for students to become more independent as learners, they need to appropriately interpret and use feedback, but they also must become more mindful of their own abilities. Using 2 (Time) x 4 (Achievement Status) repeated measures ANOVA on six pre- and post-reflection attitude measures, all students showed a decrease in their dread of writing, $F(1,116)=19.811, p<.001$, a decrease in ratings of wishing they wrote better, $F(1,116)=13.074, p<.001$, and an increase in thinking their writing was cohesive, $F(1,113)=7.780, p=.006$. An interaction effect also showed that those who did not achieve their goal or did not complete the essay were significantly more concerned with grammar over time, $F(3,116)=3.121, p=.029$, as well as tended to be more confused about the feedback over time compared to the other groups, $F(3,116)=2.382, p=.073$ (see Table 1). Thus, students gained more confidence in their writing, but tended to be more confused by feedback if they did not achieve their goals or did not participate in the self-reflective essay.

Table 1
Means for Paper Grades and Attitude Pre and Post Self-Reflection for Achievement Groups

<table>
<thead>
<tr>
<th>Achievement Group</th>
<th>Paper Grade</th>
<th>Write Well</th>
<th>Grammar Problem</th>
<th>Confused</th>
<th>Dread Writing</th>
<th>Wish Better</th>
<th>More Cohesive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>Did Not Complete Essay</td>
<td>90.2</td>
<td>91.2</td>
<td>3.80</td>
<td>80.80</td>
<td>2.2</td>
<td>4.252</td>
<td>2.08</td>
</tr>
<tr>
<td>Goal Not Achieved</td>
<td>79.0</td>
<td>81.2</td>
<td>4.00</td>
<td>63.00</td>
<td>1.6</td>
<td>3.250</td>
<td>2.13</td>
</tr>
<tr>
<td>Goal Partially Achieved</td>
<td>91.0</td>
<td>96.5</td>
<td>3.86</td>
<td>95.86</td>
<td>2.4</td>
<td>1.209</td>
<td>2.18</td>
</tr>
<tr>
<td>Goal Achieved</td>
<td>91.7</td>
<td>96.8</td>
<td>3.94</td>
<td>14.94</td>
<td>2.3</td>
<td>8.238</td>
<td>2.05</td>
</tr>
<tr>
<td>Overall</td>
<td>90.4</td>
<td>92.3</td>
<td>3.93</td>
<td>05.93</td>
<td>2.3</td>
<td>3.33</td>
<td>2.08</td>
</tr>
</tbody>
</table>

Note. * p<.05, **p<.01, ***p<.001.
INSTRUCTOR OUTCOMES

Any change in instruction can lead to changes in the instructor just as much as it can change student learning outcomes. After instituting the Self-Reflective Writing Essay assignment, I began to note anecdotally a change in my own grading and feedback. I already used rubrics and detailed assignment handouts, and though some students were writing well, I got frustrated writing the same comments over and over on student papers, in particular the need to think critically about how to link course material and the activity. However, instituting the Self-Reflective Writing Essay assignment on my feedback resulted in three changes to my grading. First, my comments became richer and more detailed. In fact, students actually demanded it. Students prefer comments that help to “reduce the gap” between our expectations as instructors and their actual performance (Hattie & Timperley, 2007; Lunsford, 1997; Walker, 2009; Weaver, 2006). Second, my feedback, especially on the post-reflection paper assignment, became highly individualized for each student. I looked at their goals and how they were progressing toward those goals, noting where they had improved or where they could bring in additional explanations, rather than simply on my goals for that assignment. Thus, a student who really needed to focus on reorganizing a paper was given specific feedback about how well he or she had organized this subsequent paper around general themes, pulling out comments about how a particular sentence had achieved that goal or how the student could think critically about general themes to his or her particular paper prior to writing. My comments became longer and more individualized. This particular change is consistent with literature that helpful comments are contextualized in the students’ own papers, rather than vague advice (Sommers, 1982). Third, and to me the most critical change, I began to focus on when my students did well, not just poorly. Instead of just writing “good,” I began to write about how students achieved their goals in a particular, individualized way. A student who had mentioned course material but did not fully integrate that material with the particular activity in the first paper would get several sentences about how the second paper specifically achieved that goal. For example, I would point out sentences where they defined a concept and showed how that definition fit with an observation of a developmental or family process. Since students also prefer positive comments that demonstrate when they write well (Nicol & Macfarlane-Dick, 2006; Weaver, 2006), the changes to my feedback as a result of the Self-Reflective Writing Essay assignment also encouraged students to improve. Comments were specific, positive, and highly individualized.

The downside to this process unfortunately is that such detailed and individualized feedback necessitated a greater time and organizational commitment from me as an instructor. First, I had to give students detailed assignments and rubrics. On their first papers, I wrote out comments as usual. Then, after students had written their self-reflective essay, I had to match the first paper, self-reflective essay, and second paper for each student in order to grade the second paper with such detail and to note whether the student had achieved the desired goal. In addition, in the freshmen class, students got feedback on the actual self-reflective essay prior to writing the post-reflection paper. Thus, for the freshmen, there were three points at which they received feedback from me. This is a very time-intensive process and also required me to keep track of and copy each of the three pieces of writing from each student (graded pre-reflection paper, self-reflection essay, and the graded post-reflection paper). However, I found that subsequent papers were substantially better and required less time to grade. Thus, the grading effort required was “front loaded,” easing as students performed better. I could then spend more time focused on those who were still not achieving their writing goals.
CONCLUSION

Generally, the student outcome data demonstrates the improvement in both paper grades and in some attitudes about their writing, specifically for students who completed and achieved their goals in the Self-Reflective Writing Essay assignment. The shift in paper grades, content of their self-reflections, and their attitudes about their own writing demonstrate that the Self-Reflective Writing Essay process helps students achieve important learning outcomes. Most notably, students saw improvement in writing effective papers as well as less confusion about feedback. Because most student goals focused on either organizational issues or in critically linking course content with the assigned activity, this Self-Reflective Writing Essay process may have helped students develop both critical thinking skills and a process by which they gained confidence in and awareness of their own learning and writing ability. These findings point to the potential utility of the assignment to improve student writing as well as to encourage metacognitive processes of monitoring and planning.

In addition, the nature of the feedback process changed for me as an instructor. Students received more detailed and contextualized comments because I was able to focus on their own goals to improve their writing.

There are, however, some weaknesses both in the data and in the assignment. Grading the first few papers was more time intensive. Moreover, the student outcome data is non-experimental, so we cannot conclude exactly what caused student improvement. Still, those who did not even complete the essay did not see improvement in paper grades, focused more on grammatical rather than substantive issues, and tended to be confused by comments. Thus, the assignment appears to help students understand and use comments better. Future research might focus on why these students did not complete the essay, though most likely they were not in class on that day, as well as why some students still did not achieve their goals. For example, perhaps time management or general comprehension affect these students’ performance. Research should also focus beyond anecdotal evidence how this process affects instructors. In conclusion, utilizing this metacognitive tool of the Self-Reflective Writing Essay can help instructors reach learning objectives by improving student writing, critical analysis, and most importantly, helping students to engage in their own learning process.

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This chapter describes a reflective essay that I use in almost all of my courses to help students identify what they have learned and how they might apply it beyond the end of the course. Reflective writing has been found to improve retention of material, probably through increased rehearsal, the self-reference phenomenon and the sharpening effects of having to translate episodic memory into writing. For at least a decade, I have assigned a reflective essay at the end of almost every course I have taught. The essay is due on the last day of class, allowing students to share their “lessons learned” with one another. While most students enjoy articulating their progress, it also provides information on how well students are meeting the course objectives and which readings and activities seem to work best for the most people.

Students typically arrive at college with a host of beliefs about how to learn in an academic setting. Unfortunately, many commonly held beliefs are wrong and lead students to waste study time with strategies that are not valuable and may even be counterproductive (Putnam, Sungkhasetee & Roediger, 2016). One of the important ways faculty can help students succeed is to offer them more effective ways to learn and to be up-front about the objectives of these techniques and why they are effective.

Research has illuminated a set of cognitive processes that enhance learning. Rehearsal of information is useful, but mostly when it involves elaboration, connecting new information to what we already know (Putnam et al., 2016). Connecting it to information about ourselves - known as the self-reference effect - is especially powerful. Information that relates to salient aspects of oneself is robustly remembered better than information that is not (Klein, 2012).

One popular elaborative technique is inquiry-based learning, in which students use questions or problems to construct knowledge based on available information, rather than simply memorizing it. Questions about oneself again harness the self-reference effect to improve learning. If one of the objectives of a course is to help students improve their daily lives in some fashion, then connecting the information to themselves is essential. According to Foote (2015), reflective narrative requires both deep processing and meaning-making, which makes it potentially transformative. Lindh and Thorgren (2016) suggest that this may be partly because it allows students to re-evaluate their self-concept as they refine and extend their understanding of the course subject. Evidence suggests that students themselves recognize the value of such exercises, which helps with motivation (Lindh & Thorgren, 2016; Rusche & Jason, 2011). Elaboration, then, is the basis of writing to learn.
REFLECTION AND WRITING TO LEARN

Writing to learn is the term (coined by Zinsser, 1988) used to describe a set of practices in which students reason through a topic more deeply by writing about it. Obviously, to do such an assignment with reasonable effort requires deep processing and rehearsal, both of which enhance learning (Brown, Roediger & McDaniel, 2014). Reflective writing adds the component of one’s own experience.

Among practices often flagged as having greatest impact, writing to learn is associated with positive attitudes towards learning, and capstone experiences are associated with inclination to inquire and commitment to lifelong learning (Kilgo et al., 2015). There is some indication that high-impact practices of this kind are particularly helpful for students who come in with weaker academic skills (Seifert et al., 2014), perhaps because the better-equipped students make these connections anyway. It is also important to “ask the right question at the right time” (Fry & Villagomez, 2012). To be both effective and engaging for students, questions need to become more challenging and require more analysis as the semester progresses. For these reasons, the end of the semester seems like an excellent time for students to do some in-depth reflection.

THE REFLECTIVE FINAL ESSAY ASSIGNMENT

I confess that I originally adopted this assignment for other reasons. At Allegheny College, where I teach, first-year students are required to take two non-disciplinary courses in writing and speaking, one each semester. Having taught both the first-semester and the second-semester courses, I was struck by how often students went from one to the other without paying any attention to what their strengths and weaknesses were in those areas. I initially devised this for the end of the first-semester course, to help my students transition more successfully into the second-semester course. I asked them to specify their goals, strengths and weaknesses or challenges at the beginning of the course, and then had them revisit those for the final assignment. I then discovered that I could learn a lot about what students remembered, liked (or didn’t) and seemed to profit from by reading their self-reflections on the course. As a result, I began using the exercise in my other courses, and now assign it in virtually every course I teach. It was only later that I recognized that the students probably benefit from completing this reflection shortly before taking the final exam or as part of assembling their final portfolio.

One of the virtues of this assignment is the ease with which it adapts to almost any course, since the point is reflecting on what has been learned. Many disciplines now have handbooks available that can help with choosing questions to shape the assignment - in some cases by having an exercise earlier in the term that then informs the final reflection (e.g., Dunn, Halonen & Smith, 2008; Froh & Parks, 2013). Common to every version of this assignment is something like the following instruction:

The purpose of the reflection paper is to help you reflect on your work in this course and what you have learned from it. Please note that this is not an evaluation of the course (been there, done that) – this is an evaluation of yourself and your experiences, and the goal is for it to contribute to your learning process.
A reflection that is thoughtful, honest and realistic will be most useful to you. The questions below are simply meant as guidelines; you can reorder them, omit some and/or add other aspects if you wish. Don’t, however, just write a list of answers: try to integrate them into a coherent narrative.

Begin by reading [specific assignment given here]...

The reading assignment varies - sometimes the last chapter of the textbook, sometimes an article I’ve chosen for the purpose. This is followed by a set of questions. Tailoring the assignment to the course thus involves both the choice of the final reading and the questions listed. Some questions are included in all of these assignments:

- Did you meet the goals you set for yourself at the start of the course? Did your goals change during the semester?

- Did you acquire or significantly enhance any skills or habits that are important to you? What have you learned about changing a habit or skill – or helping someone else change theirs?

- What reading, assignments or events had the most impact on you, and why do you think that was?

- What seem to you to be your greatest strengths, your shortcomings, and your best opportunities for growth with respect to the issues and material covered by the course?

Following these, I add a couple of questions linking their experiences to aspects related to the course. For example, in most of the first-year seminars, we do community-based learning, so I ask them whether their understanding of community has changed and whether or not they plan to continue with any of the kinds of community involvement they have done during the semester. In an advanced psychology course on food and hunger in society, I assign Rozin’s 2007 article on finding and filling holes in research. I then ask them what “holes” and “piles” they notice and what, if they were going to do research in this area, they would fill first, and why. In Positive Psychology, I often begin the course by giving them a set of problems to solve in small groups and then talking about the IDEAL model of problem solving (Bransford & Stein, 1993). When I give them this final assignment, I refer back to the model, pointing out the key role played by learning from one’s experience (the L in IDEAL), and we discuss how this can help them make use of their new knowledge in the future. In one of the first-year seminars, students make scrap art projects, and the final reflection is linked to their art project. In courses that use a textbook, the final chapter often poses the kind of “big picture” questions that are helpful for reflection.

I tell students that the length is flexible, but a thorough response will typically take around two pages, double-spaced (three for an upper-level class). For the first year writing seminars, where we talk a lot about audience, I add that the audience is first themselves, followed by the class and me, since I ask them to share some portion of what they write during the final day’s discussion.
CLASS DISCUSSION OF THE ESSAYS

Some courses I teach, like Positive Psychology, are usually too big to have a full discussion of their responses. In that course, because we have read or listened to Randy Pausch’s famous lecture, “Really achieving your childhood dreams (2007),” the language of “lessons learned” is already familiar territory, so I ask them as part of the written assignment to make a list of their own lessons learned. Then I ask them to make a power point slide with one or two of their favorite lessons - pictures optional. They send me the slides in advance and I combine them into a slide show for the class. I incorporate some of my own lessons and occasionally a few from past classes that I thought were particularly helpful. On the last day, we watch the slide show and discuss it in whatever time remains.

In other classes, we devote the whole last class to the discussion. I use the questions from the assignment to structure the discussion, but if it wanders off in a profitable direction, I allow that to run its course before asking the next question. Particularly in the upper level courses, where students are more adept at class discussion, it is clear that they often bring one another to new insights beyond what they achieved in the writing portion of the assignment.

GRADING OF THE ESSAYS

Students tell me I have a reputation as a tough grader - and my course averages are generally below the departmental mean, so they are apparently right - but this assignment is one exception, and I make that clear in advance. Since the value of the paper is in the doing, I give them eight points out of ten just for making a good-faith effort on the assignment (touching on most or all of the questions, referring to the reading as assigned, and so forth), and it is rare that a student gets less than eight points. I tell them that there are no intrinsically right or wrong answers to the questions, just more or less helpful ones, and I underscore the passage in the instructions that says, “A reflection that is thoughtful, honest and realistic will be most useful to you.” I give an extra point or two for essays that are exceptionally thoughtful or insightful, or where extra care and effort seems to have been taken, such as adding their own questions to the list. Even in the first-year seminars, I don’t base the score in any way on writing skill, though I do encourage them to show off what they have learned. Some of the best essays come from students who don’t think of themselves as good writers (I fondly recall one essay that began, “I’m not a good writer - never have been,” and then went on to blow me out of the water).

As Eggleston and Smith (2004) point out, after spending a semester developing a sense of community in the classroom, it is important to provide closure at the end. This assignment does many of the things they recommend: it gives students an opportunity to summarize central ideas from the course; it contributes to their sense of accomplishment; and, most importantly, it gives them something to take away - a chance to say to themselves and to one another, “I was there, now I’m here.”

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PRACTICE QUESTION NOTEBOOKS FOR SPACED LEARNING, RETRIEVAL PRACTICE, AND LOW-STAKES ASSESSMENT

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ABSTRACT

Over the course of the semester, I ask students to complete many in-class practice questions in a blue book. Students learn more from practice questions when they receive credit for high-quality responses (Brown, Roediger, & McDaniel, 2013), so I collect blue books at the end of each class period and incorporate responses into participation grades. Practice questions are short answer, and they focus on describing and applying key concepts, not minutiae. This is a great way for quiet students to boost their participation grades and to reward students for studying throughout the semester, not just before exams. It also can help students evaluate their learning.

How many instructors would agree with these statements?

“I’d like my students to actively think more during class.”

“I want my students to study before each class, rather than cramming.”

“I can’t always tell how many of my students are completing, let alone understanding, the readings.”

In this chapter, I’ll describe a practice question notebook assignment that may help to address these challenges. This assignment can work well for lower- or upper-level courses on a variety of topics.

WHAT’S A PRACTICE QUESTION NOTEBOOK? HOW DOES IT WORK?

At the beginning of each semester, I ask students to provide a blue book, separate from the notebook they use to take notes for my class. During each class period, just before I cover each new concept, I present students with a practice question. These are similar to short-answer exam questions that require students to apply concepts from the readings. I focus on common misunderstandings or the most important theories or concepts.

There are several steps:

1. Students have 1-3 minutes (depending on the difficulty of the question) to jot down their responses in their blue books. Students cannot consult their text, but they can consult their own notes on the text. Responses do not need to be in complete sentences. They may include drawings or diagrams, when relevant. Spelling should not impede comprehension, but it is not explicitly graded.
2. We discuss their responses in small groups and/or as a class. I correct misunderstandings. I remind students during this step to take notes in their other notebook, so that they don’t confuse their practice question responses with their class notes or include information in their blue books that doesn’t represent their own independent work. Typically, students don’t need reminding after the second week of class.

3. I lecture for a few minutes, explaining the relevant material.

4. Repeat with more questions.

5. At the end of each class period, I collect students’ blue books so that students can’t mistakenly study the wrong notes or augment their responses at home.

The easiest way to explain how this works is to start with an example from my Developmental Psychology class. My TA has passed out the blue books before the start of class, and it’s time to get started with a question about something most humans can relate to: puberty. I start by putting up a question on a slide:

Think of someone you know (yourself, a friend, or a relative) who entered puberty early or late. 

Did pubertal timing impact this person’s psychological development? If so, how?

Was this person’s experience consistent with research findings? Consider the maturational deviance hypothesis.

At this point, I would read the question aloud and tell my students how long they’ll have to write independently in their notebooks. Most of the questions are open-ended and require application of the concepts they’ve read about before that day’s class. For a question like this, I’d probably give them 2 minutes. I would not define terms like “maturational deviance,” since that’s part of the question, just like I wouldn’t define it for them on an exam.

After two minutes, I would ask them to discuss their answer with a partner or in a small group, and a few minutes after that, I’d lead them in a whole-class discussion. As students volunteer their answers, I’d take care to thank them for their bravery in offering wrong answers, which provide me with the opportunity to explain the ways in which students misunderstood the concept. Finally, I’d lecture for a few minutes to fill in the gaps of what they missed.

The small-group discussion, whole-class discussion, and lecture all provide students with opportunities to evaluate their own responses, and therefore, their study habits. Were they on track or out in left field? Was their response as complete as their partner’s or their instructor’s? Did they mix up key terms or concepts? Did they find it difficult or easy to apply what they had read? By contrasting their responses with the accurate information from discussion and lecture, students receive regular and immediate feedback on their learning processes.
WHAT KINDS OF QUESTIONS WORK WELL?

Questions should be difficult enough that students couldn’t respond well without reading the text closely, but easy enough that they don’t require students to understand the material as well as they would for an exam. For example, I have asked Human Sexuality students the following:

Think of a romantic couple you know well: relatives, friends, or you and a partner.

Then, pick 3 of the following factors & describe how these factors might have contributed to the couple’s initial attraction:

- Propinquity
- Scarcity
- Similarity
- Physiological arousal
- Neurochemical factors

I deliberately omitted “physical attractiveness” from the list of options to reduce the number of options that were easy even if they hadn’t read the text, but I left “scarcity” and “similarity” to make the question easier for students who only remembered or understood some of the other concepts.

Questions can also, however, elicit in-depth interpretation. For example, I have asked Developmental students the following:

Patricia and Patrick are about to try to conceive another child. Since they already have 3 sons, they are hoping for a daughter.

- What factors will determine their little one’s biological sex?
- How soon can they find out whether they’re having a daughter?

Typically, some students respond that both parents’ genes will determine the child’s sex and that they can find out the child’s gender during the prenatal period. Some students report that Patrick will pass on either an X or Y chromosome that will determine the child’s sex/gender. However, students who read closely (or have more in-depth background knowledge) typically give a more nuanced and integrative response, discussing intersex variations and differences between biological sex and gender identity.
These examples focus on some specific concepts, but questions can also require more broad thinking. An old standby is to ask students how psychologists from two different theoretical orientations might interpret the same phenomenon differently. For example, how might a social learning theorist interpret the sexual behavior of someone with more than 200 lifetime partners? How might an evolutionary psychologist interpret the same behavior differently? Another frequently-used example is to show students a graph of a correlation, such as the correlation between age at first marriage and divorce risk, and then ask them questions about correlation and causation: for example, if someone waits until they’re older to get married, will their age reduce their divorce risk? To brainstorm more question ideas, I recommend reading Angelo and Cross (1993) and adapting some application questions from your textbook’s within-chapter or end-of-chapter review sections.

HOW AND WHEN ARE PRACTICE QUESTION NOTEBOOKS GRADED?

Students are excused from responses on days they are absent. Blue books are graded according to the following simple rubric:

<table>
<thead>
<tr>
<th>Exceeds expectations (check plus)</th>
<th>Most responses would have received 9 or 10 out of 10 points if they were short answer responses on exams.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets expectations (check)</td>
<td>Most responses demonstrate familiarity with the idea from the readings but incomplete understanding of the concepts, since we haven’t yet discussed them in class.</td>
</tr>
<tr>
<td>Does not meet expectations (check minus)</td>
<td>Most responses fail to apply the most basic relevant information from the readings.</td>
</tr>
</tbody>
</table>

I use this as a low-stakes assessment: if students typically, over the course of the semester, exceed expectations for their blue books, they are rewarded with a 2% boost to their final grade, but if they do not meet expectations, they lose 2% of their final grade. Students who meet expectations see no change to their final grade.

While students receive informal feedback several times per class meeting (by contrasting their responses with the information from discussion and lecture), they benefit from more formal feedback, as well. I sometimes grade blue books as often as once a week, particularly in lower-level classes where students are still developing their college study skills. In my experience, however, most students’ blue book grades remain consistent across the semester, and it takes me about an hour to grade a week’s responses for 25 students. For some classes, I grade blue books 2-4 times per semester. Instructors with particularly heavy grading burdens may wish to use grade blue books only at the end of the semester, perhaps as a tiebreaker for students with borderline final grades.
One objective of practice question notebooks is to encourage retrieval practice. When students practice retrieving information from their memory before grappling with it in class, they learn more from lectures and class discussions on that topic, in part because of increased accuracy in judgements of learning (Brown et al., 2013). In other words, these practice questions often show students that they didn’t learn the material as well as they may have thought, which helps them guide their studying. The open-ended nature of these questions, with a focus on application, is intended to encourage students to think more deeply about the material, struggling with it on their own before they hear responses from me and their classmates. Like online quizzes, practice question notebooks reward students for reading closely before class and for studying before each class period. Unlike online quizzes, it is harder to cheat or to only read the material covered on the quiz.

I also use practice question notebooks for diagnostic assessment. When a student earns a low exam score, I often wonder where the problem is: not enough studying before the exam? Ineffective note-taking? Not completing or understanding the reading? Practice question notebooks help me understand whether the problem begins before or after we cover a topic in class. When students come to class completely unable to try to answer a practice question, we have an opportunity to evaluate study strategies and intervene early. When the quality of responses improves or declines over the course of the semester, this provides useful feedback.

The specific questions used will determine which specific learning objectives are met. However, practice question notebooks are likely to support the following APA learning objectives:

1.1 Describe key concepts, principles, and overarching themes in psychology
1.2 Develop a working knowledge of psychology’s content domains
1.3 Describe applications of psychology
2.1 Use scientific reasoning to interpret psychological phenomena
2.3 Engage in innovative and integrative thinking and problem solving
4.1 Demonstrate effective writing for different purposes
5.3 Refine project-management skills (in this case, spaced practice)

It is worth mentioning that quieter students may benefit disproportionately from practice question notebooks. First, they can help the instructor distinguish between quiet students who understand the material and quiet students who need help. Second, they provide students with time to gather their thoughts before engaging in discussions, creating a more even playing field for those who don’t like to speak while they’re still forming their thoughts. Quiet students have expressed appreciation for this pathway to participate silently.
CONCLUSION

Practice question notebooks provide opportunities for spaced learning and retrieval practice with low-stakes assessment. This record of pre-class preparation is intended to reward close reading at home and help students learn as much as possible in class. I hope you find it useful.

REFERENCES


ABSTRACT

This paper describes a set of three hierarchically designed, low-stake writing assignments that reflect different stages of Bloom’s revised taxonomy to (1) foster conceptual understanding, (2) develop statistical thinking and reasoning skills, (3) improve student’s scientific writing, and (4) influence key non-cognitive variables (anxiety and statistics self-efficacy) that research has documented impact student learning and performance in undergraduate statistics courses.

CONTENT AND SUGGESTED COURSES

The writing assignments in this paper are appropriate for research methods and introductory statistics courses. While designed for undergraduates, these activities would be appropriate for many graduate programs in nursing, general psychology, sociology, social work, and educational fields.

APA LEARNING OBJECTIVES

Goal 2: Scientific inquiry and Critical Thinking

2.1 Use scientific reasoning to interpret psychological phenomena
2.4 Interpret, design, and conduct basic psychological research

Goal 4: Communication

4.1 Demonstrate effective writing for different purposes

INTRODUCTION

Statistics and research methods courses are mandated by virtually every undergraduate psychology program (Sotloff et al., 2010). Although these courses serve as the scientific foundation of our discipline, the courses are dramatically different today from what they were a decade or two ago. Previously, emphasis was placed on computational skills and rote memorization, coupled with class lectures on the assigned readings. Today, our focus is on developing students’ conceptual understanding, statistical thinking and reasoning skills (Lovett & Greenhouse, 2000; Van Buuren, 2006). This shift in emphasis has been predominantly accomplished by requiring students to read assignments before class while meetings are devoted to completing challenging exercises or activities using real data (Cilli-Turner, 2015) and only sprinkled with brief instructor-presented explanations. Despite these changes, numerous studies still document that many psychology undergraduates enter introductory statistics courses with a fair amount of anxiety, which can escalate and sometimes persist throughout the course (Chew & Dillon, 2014). If high levels of anxiety remain unaddressed, this can hinder students’ learning and performance while simultaneously
strengthening their belief that applying and interpreting statistical outcomes or designing different types of studies is well beyond their ability (Dykeman, 2011; Park, Ramierz, & Beilock, 2014; Waples, 2016).

Consequently, introductory statistics are still being described by many undergraduates as pervasively difficult, boring, and unrelated to life after college. Rather than recognizing that research and statistical skills can make them better consumers of information with improved decision-making skills, approximately 40% of our psychology majors in 2015-2016 still viewed the statistics/research methods courses as a hurdle that must be crossed to earn the psychology degree. While that percentage is down from a staggering 90% in 2005, we are still working to change this attitude. We have found that the inclusion of writing prompts is a vehicle that helps the low-performing students gain confidence in their ability to successfully complete this sequence of courses. Our research also shows that, within each course in the research sequence, these writing exercises show students that their tried and true study strategies from high school need to be substituted in favor of more effective study strategies at the university level.

FOCUS OF THE WRITING PROMPTS

Writing assignments can be used throughout research methods and introductory statistics courses. However, we advocate using writing prompts to target the conceptual understanding of difficult concepts or ideas in these classes. We feel that by emphasizing conceptual understanding as opposed to mere memorization or calculations, we encourage students to apply the material to a variety of new contexts, thus strengthening their critical thinking, a skill required by future academic and real-life problems they might encounter (Green & Blankenship, 2015).

Difficult concepts in these courses include: measures of central tendency and variability, threats to internal validity, sampling distributions, hypothesis testing procedures, and outcomes of various statistical analyses. For example, while our students may successfully calculate the standard deviation of a set of numbers, many of these same students are silent when asked to explain what the standard deviation signifies in a real-life problem. On a recent exam, students were given the mean and standard deviation of three math intervention programs (Program A: M = 70.25, SD = 19; Program B: M = 58, SD = 5.15; Program C: M = 79.64, SD = 20.15) and asked to identify which group was the easiest to teach and why? High performing students (those with GPAs of 3.2 or above) had no difficulty calculating the value of the standard deviation (95% correct) and about 75% of them successfully identified the group that was easiest to teach. The outcome was quite different for low performing students (GPA less than 2.75) enrolled in the same class. About 50% correctly calculated the value of the standard deviation and less than 8% of those students correctly identified the group that was easiest to teach and supported it with appropriate evidence. By separating students who complete the writing prompt assignments into these two groups—high and low performing students—the instructor gets more information regarding the actual level of performance of all the students. Our high performing students quickly demonstrate conceptual understanding of statistical concepts, but it takes our low-performing students many more examples and writing exercises to master the difficult concepts. We cannot afford to stop assigning such exercises too soon, assuming everyone gets it after the same number of trials or problems.

GOALS OF THE WRITING ASSIGNMENTS

We use writing assignments to foster conceptual understanding (Beins, 1993; Green & Blankenship, 2015), develop statistical reasoning skills (Cascio, 2017; Ferris, Cheng, Wang & Perolio, 2014), improve analytical writing, and change
pivotal non-cognitive variables (anxiety and statistics self-efficacy) that researchers have shown impact student learning and performance (Nelson, Gee & Hoegler, 2016). Students must respond to a set of specific critical prompts with evidence-based thinking and clear writing that supports conceptual understanding. These writing assignments challenge students to apply what they have learned to new, “real world” situations, many of which have been described by students as being personally relevant and quite different from those included in the course textbook. Each assignment is designed to challenge students to think critically and write clearly by applying concepts covered in the readings and/or introduced in class activities. None of the questions contained in these writing prompts requires problem solving skills, highlighting the importance of developing a conceptual understanding. We have found that the use of writing prompts that include both problem solving and conceptual skills, allows our low performing students to focus on the easier skill, calculation, rather than answer the questions requiring a conceptual understanding.

We find that these assignments are particularly useful as an exam preparation activity for low performing students (those with cumulative GPAs below 2.75) and helps them identify the statistical concepts that they know and those which they don’t know. None of these assignments can be described as number crunching exercises (problem solving abilities). Rather, the assignments force students to “think like researchers,” integrating information from throughout the course. Students, especially low-performing ones, view these writing exercises as an opportunity to identify the concepts they know and don’t know before they earn a low and perpetually damaging exam grade. Since we first began implementing these types of exercises in our courses, we have additionally found that the low performing students demonstrate an improved ability to accurately estimate their performance on higher-stakes assignments (namely exams). Research shows a relationship between the number of points earned on these assignments and the difference between the student’s predicted and actual scores (Nelson, Gee, Heath, & McAndrew, 2015). As the semester continues, we find that even the low performing students get significantly better at estimating their exam performance and are less likely to be thinking they aced the exam only to find out that they failed or barely got a D. For this reason, we suggest dividing students into high and low performing groups when evaluating these goals.

INCORPORATING BLOOM’S REVISED TAXONOMY INTO REFLECTIVE WRITING EXERCISES

We designed these activities so that they are at increasingly more difficult levels, and are thus suited to use over the duration of a semester in a research methods and/or statistics course. Bloom’s revised taxonomy (Krathwohl, 2002) is an objective means of classifying cognitive tasks by complexity into 6 levels, with the simplest questions (remembering) at the bottom and the most complicated (creating) at the top (see Krathwohl, 2002 and Nevid, Ambrose & Pyun, 2017 for a detailed description of each level of Bloom’s revised taxonomy). While Bloom’s revised taxonomy includes 6 levels of classification, we have sorted questions into lowdifficulty, moderate difficulty, and high difficulty questions. As shown in Table 1, the three writing prompts reflect different levels of difficulty.
Table 1.
Overview of Levels of Bloom’s Revised Taxonomy Contained in Each Writing Exercise

<table>
<thead>
<tr>
<th>Writing Exercise</th>
<th>Predominate Level of Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dear Honey Letter</td>
<td>• Predominately low difficulty&lt;br&gt;• The first 10 questions test students’ ability to remember and understand basic research/statistics concepts.&lt;br&gt;• The final question (#11) of the Dear Honey assignment is high-level because it asks the student to evaluate the weight loss program. This question serves as a challenge for our high performing students yet its inclusion does not frustrate our low performing undergraduates.</td>
</tr>
<tr>
<td>2. Down Syndrome Study Critique</td>
<td>• A mix of moderate and high difficulty questions.&lt;br&gt;• To sufficiently respond to this prompt, students must: be able to apply their knowledge while they analyze all of the parts of this study and evaluate the quality of the study.</td>
</tr>
<tr>
<td>3. Music and IQ Study Critique</td>
<td>• Predominately high difficulty, with some moderate difficulty questions.&lt;br&gt;• Students have to analyze the parts of the study and its quality, as in the last prompt.&lt;br&gt;• Additionally, in this prompt students have to create a discussion section and generate modifications to the research design that would remedy gaps in the study.</td>
</tr>
</tbody>
</table>

GENERAL ADMINISTRATIVE NOTES AND POTENTIAL CHALLENGES

These are low-stakes writing assignments, as they are typically worth only a minimal number of points and serve mainly as learning exercises. They can be completed in one assignment or across several periods; in class or for homework; and in research methods and/or introductory statistics courses. If used as individual assignments, students should be given a weekend to write their response. For the next class meeting following the weekend, students take part in a 15-minute peer-review session by trading drafts with a classmate and using a blank copy of the instructor rubric to provide feedback to their fellow student. After 15 minutes, the papers and rubrics are returned to the writer, and students are told to revise their papers according to the feedback from the peer-review. Then, students submit the original, the peer rubric, and the final draft of the response at the next class meeting of the week. Alternatively, each assignment may be given in segments and used as a series of small take home or in-class activities over the course of 2 or 3 classes. These assignments are evaluated with a rubric adapted from Pugalee (2005), which ranged from a score of 0 points to a perfect score of 4 points. We adapted this rubric such that the assignments are graded on a scale from 0 (below expectations) to 2 (a proficient score), so as to keep the maximum number of points lower, ensuring that the students view the assignment as low-stakes. Additionally, the reduced
number of categories makes it easier to read, grade, and return the students’ responses, so students can use the graded assignments to prep for their next exam.

THE ASSIGNMENTS

These three assignments take into account the characteristics that are identified as being essential for creating effective writing exercises, according to the literature on writing across curriculum (Bean, 2001). For each of the assignments described in this paper, we will explain the uniqueness of the assignment (referencing how it fits into Bloom’s revised taxonomy), identify the specific skills (learning objectives) covered in the assignment, and include a grading rubric.

ASSIGNMENT 1: DEAR HONEY LETTER

This assignment was designed to be the first longer writing assignment distributed in the first course of our statistics sequence. This assignment requires the student to integrate key concepts in hypothesis testing and to explain statistical terminology in their own words, without employing statistical jargon. Too frequently, when asked to explain one concept, low performing students rely on reciting the textbook definition of the concept. Research documents that initially students should study concepts individually but soon thereafter, the concepts/analyses should be interleaved to generate optimal performance (Weimer, 2017). Therefore, this exercise, designed to be the first in the series, asks students to explain interleaved introductory research methods concepts in lay terms to their “grandma” in a hypothetical letter. In being asked to explain the terms in lay language, students cannot merely quote textbook definitions, but are forced to begin to gain a conceptual appreciation for basic topics in research.

Since this is meant to be the first longer writing assignment in a research class that a student will encounter, instructors may find that low performing students sometimes struggle with tackling this first assignment. We have found that low performing students are sometimes less frustrated by these assignments and develop more confidence in their ability to succeed when they are allowed to type their answers to each of the questions, rather than write a letter in paragraph form. Alternatively, this assignment can be broken into segments and used over 2 or 3 classes, having students respond to the questions by writing a “letter to grandma” in paragraph form and allowing them to choose which questions should be addressed in the same paragraph. We believe that this selection process helps students learn to link related design or interpretation issues, and it also helps them to get acclimated to longer writing assignments.
Dear honey,

It’s your grandmother. I figured I’d send you a message through this new program I found called Facebook, since it seems like no one is using email nowadays. Remember how you said you were taking that statistics class? The one with the scary teacher? Well, I have a couple statistics questions for you, because I don’t understand research at all. As you know, I’ve been trying to lose some extra pounds for some time now, but none of the methods I’ve used over the years have worked. All of these methods say they’re “the best,” but then they either don’t work at all, or they help me a little, but then I gain the weight right back and always with interest!

My friend recommended a new weight loss program called “LoseWeightNOW,” but it’s expensive and I’m hesitant to try it after all my previous failures. I just want to be absolutely sure that LoseWeightNOW helps people to lose more weight than if they didn’t use any program or if they used a competing program. I told my friend this, and he described one study that apparently shows that this program works better than other competing programs.

My friend described the study as having the following characteristics. I have questions that I need answered about each of these characteristics. I bulleted the points so you could answer all of my questions.

- Researchers did a study lasting 3 months in which they “randomly assigned” people to one of three groups: the exercise program, a “placebo” condition that involved a normal exercise program, and a no-exercise group. What does “randomly assigned” mean? Shouldn’t studies be organized, rather than random? And why did the study need to include a placebo group? Wasn’t it good enough to just have the exercise and no-exercise groups?

- The study also made participants’ demographic and individual characteristics into “controlled variables,” so the study had no “confounds.” How do researchers get these variables under their control? What is a confounding variable, why does it matter, and what does the demographic characteristics of the participants have to do with it?

- The study was “double-blinded” or something, but what does blindness have to do with research on weight loss?

- The researchers rejected the null hypothesis because “p was less than .05.” What is a “p” and why does it have to be less than .05? And what is a null hypothesis?

- The study found that those in the new exercise program group had an average weight loss that was 14.5 lbs (SD = 1.85), while the average weight loss in the placebo group was 7.8lbs (SD = 2.01) and 2.2lbs (SD = 5.23) in the no-exercise. I think this shows that the exercise group lost the most weight, but why did the placebo group lose so much weight, too? I think that’s a little fishy, right? Also, I understand what the average is, but what do the “SDs” mean?

- Lastly, my friend said this study is especially good because the researchers apparently also chose the sample of people such that the study has “external validity.” What on earth does that mean, and how do the researchers know that? And why is that important for me?
And now for the big question, does LoseWeightNOW sound like it’ll work well enough for me to spend my money on it? Sorry to bombard you with questions, but since I’m helping pay for you to take this class, I feel like I can reap some of the benefits, as well. And on that note, maybe you can use your newfound stats expertise to keep your bank account balanced better.

Love,
Grandma

ASSIGNMENT:

Be sure to address each of the following concepts, as you were asked in the letter above, defining and using each of the terms. Be sure that you are discussing these concepts in reference to the above letter, rather than simply defining each term in general. Lastly, remember that you are explaining each of these concepts to your grandmother, so discuss the terminology in lay terms.

1. What is random assignment, and why is it important in this study?

2. Why did the researchers in this study include a placebo group, rather than just the no-exercise group?

3. What is a confounding variable and what does it do in a study? Give one example of a potential confounding variable that could yield an effect on the results of this study.

4. What is a controlled variable, what does it have to do with a confounding variable, and why is it important? Give two examples of potential controlled variables that could have been in this study.

5. What does it mean for this study to be a double-blind study? How might the researchers have made it a double blind? And how does a double blind improve the study?

6. What is a null hypothesis? And what does it mean to reject the null hypothesis, in terms of the wording of the scenario?

7. Define what a p value is, and how it relates to the value “.05.”

8. Why does it make sense that those in the placebo group lost some weight?

9. What do the “SD” values (listed after the group averages) mean? Does the fact that the control group has a higher SD (5.23) than both the placebo (SD = 2.01) and the new exercise program group (SD = 1.85) suggest anything about the performance of the participants in the study?

10. What is external validity and why is it important in this study? How did the researcher choose a sample of participants such that they were able to say that they had external validity?

11. Do you think your grandma should use WeighLossNOW and why or why not? Make sure your response draws from any evidence provided in the above letter.
### Grading Rubric for Assignment 1: Dear Honey Letter

<table>
<thead>
<tr>
<th>Question</th>
<th>0 points (Below Expectations)</th>
<th>1 point (Basic)</th>
<th>2 points (Proficient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is random assignment, and why is it important in this study?</td>
<td>The student did not cover or address accurately any of the criteria, or skipped the question.</td>
<td>The student partially covered the criteria necessary to earn 2 points, but neglected the following features:</td>
<td>Students should be able to define random assignment, and explain its significance in reference to the scenario. They should mention internal validity and explain how random assignment helps ensure that no other variables co-vary between the treatment conditions.</td>
</tr>
<tr>
<td>2. Why did the researchers in this study include a placebo group, rather than just the no-exercise group?</td>
<td>The student did not cover or address accurately any of the criteria, or skipped the question.</td>
<td>The student partially covered the criteria necessary to earn 2 points, but neglected the following features:</td>
<td>Students should be able to first address the fact that the no-exercise group functions as the control group and the necessity of a control group. Then, students should explain why the placebo condition is necessary to help evaluate whether or not the LoseWeightNOW program is more effective than a normal exercise program.</td>
</tr>
<tr>
<td>3. What is a confounding variable and what does it do in a study? Give one example of a potential confounding</td>
<td>The student did not cover or address accurately any of the criteria, or skipped the question.</td>
<td>The student partially covered the criteria necessary to earn 2 points, but neglected the following features:</td>
<td>Students should define confounds and the threat they pose to internal validity. Students can be creative in their examples of potential confounds, e.g.: all of the individuals in one</td>
</tr>
</tbody>
</table>
variable that could yield an effect on the results of this study.  

4. What is a controlled variable, what does it have to do with a confounding variable, and why is it important? Give two examples of potential controlled variables that *could have* been in this study.

| The student did not cover or address accurately any of the criteria, or skipped the question | The student partially covered the criteria necessary to earn 2 points, but neglected the following features: | Students should be able to define what a controlled variable is, and then explain how they help guard against confounds. Students could use examples such as: the researchers made sure that there were no significant differences in the participants' weights between the three groups; or that the participants were all similar with respect to their health; or that they were all relatively the same age, etc. |

5. What does it mean for this study to be a double-blind study? How might the researchers have made it a double-blind? And how does a double blind improve the study?

| The student did not cover or address accurately any of the criteria, or skipped the question | The student partially covered the criteria necessary to earn 2 points, but neglected the following features: | The students should explain how the researchers in this study blinded themselves from knowing which participants were in which condition. The students could discuss, for example, that the study used anonymous identification numbers for each participant and made sure that only a research assistant knew which participants were in which condition, and that the other researchers did not know which participant was in which condition when they weighed each individual, etc. |

6. What is a null hypothesis? And what does it mean to reject the null hypothesis, in terms of the wording of the scenario?

| The student did not cover or address accurately any of the criteria, or skipped the question | The student partially covered the criteria necessary to earn 2 points, but neglected the following features: | Students should be able to identify the null and alternative hypotheses, and explain how rejecting the null hypothesis means that the researcher has found evidence to support the effectiveness of the new exercise program. |

7. Define what a *p* value is and how it relates to the value “.05.”

<p>| The student did not cover or address accurately any of the criteria, or skipped the question | The student partially covered the criteria necessary to earn 2 points, but neglected the following features: | The student should mention the relationship between the observed value and the <em>p</em> value, discuss the level of alpha, and draw these |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Student Response</th>
<th>Expected Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Why does it make sense that those in the placebo group lost some weight?</td>
<td>The student did not cover or address accurately any of the criteria, or skipped the question</td>
<td>The student should discuss the “placebo effect” and explain that those in this group are expected to exhibit some weight loss, but that their weight loss should not be as significant as the weight loss in the treatment condition; they may also mention that if the average weight loss in the placebo is the same as the average weight loss in the treatment group, this suggests that the treatment group is no more effective than the placebo.</td>
</tr>
<tr>
<td>9. What do the “SD” values (listed after the group averages) mean? Does the fact that the control group has a higher SD (5.23) than both the placebo (SD = 2.01) and the new exercise program group (SD = 1.85) suggest anything about the participants in the study?</td>
<td>The student did not cover or address accurately any of the criteria, or skipped the question</td>
<td>The student should be able to identify that the SD stands for standard deviation and that it helps describe the variability within a group. The student should recognize that a larger SD means a higher amount of variability within a group, and that the higher the variability the more the individual participants’ weight losses differed from one another. As such, the student should describe that the differences in variability may be something to be aware of, because some participants in the control group lost little weight and some lost a lot of weight.</td>
</tr>
<tr>
<td>10. What is external validity and why is it important in this study? How did the researcher choose a sample of participants such that they were able to say that the sample had external validity?</td>
<td>The student did not cover or address accurately any of the criteria, or skipped the question</td>
<td>The student should be able to discuss random sampling and how it allows the researchers to generalize the results of the study to the population.</td>
</tr>
</tbody>
</table>
11. Do you think your grandma should use WeighLossNOW and why or why not? Make sure your response draws from any evidence provided in the above letter.

<table>
<thead>
<tr>
<th>Score</th>
<th>Analysis</th>
<th>Missing Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The student did not cover or address accurately any of the criteria, or skipped the question</td>
<td>The student partially covered the criteria necessary to earn 2 points, but neglected the following features:</td>
</tr>
<tr>
<td></td>
<td>The student should synthesize the implications of their responses to all of the above questions, referencing: the rejection of the null hypothesis; how the design of the study (in terms of random assignment, including a placebo group, including controlled variables, and having a double-blind design) helped guard against threats to internal validity; and how the results are generalizable to the population, and therefore are generalizable to the students’ grandma.</td>
<td></td>
</tr>
</tbody>
</table>

Your score: _______
ASSIGNMENT 2: DOWN SYNDROME STUDY

This assignment is the second in our series of our exercises and it builds from the first. In order to master this assignment, the student must move past merely being able to retrieve basic concepts and past merely understanding them well enough to generate examples. The student must be able to apply their knowledge so that they can: execute the proper calculations to obtain the information they need; examine the different pieces in the study to investigate how all the different details and findings fit together; assess and critique the study, ultimately arguing for whether or not the study should be accepted in the hypothetical journal. This assignment takes students beyond explaining research methods and statistics topics to a lay person. The student must now write a 1 to 2 paragraph critique for a scholarly audience.

Assignment 2: Down Syndrome Study

Imagine you are one of the editors of a scholarly journal. The following is a summary of a manuscript that was submitted to a journal for publication:

Background and hypothesis:

Down Syndrome is a genetic disorder that occurs when an individual is born with an extra whole or partial copy of their 21st chromosome. This condition produces lasting physical, developmental, and intellectual disabilities and has no cure. Furthermore, this condition also often heightens one’s risk of developing a life-threatening disease, such as heart disease. Researchers and clinicians have tried to identify causes and predictors of this condition by looking at the mothers of children who were born with Down Syndrome, in hopes of developing early interventions. Many mothers will have several healthy children, before having a child with Down Syndrome. This fact is one of the bases of the current study. The aim of this study is to investigate whether the number of children a mother has increases the odds of her having a child with Down Syndrome. That is, the researchers argue that mothers with at least one child with Down syndrome will have more children than mothers without a child with Down Syndrome.

Method

Participants: Participants were 63 mothers (recruited as a convenience sample) with children at a state-run special needs school or a private school. Twelve mothers from the private school declined to participate in the study. Therefore, in total, 51 mothers participated, N = 22 mothers (from the special needs school) had at least one child with Down Syndrome and N = 29 mothers (from the private school) reported that they did not have any children with Down Syndrome. The average age of all participants was 36 (SD = 6.5).

Procedure

Mothers were interviewed on the phone by the researchers and were told that the study was investigating predictors of developmental disabilities in children. They were also informed that the results of their study would be submitted for publication and could influence Down Syndrome intervention and treatment. Mothers were asked several
demographic questions (their ages, level of education, ethnicity, income, and martial status) and then asked how many children they had.

Results:

Several demographic analyses found the following: (1) mothers from the private school had, on average, a significantly higher income than mothers from the special needs school group. (2) Mothers from the private school had attained higher levels of education and (3) were more likely to be married than mothers from the special needs school group. (4) The mothers of children from the special needs school were also, on average, significantly older than the mothers of children from the private school. Since parents with children in private school tend to have the above demographic characteristics, the researchers reasoned that these slight differences in demographic characteristics did not pose any threat to internal validity.

For the main analysis, a t test for independent groups provided support for the researcher’s hypothesis that mothers with children with Down Syndrome have significantly more children than mothers without children with Down Syndrome.

Discussion:

The purpose of this study was to assess a potential predictor of Down Syndrome, so as to contribute to the literature on risk factors of Down Syndrome pregnancies. This study has not only established a link between number of children and chance of having a child with Down Syndrome, but it provides support for the argument that having more children can cause a mother to have a child with Down Syndrome. There is still much to be researched about the mechanisms underlying this finding, and why some women with many children do not have a child with Down Syndrome. Future studies should use this research as a springboard into analyzing the biological mechanisms responsible for these findings.

ASSIGNMENT:

Write a detailed critique of the above summary in paragraph form and include your decision about whether or not the article should be accepted in the journal for publication. Below is the rubric editors use to evaluate a manuscript summary. Feel free to group the questions that address similar issues. The order of the questions does not have to be maintained in your written critique (no more than 2 typed pages; double spaced).

1. What measures did the researchers take to ensure that the subjects recruited for the control condition were equivalent to the treatment condition in every respect except for the level of the independent variable?

2. Are there any such measures that were not included in the study that you think should have been included?

3. Were subject attrition rates higher than 30 to 40%?

4. Was the subject attrition rate evenly distributed between the control and treatment conditions?

5. What measures did the researchers take to guard against experimenter and participant bias?

6. Did the researchers ask enough questions about demographic variables in their phone interview to take into account all other variables that might co-vary with the level of the independent variable?
7. Were there any preliminary differences between the two groups in terms of demographic characteristics that might confound the results, or that might explain why the groups differed with respect to the dependent variable?

8. How does the discussion address any (a) alternative explanations for the findings and (b) any limitations to the study?
Grading Rubric for Assignment 2: Down Syndrome Study

The students’ responses to each of the items should be evaluated according to the following criteria:

- 0 points (Below Expectations): A score of 0 means that the student did not cover or address accurately any of the criteria, or did not answer the question.

- 1 point (Basic): A score of 1 means that the student gave a partially satisfactory answer, but did not completely answer the question. The student’s answer lacked important details, examples, or his/her answer did not explain the issues as related to the study described.

- 2 points (Proficient): A score of 2 means that the student gave a complete answer to the question, including all necessary details and examples and discussing each concept in reference to the study described.

1. What measures did the researchers take to ensure that the subjects recruited for the control condition were equivalent to the treatment condition in every respect except for the level of the independent variable? Circle points earned: 0  1  2

2. Are there any such measures that were not included in the study that you think should have been included? Circle points earned: 0  1  2

3. Were subject attrition rates higher than 30 to 40%? Circle points earned: 0  1  2

4. Was the subject attrition rate evenly distributed between the control and treatment conditions? Circle points earned: 0  1  2

5. What measures did the researchers take to guard against experimenter and participant bias? Circle points earned: 0  1  2

6. Did the researchers ask enough questions about demographic variables in their phone interview to take into account all other variables that might co-vary with the level of the independent variable? Circle points earned: 0  1  2

7. Were there any preliminary differences between the two groups in terms of demographic characteristics that might confound the results, or that might explain why the groups differed with respect to the dependent variable? Circle points earned: 0  1  2

8. How does the discussion address any (1) alternative explanations for the findings and (2) any limitations to the study? Circle points earned: 0  1  2

Score: ___
ASSIGNMENT 3: MUSIC LESSONS AND IQ STUDY

This final writing prompt challenges students to synthesize all of their research methods knowledge by creating a discussion section for an “abridged” research study. This study emphasizes more difficult types of questions and concepts. It is adapted from Schellenberg’s (2004) article on music lessons and IQ. This assignment requires that a student not only be skilled at analyzing a piece of writing and detecting the most important points, the flaws, and any potential minor improvements, but that the student is also capable of using this information to write a paragraph for a scholarly audience. Highlighting strengths, weaknesses, and points of significance, the student should take the information a step further and create a discussion that adds something new to the article. Specifically, the student should be able to point out a limitation and redesign that part of the study and suggest that future studies incorporate this modification. This assignment gets the student to really engage with primary literature and draw out the details that are relevant to the assignment, even having the student start to write at the same level as a research article.

Before we re-designed this assignment, we had students write the same type of discussion after reading the actual article. However, we quickly saw that the assignment was overwhelming for low-performing students. On the basis of that feedback, we revised the assignment as follows, summarizing and streamlining the information from the article and asking students to identify and explain different concepts in Table 1 and the graph from the original paper. This revision has helped many low performing majors complete the assignment without being overwhelmed by the format and length of the actual research article.
Assignment 3: Music Lessons and IQ Study

The following summary is based on Schellenberg’s (2004) article on music lessons and IQ. Sections of the article are quoted at length below. The researcher wanted to see the effects of music lessons on a number of behavioral and intellectual measures. In this assignment, we will be focusing on the impact of lessons on only one measure, IQ. Further, the emphasis of this assignment is on the methodology and results.

Hypothesis: Music lessons increase children’s IQs.

METHOD

Quick Summary

- Researchers compared the IQ’s of children before and again, after one year of either keyboard, voice, drama, or no lessons. Researchers wanted to see whether music lessons (keyboard or voice) significantly raised children’s IQs more than non-music lessons (namely, drama lessons or no lessons). The researcher reasoned that the children in the non-music lesson conditions might experience an increase in IQ, but this increase would be attributable to the increase due to enrollment in grade school. He argued that the music groups should show a greater increase in IQ than the non-music groups, due to receiving music lessons.

Participants

- Participants were recruited through an advertisement in a local, community newspaper, which offered free, weekly lessons for 6-year-olds. Recruitment was limited to children whose 6th birthday fell between January and October; the lessons began in September.
- The sample included 144 children who were each assigned randomly to one of four groups.
- Two groups served as the treatment groups, each receiving a type of music instruction. One group received standard keyboard lessons for 36 weeks. A second group received voice lessons for 36 weeks.
- The other two groups served as the control groups. One of these groups received no lessons at all. The other control condition received drama lessons. (Drama lessons were used so that the researchers could compare music classes to another type of fine arts class—drama—to see whether music classes influence IQ to a greater extent than another type of fine arts class).

Materials

- While the study focused on a number of measures, the emphasis in this assignment is on the WISC-III (Wechsler, 1991), which was given to the children at the same time before and after the intervention.
- Trained, female research assistants administered the WISC-III. Test administrators were unaware of the conditions to which the children were assigned.

Procedure

The lessons were taught for 36 weeks at the Royal Conservatory of Music (Toronto) by trained female professionals of similar educational backgrounds.
RESULTS

Before reading further, remember what \( p < .05 \) means? In other words, if \( p < .05 \), are the results significant or not? If \( p < .05 \), are the changes in IQ attributable to the intervention (music lessons) or to chance differences?

Table 1 and Figure 1 are shown below. You should refer to Table 1 and Figure 1 throughout the summary of the results.

**TABLE 1**

*Mean Sample Characteristics of the Four Groups of Children*

<table>
<thead>
<tr>
<th>Sample characteristic</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Keyboard</td>
</tr>
<tr>
<td>( n ) before lessons</td>
<td>36</td>
</tr>
<tr>
<td>( n ) after lessons</td>
<td>30</td>
</tr>
<tr>
<td>Age (days over 6 years)</td>
<td>74 (78)</td>
</tr>
<tr>
<td>Family income</td>
<td>4.6 (1.3)</td>
</tr>
<tr>
<td>Full-scale IQ before lessons</td>
<td>102.6 (8.3)</td>
</tr>
<tr>
<td>Full-scale IQ after lessons</td>
<td>108.7 (12.5)</td>
</tr>
</tbody>
</table>

*Note.* Standard deviations are in parentheses. Age is listed as days over 6 years on September 1 (before lessons). Family income was measured in increments of $25,000 (1 = less than $25,000; 2 = $25,000–$49,999; 3 = $50,000–$74,999; and so on). There was no difference among groups in age, family income, or full-scale IQ when the children were tested initially (before lessons). The difference among groups in full-scale IQ after the lessons was reliable (\( p = .05 \)).

![Fig. 1. Mean increase in full-scale IQ (Wechsler Intelligence Scale for Children–Third Edition) for each group of 6-year-olds who completed the study. Error bars show standard errors.](image)

- As shown in Table 1, twelve children (8.3%) discontinued taking lessons and did not complete the second round of IQ testing (keyboard: 6, voice: 4, drama: 2). Therefore, the analyses in this study included data from a total of 132 children.
Before looking at the outcomes of this study, let’s make sure you’re familiar with the information contained in Figure 1 and Table 1.

1. **Look at Table 1 and identify for each group the mean IQ score. Then, for each group, indicate if the after-lessons IQ score was higher or lower than the before-lessons IQ score. Where, in Table 1, is the standard deviation represented?**

2. **Now, looking at Figure 1, identify the control and experimental groups.**

3. **In Table 1, the before and after IQ scores are given. However, in Figure 1, the mean increases in IQ scores from before the intervention to after are plotted. Still looking at Figure 1, what do the lines above the bars represent?**

- Increases in IQ from before to after the children’s lessons are shown by the means and standard deviations, as reported in Table 1. The author indicates that all four groups had significant increases in IQ from before the intervention to after, all ps < .005.

4. **Calculate the mean change in IQ scores for each of the four groups (post-lessons IQ minus pre-lessons IQ).**

- Average IQs increased significantly in each of the 4 conditions. It makes sense that the IQs increased not only in the experimental groups, but also to some extent in the control groups, as prior studies show that merely enrolling in grade school produces an increase in a child’s IQ (Ceci & Williams, 1997). However, what the researchers wanted to see was whether music lessons could produce significantly larger increases in IQ than enrolling in grade school or non-music lessons could.

- Preliminary analyses found that there was no significant difference in the amount of increase in IQ between the keyboard and drama groups (p > .8), nor was there any significant difference in IQ increase between the drama and no lessons groups (p > .7).

- This is evident in Figure 1: children in the keyboard and voice classes (dark bars in the graph) had similar amounts of improvement in IQ scores; likewise, the amount of change in IQ scores was the same between the drama and no-lessons groups (light bars in the graph). Therefore, Schellenberg combined the participants in the drama and no-lessons groups into one control group and the participants in the keyboard and voice groups into one experimental group. It is important to note that Schellenberg did not provide a rationale for this combination of groups.

- When analyzing the data by comparing the experimental and control group, the researcher found that, compared with the control groups (the light colored bars in Figure 1), the music groups (the dark colored bars in Figure 1) had larger increases in full-scale IQ, t(130) = 1.99, p < .05, d = 0.35. Children in the control groups had an average increase in IQ of 4.3 points (SD = 7.3), whereas the music groups had an average increase of 7.0 points (SD = 8.6). This finding suggests that after receiving music lessons, children experience significantly greater improvements in IQ, as compared to children who received drama lessons or no lessons.
ASSIGNMENT:

Discussion of Findings

Answer the following questions to complete the discussion section of this report.

1. Can the researchers conclude that music (that is, voice or keyboard) lessons caused increases in 6 year olds’s IQs, above and beyond any increases seen in non-music lesson control groups? Why or why not?

2. Can the results of this study be generalized to all 6 year olds? That is, can the researchers conclude that all 6 year-olds’ IQs can increase significantly as a result of taking voice or keyboard lessons? Explain.

3. In the results, why do the researchers mention “the increase in IQ that is known to be a usual consequence of entering grade school”? Why is it important to keep this fact in mind when analyzing the results of this experiment?

4. Amico (2009) argues that subject mortality rates higher than 30-40% are threats to internal validity and invalidate any findings in a study. What is the total subject attrition rate in this study and does it pose a threat to the integrity of the study?

5. Now calculate the attrition rates for the experimental and control groups separately. Compare the two rates. Is the rate of drop out from the experimental group very different from the drop out rate in the control group?

6. The researchers report that the children in the music group had significantly higher increases in IQ (mean increase of 7 points) than children in the control (mean increase of 4.3 points). The researchers argue that music lessons caused this difference. Are there any other explanations for this difference? (Hint: think about threats to internal validity, other variables that could co-vary with the level of the independent variable).

7. How can the issues mentioned in question 6 be fixed in future replication studies?
Grading Rubric for Assignment 3: Music Lessons and IQ Study

The students’ responses should be evaluated according to the following criteria:

0 points (Below Expectations): A score of 0 means that the student did not cover or address accurately any of the criteria, or did not answer the question.

1 point (Basic): A score of 1 means that the student gave a partially satisfactory answer, but did not completely answer the question. The student’s answer lacked important details, examples, or his/her answer did not explain the issues in lay terms or as related to the study described.

2 points (Proficient): A score of 2 means that the student gave a complete answer to the question, including all necessary details and examples and discusses each concept in reference to the study described.

1. Can the researchers conclude that music (that is, voice or keyboard) lessons caused increases in 6 year olds’ IQs, above and beyond any increases seen in non-music lesson control groups? Why or why not? Circle points earned: 0  1  2

2. Can the results of this study be generalized to all 6 year olds? That is, can the researchers conclude that all 6 year-olds’ IQs can increase significantly as a result of taking voice or keyboard lessons? Explain. Circle points earned: 0  1  2

3. In the results, why do the researchers mention “the increase in IQ that is known to be a usual consequence of entering grade school”? Why is it important to keep this fact in mind when analyzing the results of this experiment? Circle points earned: 0  1  2

4. Amico (2009) argues that subject mortality rates higher than 30-40% are threats to internal validity and invalidate any findings in a study. What is the total subject attrition rate in this study and does it pose a threat to the integrity of the study? Circle points earned: 0  1  2

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6. The researchers report that the children in the music group had significantly higher increases in IQ (mean increase of 7 points) than children in the control (mean increase of 4.3 points). The researchers argue that music lessons caused this difference. Are there any other explanations for this difference? (Hint: think about threats to internal validity, other variables that could co-vary with the level of the independent variable). Circle points earned: 0  1  2

7. How can the issue(s) mentioned in question 6 be fixed in future replication studies? Circle points earned: 0  1  2

Your Score: _____
CONCLUDING STATEMENTS

This chapter details a series of increasingly challenging writing exercises designed to help undergraduate students to gain a conceptual understanding of introductory research methods and statistics concepts. The components contained within the design of each exercise aim not merely to help students to perform adequately enough to attain a passing grade, but to actually help students to master the concepts taught in research methods and statistics. First, the fact that these assignments are low-stakes serves to reduce students’ anxiety and give them room to make and learn from mistakes. Second, these exercises start off with a lower-level but realistically challenging assignment that is versatile and can be completed by students of all performance levels. When this assignment is given to low performing students, it may be necessary to tailor the assignment to the student, as described earlier (e.g. by splitting up the assignment into smaller parts, or by completing some of it in class). However, when lower-performing students find that they can successfully complete this assignment, this shows the student that they can gain the skills to master research methods and/or statistics concepts. In other words, this assignment helps to begin to build up the student’s sense of self-efficacy. Moreover, by using Bloom’s taxonomy to create assignments of increasing difficulty, while giving students the cognitive and conceptual tools to complete each exercise, these three assignments should continue to increase students’ self-efficacy over the course of a semester.

Third, these assignments help students—low performing students in particular— to develop metacognitive monitoring skills. These assignments test students’ abilities to apply concepts to novel situations, which really challenges students’ conceptual understanding of the course material. When students work through these prompts, they will learn to disentangle the material they understand from that which they do not yet understand. With this knowledge, students will be able to identify the concepts they need to review and master, in order to meet the demands of the assignment at hand. Lastly, by completing this entire sequence of assignments, students will develop stronger confidence in their abilities and will become more independent as self-regulated learners who know that they have the skills to construct a critique of a research article.

REFERENCES


ABSTRACT

The American Psychological Association expects graduating psychology majors to be able to read and summarize complex ideas accurately, and to communicate effectively as writers. However, undergraduates often have little explicit instruction and practice in reading and summarizing academic articles, or in psychology-specific writing practices. Consequently, students’ skills as academic readers and writers often fail to meet expectations. In our large public university, writing problems were prevalent in our biological psychology classes. When asked to read and summarize primary sources, students reported that the articles were very difficult to understand, papers commonly included plagiarism, and many students withdrew from the classes. To counteract this, the instructor—first author (JG-F) consulted with an English for Academic Purposes specialist (CD-F) and we created a scaffolded series of homework assignments to help students learn how to read and summarize primary source articles. Students received guided instruction about where to find information in an article and how to take notes using their own words. To help manage the instructor’s time, she spent class time going over common errors and modeling ways to paraphrase and avoid plagiarism. A mastery approach to the homework assignments was fostered by grading several assignments on a complete/incomplete basis. Students who received the intervention had higher writing assignment grades, were more likely to persist in the classes, and were less likely to fail than those who did not receive the intervention. Most students felt that the intervention improved their ability to read and to use primary sources in their writing assignments, and thought that these skills would be transferrable to other courses.

INTRODUCTION

One of the five major goals of the American Psychological Association (APA, 2013) is for psychology majors to be able to communicate well, both orally and in writing. Students typically only take two (or fewer) English composition classes in college (Warner & Koeppel, 2009) and so need other opportunities to develop as writers. The Writing across the Curriculum (WAC) movement emphasizes the need for faculty in all disciplines (including psychology) to take responsibility for improving students’ writing skills (for review see Zawacki & Rogers, 2012). However, widespread reports of writing deficits across multiple disciplines have been attributed to a general lack of emphasis on writing in US colleges (Arum & Roksa, 2011). There are several reasons why faculty may be reluctant to focus on writing instruction: they may feel that 1) they do not have sufficient training to teach students how to write (Patton, Krawitz, Libbus, Ryan, & Townsend, 1998); 2) writing instruction takes time away from teaching content (Patton, et al., 1998); 3) students cannot write sufficiently well to tackle writing assignments in their classes and so it is better to avoid them (Arum & Roksa, 2011); and/or 4) they do not have time to provide the feedback that students need in order for their writing to improve.
Indeed, at our large public university it was clear that our students were not getting adequate reading and writing practice in their college classes. Our Departmental assessment findings showed that student writing in psychology classes often fell short of faculty expectations. These problems were prevalent in two intermediate-level biological psychology classes: Brain and Behavior, and Sensation and Perception (taught by JG-F). Although students in these classes were juniors and seniors and most had taken a research methods course in psychology, they struggled to read and effectively summarize empirical research published in scholarly journals. This was compounded by the highly technical nature of the primary source neuroscience articles in these subdisciplines of psychology. Furthermore, the instructor (JG-F) felt overwhelmed by the challenge of giving detailed timely feedback on first drafts of very poorly written papers. Relatively large numbers of students withdrew from these classes early on in the semester, largely because they found the writing assignments unmanageable. Students reported that primary source articles in these fields were hard to understand, and plagiarism was very common. To help to overcome these problems, JG-F consulted with an English for Academic Purposes specialist (CD-F), who helped her to use WAC best practices to design a scaffolded series of homework assignments (summarized in Table 1) to help students learn how to read and summarize primary source neuroscience-based articles.

**BRIEF DESCRIPTION OF THE ASSIGNMENTS**

Despite the fact that reading strategies are discipline-specific, there is a general lack of reading instruction in college, especially in the social sciences (Bazerman et al., 2005). Both WAC, and a related movement - Writing in the Disciplines (WID), emphasize that writing and reading skills are strongly interrelated (Bazerman, et al., 2005). Therefore, our intervention consisted of a series of series of homework assignments that stressed the importance of learning how to read academic articles.

Initially, all of the students within a class worked on the same article. The psychology instructor guided students on where to find information in the article and how to take notes using their own words. She also spent class time going over common errors and explaining ways to paraphrase and avoid plagiarism. Students also reviewed each other’s work in class. Students were also shown how to use databases to find other primary source articles that were related to the first article. To emphasize process and to foster a mastery approach, some of the homework assignments were relatively low-stakes, i.e., they were graded on a complete/incomplete basis and did not carry as much weight in the final grade as the final products. These low-stake assignments were very quick to grade, and helped students to later write relatively polished final products. The scaffolded assignments were staggered across the semester and so discouraged some of the procrastination that is often associated with writing a single draft of a term paper (Fritzsche, Young, & Hickson, 2003).

To assess the efficacy of the intervention, we compared writing assignment grades and the number of withdrawals for students in classes who received the guided reading intervention to those who did not (control group). Students in the control group also wrote summaries, and received feedback on their writing and participated in class instruction on how to avoid plagiarism. Students in the intervention classes completed a survey at the end of the semester that asked two questions about the helpfulness of the writing homework assignments in the class. Both items were answered using a 5 point Likert scale indicating the extent to which they felt that the note-taking strategies were helpful to them.
ALIGNMENT TO APA GUIDELINES FOR UNDERGRADUATE EDUCATION

The writing homework assignments described here relate to two of the five APA goals for Undergraduate Education (APA, 2013): the ability to communicate well, and the ability to use scientific inquiry and critical thinking. An underlying principle of WAC is that writing is another way in which to enhance thinking (Bazerman, et al., 2005), so these goals are clearly inter-related.

GOAL 4: COMMUNICATION

4.1A. Construct arguments clearly and concisely using evidence-based psychological concepts and theories
4.1C. Use grammar appropriate to professional standards and conventions (e.g., APA writing style)
4.1F. Communicate quantitative data in statistics, graphs, and tables (APA, 2013, p.30)

GOAL 2: SCIENTIFIC INQUIRY AND CRITICAL THINKING

2.2A. Read and summarize complex ideas accurately, including future directions, from psychological sources and research
2.2C. Develop a comprehensive strategy for locating and using relevant scholarship (e.g., databases, credible journals) to address psychological questions (APA, 2013, p. 21)

LEARNING OBJECTIVES

To assess the extent to which students reached the APA goals listed above, the following learning objectives were developed for the two courses.

At the conclusion of this course, students should be able to do the following:

• Describe how research methods can be applied in the study of Brain and Behavior (or Sensation and Perception)
• Use database and library searches to find reliable sources of information to help answer a specific question in the field of Brain and Behavior (or Sensation and Perception)
• Write a detailed research summary using primary sources.

ASSESSMENT OF LEARNING OBJECTIVES

Student learning was assessed based on three homework assignments. These included writing two primary source empirical journal article summaries (assignments 4 and 7 as summarized in Table 1 and described in detail below) that were assessed using the rubric provided in Table 4. In addition, students found a primary source article that connected to another article and described the relationship between two articles (assignment 5 as summarized in Table 1 and described in detail below), this was assessed using the rubric in Table 5.
COURSE LEVEL AND RECOMMENDED COURSES

These assignments are particularly relevant for mid and upper-level courses in which students need to read and summarize primary source articles that use neuroscientific methodologies. However, by modifying the note-taking instructions, they can be easily adapted for any class where students are reading primary source materials and using them in writing assignments or discussions.

DETAILED EXPLANATION OF ASSIGNMENTS

The intervention consisted of seven homework assignments and five in-class workshops as shown in Table 1.
WORKSHOP 1: What is a primary source empirical article? Discussion of challenges and benefits of using these articles. Reading and note-taking strategies and practice.

Assignment 1 - Note-taking part 1 (5 points)
Complete Qs 1-5 in note-taking worksheet (Table 2) and hand in with annotated article.
Grading: Grade Complete/Incomplete and identify any common/major mistakes to go over in class.

WORKSHOP 2: Discussion of study misconceptions. Patch-writing and checking for plagiarism, paraphrasing practice. Diagramming experimental design.

Assignment 2 - Note-taking part 2 (5 points)
Make edits to Q 1-5 and complete remaining questions on note-taking worksheet (Table 2). Hand in worksheet (Qs 1-11) and annotated article.
Grading: Grade Complete/Incomplete and identify any common/major mistakes to go over in class.

WORKSHOP 3: Class discussion of common misconceptions about study and address any writing issues.

Assignment 3 - Correcting notes using model (10 points)
Make your own corrections on note-taking worksheet (Table 2) and article annotation using instructor-provided model notes and annotated article (posted on CMS).
Grading: Check accuracy of answers. Mark errors with asterisk and provide following notation at top of page - “Check back to the model for marked items”. Mark patch-writing and plagiarism with highlighter and provide following notation at top of page - “These sections need to be rewritten in your own words”.

WORKSHOP 4: Question and answer session on feedback on Assignment 3. Active voice and past tense practice. In-text and secondary citation practice.

Assignment 4 - Write a summary (25 points)
Write APA style research summary using framework (Table 3) from corrected notes.
Grading: Grade using summary rubric (Table 4).

WORKSHOP 5: Database searching.

Assignment 5 - Database searching (15 points)
Find a primary source neuroscience article that was published after 2005 and relates to the article you have summarized for this class. Note this has to be a connection related to the research question rather than the techniques used, e.g., both used fMRI.
Upload the following to Blackboard (CMS): 1) pdf of the entire article, 2) a word document telling me what this study is about and how it relates to the first article we read together in class, 3) the citation of the article in APA style.
Grading: Grade using database article rubric (Table 5).

Assignment 6 - Note taking on new article (10 points).
Choose one article from the selection on Blackboard (CMS) that you find interesting.
Complete questions 1-11 on the note-taking worksheet (Table 2) and annotate the article in the same way as you did for the first article.
GRADING: Grade Complete/Incomplete - mark items that need correction.

Assignment 7 – Correct notes and write summary of new article (30 points)
Make corrections on note-taking worksheet and article annotation using instructor-provided model notes and annotated article (posted on CMS) and then write APA-style summary using framework (Table 3) from corrected notes.
Grading: Grade using summary rubric (Table 4).
WORKSHOP 1

The primary aim of workshop 1 was to engage students in a discussion about the value of using primary source psychology articles and to increase their motivation for doing well in the reading and writing assignments. First, students talked about what they thought a primary source empirical journal article was and how it differed from other types of writing, such as textbooks or news articles. Students were then asked to look at their copies of a primary source article, which had been posted on the electronic course management system (CMS), and to discuss with a partner why they thought that reading such an article might be difficult. Students were quick to identify that the article was filled with discipline-specific jargon and was clearly written by experts for other experts. This provided the instructor with a chance to affirm that previous classes had struggled a lot with reading these types of papers. When asked why undergraduates might want to be able to read something that was clearly not written with them in mind, most students recognized that primary sources offer the most accurate representation of a study, and so they could be potentially useful. The instructor also asked how many students planned to go on to graduate school; typically 50 to 75% students in our classes aspire to do so. She then explained that she had designed new reading and writing assignments to help students learn how to extract information from primary sources in a meaningful and efficient manner, and that this was a valuable skill that they would need as graduate students. Students then wrote a brief minute paper on why they thought that improving their writing skills and being able to summarize primary sources might be helpful to them both as college students and in their future careers. Ensuring that students appreciate the value of using a particular technique or learning strategy has been shown to increase academic performance, especially in those who are struggling in their classes (Hulleman, Godes, Hendricks, & Harackiewicz, 2010).

The second activity in workshop 1 focused on learning how to read an academic article. Class discussion revealed that many students thought that an article should be read from beginning to end, much like a novel, and so students were surprised to discover that reading the end of the “story” upfront was not “cheating,” but would in fact be beneficial for increasing comprehension. Students were asked to carefully read the title and the abstract several times and to underline the words that helped them to form a general idea of what the study was about. Using the think-pair-share technique (Kaddoura, 2013; Lyman, 1987), students first shared their answers with a neighbor and then with the class as a whole. With the aid of the classroom computer, the instructor underlined the key phrases that students had identified in the text and projected this on a screen for everyone to see. Students were then asked to use their own words to write a brief bullet point that described the general idea of the study. At this stage, many students used quotes from the title and abstract and so we brainstormed other words and phrases that could be used instead. Helping students to avoid the use of jargon was encouraged by asking them to imagine explaining it to their grandmother or a 12-year child. Students then reviewed the note-taking worksheet (see below) that they used for Assignments 1 and 2 (and 6), which gave detailed instructions about how to annotate the article and take notes by answering specific questions. The worksheet includes explicit directions about where to look for the information. The instructor stressed that this exercise would likely take them a long time reminding them that the article was written by experts for experts and so would be challenging to read. Students were given 10 days to complete the first five questions (Assignment 1) and annotate the article, showing where they found the information.
Note-Taking Worksheet

Learning how to read and summarize a primary source research study in physiological psychology

Academic writing is often challenging to read because it is written by experts for experts. Part of the skill of summarizing a primary source is being able to figure out which are the most important pieces of information and what can be left out. Another crucial skill is being able to paraphrase effectively. This first exercise is designed to help you pick out the important parts of the paper and to write about them using your own words.

INSTRUCTIONS:
Answer the questions below in note form, as you do so mark the article by underlining the text that you used to answer the question and make a notation accordingly in the margin, e.g., “General idea”. As you make notes, do not copy phrases from the article - write using your own words. This will help you when you paraphrase the information later. Please type your answers below and use as much space as you need.

Please be aware that this exercise will likely take you a long time - I would estimate at least 6 hours. When you first read the article it may not make so much sense to you and so you will need to read it many times to improve your understanding. Be reassured that EVERYONE (including professors) has to do this to be able to understand an academic article well. This assignment will be graded on a pass/fail basis. If I do not feel that you have put enough effort into the assignment you will fail and this will impact your grade. You should probably try and break up the time spent on the assignment - spend no more than half an hour at a time on it and then take a short break. MAKE SURE TO CHECK THROUGH YOUR WORK BEFORE HANDING IT IN.

QUESTIONS:
1. In very general terms, what is the study about? Read through the abstract several times. Underline the key terms that allow you to figure this out, write general idea next to them. Now write your answer here.

2. What is the specific question that the study is trying to answer, i.e., the goal of the study? Read through the abstract carefully and skim though the introduction (the part of the paper before the methods but in APA format is not usually marked as Introduction). Focus on the words that say what the study aimed to investigate, underline these words, write goals next to them.

3. In very general terms, how did the researchers carry out the study? Read the abstract and introduction focus on the words that say what they did. When you read the methods section, focus on the overall idea of the study (not the fine details). Underline and mark the relevant text as general method.

4. What are the major hypotheses (predictions) of the study? Read the introduction carefully and look for words like hypothesize, predict, and expect. These are often at the end of the Introduction. Underline and mark the article as hypotheses.
   a. List any general hypotheses
   b. List the brain areas that the researchers predicted would be activated in their study and when these areas would be active. Mark as brain activity hypotheses in the article.
   c. For each of the brain areas listed above see if you can figure out why they predicted this. Read the Introduction and the Discussion looking for these brain areas and see what the authors say when these areas are usually active. Mark the article with the words brain function.
5. Who are the participants in the study? Read the Participants section carefully in the method and answer the following questions. Make sure you underline all the relevant information in the article.
   a. How many participated? Note that sometimes not all the data can be used. Make sure you write down both how many people were recruited (mark article with n all) and how many contributed useful data (n used).
   b. Were the participants subdivided into groups? If so, what characterizes the groups? (e.g., 2 groups: smokers, non-smokers, no groups, etc.). If relevant, underline the group information in the article and mark as group 1, group 2 etc.
   c. How many in each group?
   d. How many were male?
   e. How many were female?
   f. Age range? Mean age?
   g. If there are multiple groups provide the information for each group, e.g., 12 smokers (mean age 45 years, 5 men, 7 women; 13 non-smokers (mean age 34 years, 6 men, 7 women). Underline this information in the participant section.
   h. Is there anything else about the participants we should know to better understand the study? e.g., Ethnicity, race, left or right-handed, were they healthy? Try to summarize this as much as possible.

6. What did the participants have to do in this particular study? (Note studies with human subjects typically involve consenting - but this is common to all research studies and so does not need to be reported in your notes or summary). Before you answer the questions below read the Methods section several times, playing close attention to the various steps that the participant had to do, the Procedure section will help you to get an idea of the order in which things happened. Mark the text - as step 1, step 2 step 3, step 4 etc. However, you may also have to read other parts of the Method section to understand more about the specifics of the stimuli etc.
   a. Did participants have to do anything special to prepare for the study? This might be fasting, studying, etc but don’t include any general practice for the task (this is common to most studies).
   b. Did they have to complete any questionnaires? List them here - with a brief note about what they are designed to assess.
   c. What did the participants have to do in the study proper? Think about this first in terms of describing the participant’s general experience of how they had to interact with the stimuli.
   d. Describe what happens more specifically in a trial for each condition. What does the participant hear/see/feel/do? Again, write this down in terms of steps. TS1, TS2 etc. and mark accordingly on the article. There is often a diagram (and figure legend) that helps you to understand this in the text. Mark any helpful figures with the words Trial info.
   e. Stimuli/trials are usually organized into blocks of time to give the participant a chance to take a break in between each block. Underline this information in the article.
      i. How many blocks were there in the study?
      ii. How many trials/stimuli per block?
      iii. How were the blocks organized, e.g., did each block have a mix of stimuli or just one kind?
      iv. If just one kind of stimulus per block - in what order were the blocks presented? e.g., all of one type and then all of the other?
   f. Psychological research often depends on careful timing of the stimuli.
      i. How long did each step in the trial last for?
      ii. How long was the gap between the trials?
7. Did the experimenters use a baseline for the physiological activity? What was the participant doing during the baseline recording? Write the words - baseline in the article.

8. What was the purpose of the behavioral task in the study? Note: A behavioral task will result in some data collection - such as reaction time or accuracy. Read the introduction for the rationale and the methods. Mark the text with the words - task purpose.

9. What are the major independent variables (IVs) and dependent variables (DVs)? You will have a general idea about these from the methods and will also find these in results section but the authors will probably not refer to them as IVs and DVs. Remember that the IVs are the conditions/groups and the DVs are the things that they measure. DVs depend on the IVs. You don’t need to include everything the researchers measured just the ones that are key to the study goal(s). Some may be behavioral - (e.g., accuracy and reaction time) whereas others may be physiological (related to change in brain activity or the size of a particular brain area). List each one here making it clear whether it is a DV or an IV.

10. What were the main results? Look in the Results section but also the Discussion section for starting broad with the physiology data. Note there is no need to report the specific stats or statistical tests but you should only summarize the ones that are statistically significant. Mark these as B1, B2 etc for behavioral results, P1, P2 etc for the physiological results. Make sure you report on the hypothesized results (especially for the brain areas). You don’t need to report every brain area that was activated though. Let the abstract guide you as to which are most important. Use this to answer the following questions.
   a. What are the behavioral findings?
   b. What do the behavioral findings imply or tell you that is important for the study?
   c. What were the physiological findings? Start broad and then get more specific.

11. What did the authors conclude? Look carefully in the Discussion Section, it may not explicitly state whether the hypotheses are supported so look back and check what the hypotheses were. Make sure to say which were supported and which were not. Mark this in the text. What other major conclusions did the authors make? How do the results support the goals of the study? What are the implications of the main findings?

12. Provide the citation for the article in APA format (use the back of your textbook for models).
WORKSHOP 2

After reading through the assignments (graded on a complete/incomplete basis) the instructor went over common problems in workshop 2. Often students confused the hypotheses of the study with the results of previous studies in the Introduction and plagiarism was very common. Belter and du Pre (2009) have suggested that students plagiarize because they are often unaware of what constitutes acceptable paraphrasing and summarization. Students often thought they were using their own words, but many of them engaged in patch-writing (Howard, 1995), a common practice in naïve writers when reading an academic or difficult to understand text. In patch writing, the student writing is very similar to the original text but synonyms are substituted here and there (Howard, 1995). The instructor demonstrated what patch-writing is by taking a paragraph from the article and changing a word here and there and explaining that this was not acceptable. Students then looked for evidence of patch-writing in their own notes (and then that of a peer). Students then brainstormed different ways of summarizing the idea in the paragraph in their own words.

In workshop 2, the instructor also explained the next homework assignment (Assignment 2), which required first changing any answers that they now knew were unacceptable in addition to answering all of the remaining questions on the note-taking worksheet and annotating the article. Students had to take notes about the details of the experimental design, the results, and the general conclusions of the study. Since the notes were to be used for summary writing, the class discussed what aspects of the study could be left out of the note-taking. Students were understandably unfamiliar with paradigm-specific terms such as trial and block and so they worked in small groups to draw diagrams to figure out the experimental design from a participants’ viewpoint. Students were given about 10 days to complete this assignment, which was graded as complete/incomplete.

WORKSHOP 3

Common misconceptions about the study seen in assignment 2 were discussed in workshop 3. During workshop 3, the instructor also explained the next homework assignment (Assignment 3 - see Table 1). In this assignment, students compared their answers and article annotations with models provided by the instructor that were posted on the CMS. This required students to think critically about whether their answer was too lengthy, too short or incorrect because they had misunderstood some element of the article. They also had to check whether or not their article markings indicated the correct location for finding the right answers. The instructor graded assignment 3 based on the accuracy of the corrected answers. By providing students with the model she was able to give feedback quickly by marking unacceptable answers with an asterisk along with a notation at the top of the paper to “check back with the model for marked items.” Similarly, she marked plagiarism and patch writing (which was now much reduced) with a colorful highlighter and the notation “USE YOUR OWN WORDS!!”

WORKSHOP 4

The instructor answered questions about the feedback on assignment 3 in workshop 4. To gear students up for writing a summary of the article (see Assignment 4 in Table 1), in workshop 4, the instructor also explained the structural framework (see Table 3) for summarization in APA style. Students practiced using active voice and past tense and in-text and secondary citations in class. Students were provided with a link on the CMS to an APA style
guide [https://web2.uconn.edu/writingcenter/pdf/Style_Points_for_Scientific_Writing.pdf](https://web2.uconn.edu/writingcenter/pdf/Style_Points_for_Scientific_Writing.pdf) to help reinforce these techniques. The instructor used a rubric (see Table 4) to grade the summaries. One major advantage of having students all work on the same article at the same time was that it made giving detailed feedback much easier for the instructor, who could use class time to provide general feedback. Additionally, students were able to help each other understand elements of the experimental design by discussing in pairs or small groups in the various workshops. In future classes, students will also analyze work from past classes using the summary rubric to help them to identify both successful and problematic writing.
**Table 3: Framework for Summary Writing Using Notes**

First check your feedback on your corrected notes for anything that was marked as incorrect - fix those first. Then use your corrected notes to write a short summary of the paper in full sentences using your own words. Do not copy phrases from the paper (or from my notes) – even with quotes - **we do not use quotes in psychology. You must paraphrase.** The easiest way to do this is to read your notes (not the article), make sure you understand, then turn your notes over and write without looking at the text. Try to write as though you are explaining the study to someone who does not know anything about it and does not have specialist knowledge. I have attached the rubric that I will use for grading your paper. Here are some suggestions for prompts that might help you write your paper. Even if you do not use these phrases, use the same organizational structure for your paper. **Do not bullet or number the points** - just write in full sentences.

Ganis, Thompson and Kosslyn (2004) were interested in ... (describe the goal of the study).

Participants ... (describe very generally the way that the study was carried out).

The authors hypothesized that... (first describe the main hypotheses and then the more specific brain-area related hypotheses – making sure you explain WHY they thought these brain areas were likely to be activated).

There were X participants... (describe the participants in terms of n, age, gender, and other major relevant characteristics)

Before the study, the participants had to ... (describe any relevant procedure that took place before the study proper, this might include questionnaires, studying materials, fasting, etc.) Note: This does not always apply to every article but it might in the future.

During the study, the participants ... (describe in specific steps what the participant saw, heard, had to do).

The experiment consisted of .... (describe the number of trials, blocks, timing and general organization of the experiment).

The researchers found ... (describe the results – start general and become more specific. Make sure to include both behavioral and physiological findings and link brain areas to their functions)

In summary, the authors’ hypotheses were.... (discuss which hypotheses were supported and which were not and the general conclusions of the study).

Provide the citation in APA format.

Proof read your paper by reading it aloud. Make changes – then read it again. Does it make sense to you? If it does not, it will not make sense to me either.
Table 4 Article Summary Rubric

<table>
<thead>
<tr>
<th>Criteria &amp; qualities</th>
<th>Weak</th>
<th>Adequate</th>
<th>Good</th>
<th>Excellent</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article marked as instructed</td>
<td>Not marked as instructed</td>
<td>Some markings present but some missing</td>
<td>Minor corrections needed</td>
<td>Article well marked</td>
<td>5</td>
</tr>
<tr>
<td>Goal of the study</td>
<td>Not clearly stated OR phrases are copied from the article.</td>
<td>The general idea of the goal is presented but need more details</td>
<td>Goal well described - minor corrections needed</td>
<td>Excellent description of study goals</td>
<td>5</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>Not clearly stated OR phrases are copied from the article.</td>
<td>More detail needed</td>
<td>Hypotheses well described - minor corrections needed</td>
<td>Excellent description of hypotheses</td>
<td>10</td>
</tr>
<tr>
<td>Participants</td>
<td>Not enough detail is given to understand who participated in studies OR phrases are copied from the articles.</td>
<td>Some of the important information about participants is present but need more details</td>
<td>Participants well described - minor corrections needed</td>
<td>Excellent description of participants in terms of age, gender, n, and any other relevant info</td>
<td>10</td>
</tr>
<tr>
<td>Techniques</td>
<td>Not enough detail is given to understand how study was conducted OR phrases are copied from the articles.</td>
<td>Some of the important information about techniques is present but need more details.</td>
<td>Techniques well described - minor corrections needed</td>
<td>Excellent description of techniques written in own words</td>
<td>20</td>
</tr>
<tr>
<td>Demonstrates understanding of findings</td>
<td>The main findings of the studies are not well described or there are many errors in the interpretation or copying from articles</td>
<td>Some of the findings are described but some important information is missing</td>
<td>Findings described clearly - minor omissions</td>
<td>Excellent description of findings written in own words</td>
<td>15</td>
</tr>
<tr>
<td>Demonstrates understanding of conclusions</td>
<td>There are no conclusions/or conclusions are incorrect</td>
<td>Some of the conclusions are described but some important conclusions are missing. No reference to hypotheses.</td>
<td>Conclusions described clearly with reference to whether or not hypotheses were met- minor omissions</td>
<td>Excellent description of conclusions written in own words with reference to hypotheses. Relevance to goal of study is clearly stated.</td>
<td>10</td>
</tr>
<tr>
<td>Clarity of writing and writing technique</td>
<td>In places it is hard to know what the writer is trying to express. Writing is convoluted. Misspelled words, incorrect grammar, and improper punctuation are evident.</td>
<td>Writing is generally clear, but quite a lot of grammar errors and typos. Active voice and past tense not consistently used.</td>
<td>Writing is generally clear, but unnecessary words are occasionally used. Paragraph or sentence structure is too repetitive. Active voice and past tense not consistently used.</td>
<td>Writing is crisp, clear, and succinct. The writer incorporates the active voice and past tense. The use of pronouns, modifiers, parallel construction, and non-sexist language are appropriate.</td>
<td>20</td>
</tr>
<tr>
<td>Citations &amp; References</td>
<td>Citation not included or wrong article cited</td>
<td>Citation included but not APA style</td>
<td>Citation present &amp; minor APA formatting issues</td>
<td>Reference correctly formatted in APA style</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>
WORKSHOP 5

The next homework assignment (see Assignment 5 in Table 1) allowed students a little bit more freedom in finding an article that sparked their individual interests. In preparation for this assignment, workshop 5 covered how to use library databases like PsycInfo and PubMed to find peer-reviewed primary source empirical journal articles, students searched for a relatively recent article (within the past five years) that was conceptually-related to the first one. Students uploaded a pdf version of the article to the CMS, along with its APA style citation and a short statement about how the article related to the first one. This assignment required that students were able to extract the gist of the new article (usually from the title and abstract) and to describe this in their own words. The instructor graded the assignment using a rubric (see database search rubric in Table 5). To encourage students to work independently, extra credit was awarded to students whose article met the criteria and was not chosen by other students in the class. Some students failed to link the studies at the conceptual level and thought that the two studies were related because “both looked at changes in brain activity in response to a set of stimuli”; others had difficulty articulating the connection. After receiving feedback, students were invited to redo the assignment to improve their grade. The instructor then picked a few articles chosen by students that she felt were pitched at the right level and posted them on the CMS. For assignment 6, students chose an article and followed the same general process as they did previously by taking notes using the note-taking worksheet (see Table 2) and annotating the article. These assignments were graded as complete/incomplete, and the instructor posted model notes and annotated copies of each article on the CMS. Making models is time-consuming and so the instructor only selected four or five articles for students to choose among. For the final homework assignment (assignment 7), students both corrected their notes and wrote a summary of their article. To make grading more efficient, the instructor organized assignments by article and graded them in batches using the summary rubric (Table 4).
Table 5. Database Search Rubric

<table>
<thead>
<tr>
<th>Student name:</th>
<th>Points</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article (5 points)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Article attached</td>
<td>If any of these are violated then student needs to redo the assignment</td>
<td></td>
</tr>
<tr>
<td>Peer-reviewed academic journal?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary source empirical article</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Published in 2005 or later</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Includes brain imaging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research question is conceptually related to first article</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>APA style (5 points)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authors last names and initials present and in correct order</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Article title in full</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Journal name in full in italics</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Volume number (italics); page #s</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Items above in correct order and correct punctuation between items</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>How are the two studies related? (5 points)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement explains goal of study 1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Statement explains goals of study 2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Statement explains how study 2 is different from study 1, e.g., how the study could extend the findings or takes a different direction or approach</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Statement grammatically correct and written in own words</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
ASSESSMENT OF THE EFFICACY OF THE INTERVENTION

To assess the efficacy of the intervention we analyzed writing assignment grades, class grades, and class retention data from 264 students enrolled in intermediate biological psychology courses taught by JG-F at our college between 2008 and 2013. Students were in Brain and Behavior (3 sections) or Perception courses (6 sections). Students in one section of each course (n = 80) received the intervention. Significantly, more students withdrew from control classes (n = 40 [21.7%]) than from intervention classes (n = 8 [10%]), χ²(1, N = 264) = 5.17, p = .02, Φ = .14. For students who remained in the classes until the end of the semester, the writing assignment grade was significantly higher for students in intervention classes (M = 81.1%, SD = 11.6%) compared to control classes (M = 70.7%, SD = 28.8%), t(214) = 3.03, p = .003, 95% CI [3.61, 17.10]. In addition, significantly more students failed the course in control classes (n = 13 [9%]), than in intervention classes (n = 0), χ²(1, N = 216) = 6.92, p = .009, Φ = .18. Survey data from students in the intervention classes showed that the majority of the students felt that the note-taking activities were either helpful (40.2%) or extremely helpful (47.2%) for writing the summaries. Similarly, the majority of students (56%) felt that they were likely to use the same note-taking and summary writing strategies in other classes. In summary, the intervention was effective in increasing class retention, improving learning, and motivating students to continue to use the practices they learned in future courses; in addition, these benefits were achieved while making grading more manageable for the instructor.

REFERENCES


WRITING EXERCISES FOR DEVELOPING SCIENTIFIC LITERACY
BERNARD P. GEE, WESTERN CONNECTICUT STATE UNIVERSITY

ABSTRACT
This chapter presents a set of five focused exercises designed to improve scientific writing proficiency. They are small, incremental assignments aimed to develop necessary skills in preparation towards various types of scholarly term papers, such as literature reviews, critiques, and research projects. The pedagogical theory for each activity is presented, as well as implementation and assessment.

CONTENT AND SUGGESTED COURSES
The assignments have been employed in various psychology courses with a writing emphasis. They can be tailored to any academic discipline, especially closely allied fields of study including, but not limited to, sociology, anthropology, social work, nursing, and biology. Since the activities require students to examine the primary literature, the nature of the activity is more suitable for upper division undergraduate courses incorporating scientific writing.

APA LEARNING OBJECTIVES
Under the APA Guidelines for the Undergraduate Psychology Major, the assignments in this section intersect with the following learning goals and outcomes.

Goal 2: Scientific Inquiry and Critical Thinking
2.1 Use scientific reasoning to interpret psychological phenomena
2.2 Demonstrate psychology information literacy
2.4 Interpret, design, and conduct basic psychological research

Goal 4: Communication
4.1 Demonstrate effective writing for different purposes
BACKGROUND

In graduate school, my mentor would tell me, “Make an outline and show it to me before you start writing.” For any document longer than a page in length, he required me, first, to produce a formal outline indicating the main content and overall structure of the paper. I begrudgingly obliged, thinking I could be using that precious time towards writing the actual paper, or doing something more enjoyable in the laboratory. Gradually, I saw the value in this activity. Not only did this add clarity to my writing, it also forced me to think about the content that should be included and the reasons why. This was a form of critical analysis, where I found myself “engineering” papers that were more focused and purposeful than ever before. As I tell my own students, “If you don’t understand the organization of your own paper and the goal for each and every sentence and paragraph, how will anyone else?” I am starting to sound like my mentor. Maybe one day I will tell him he was right, and share how this has influenced a whole set of writing exercises I use in my courses.

This experience has greatly influenced my approach to training students in scientific writing. The skill set needed involves not only sound writing practices, but also the ability to comprehend and evaluate other sources. Students tend to process information passively and, oftentimes, mindlessly (Housand & Reis, 2008). I always encourage critical thinking and increased awareness in order to effectively engage with all course material and activities, including writing assignments. If students can become more conscious consumers of information, they stand a better chance of arriving at sophisticated insights and forming arguments with sound reasoning (Norris & Phillips, 2003; Zimmerman, 1989). The act of writing is the perfect forum to cultivate such intellectual capacities (Condon & Kelly-Riley, 2004; Facione, 1990; Glynn & Muth, 1994; Pearson et al., 2010).

Undergraduate students often need substantial guidance and structure, especially at the beginning of the learning stages (Callinan, 2005). I still believe that students should be given ample opportunities for self-discovery and independent learning. However, being trained in scientific literacy can be a rather daunting pursuit. Various demands are drawn upon, such as navigating databases, surveying the literature, drawing conclusions, and, of course, effectively communicating in written form within the guidelines of a given field. Each of these activities requires a unique set of skills that can overwhelm students, as they are tasked to simultaneously juggle numerous pieces to the puzzle. Students should be left to figure some things out for themselves. Formal training in specific skills, though, can be useful to explicitly demonstrate and give students practice within a focused task. The featured assignments combined with supplementary instruction are ultimately meant to encourage independent thinking through self-awareness, critical analysis, stepwise instruction, and productive feedback.

This chapter features five homework assignments across four skill sets supporting scientific literacy. The four areas of focus include 1) database searches, 2) literature review, 3) critical analysis, and 4) forming outlines. Each assignment is presented with explanations of their respective design, approach, and objectives. I discuss how they are implemented in a course, and some challenges I have encountered. Classroom activities are included as supportive exercises. Together, along with the formal assignments, they are meant to represent a progressive chain of training modules consisting of understanding the scientific literature and relaying ideas in clear, meaningful ways. The prescribed program is designed to prepare students for larger writing assignments, such as essays, critiques,
literature reviews, and research projects. Other aspects of scientific literacy not covered here would need to be added to form a comprehensive course curriculum.

**SKILL SET: DATABASE SEARCHES**

**Learning goals:** Students become acclimated to library research skills with a “scavenger hunt” assignment. The exercise consists of accessing and searching primary literature databases, using interlibrary loan, and retrieving articles or other sources.

**ACTIVITY DESCRIPTION**

Skill development in the form of a “scavenger hunt” is a student favorite because it is interactive, takes them through progressive steps, and they receive immediate feedback. This activity can produce a high level of engagement and learning (Nicol & Macfarlane-Dick, 2006). Plus, students like to conduct searches when it is challenging yet attainable and rewarding, which builds their competency and confidence (Kiili, 2005). Below contains the list of tasks to familiarize students with searching through literature databases and utilizing search functions appropriately. I customize the questions by choosing a particular research area, and have them look for specific authors or other search constraints. The assignment is designed to be relatively easy, rewarding, and enjoyable. It also gets the entire class on the same page in terms of basic library literacy.
Homework Assignment I: Database Searches

This assignment provides practice with library searches of primary literature. You will become familiar with psychology databases, conducting efficient searches, and accessing relevant material. Go through the following steps, and answer each question.

1. Visit the web link, http://www.apa.org/education/undergrad/library-research.aspx, and answer these questions:
   a. After reading through the webpage, what section stands out to you as most helpful and why?
   b. Of all the databases described (PsycINFO, PsycARTICLES, etc.), which ones are useful for this course and why?

2. Imagine that you are interested in reviewing research on visual, implicit, long term memory. In order to find published research on this topic, you will have to access two databases: 1) PsycINFO and 2) PsycARTICLES. For the purposes of this assignment, you only want to look at articles published in 2010 and later.
   a. What terms should you type in the search field(s)?
   b. How many research articles does your search query yield in PsycINFO?
   c. How many research articles does the same search query yield in PsycARTICLES?
   d. Within the PsycARTICLES query, find the study by Richard Dewhurst, and list the citation according to APA Style of journal citations.

3. Search for research articles authored by Marisa Carrasco published any year.
   a. How many research articles does your search query yield in PsycINFO?
   b. How many research articles does the same search query yield in PsycARTICLES?
   c. Scan the titles of the citations listed in the PsycARTICLES database. Describe in one sentence the commonality or field of study Carrasco is focused on. You may have to review the abstracts, as well, to get a better idea of her research area.
   d. From the studies found in PsycARTICLES, identify 3 research methods she used that we have discussed in class. In your description, be sure to appropriately cite any references used.

4. Read about ILLiad (interlibrary loan service) on WCSU’s library website. Create an online account, unless you already have one. Once you learn how to make a request, go ahead and request the Baddeley et al. (1975) article described on page 196 in your textbook (Ward, 2015). Attach your “receipt” for the request to this assignment (you can save an image of the webpage indicating this ‘outstanding request’).
ADDITIONAL INFORMATION

As for all the assignments included, in-class guidance and explanations are normally required before distributing them. At a minimum for this activity, logistics, such as website navigation and the use of keywords for searches, should be covered. Demonstrating the basic steps on a computer projector can also allow for more advanced procedures demanded for homework. For instance, even a brief presentation on Boolean search techniques can provide enough structure for the student to experiment on their own in more complexity.

Future assignments calling for an evaluation of the literature, it can be important to be familiar with methods for obtaining source copies which are initially inaccessible. Unfortunately, many students are unaware of interlibrary loan services (Frank & Bothmann, 2007). And I have known students to drop references they cannot immediately get a hold of, or worst, they cite information from only reading the abstract. With interlibrary loan services available online today, virtually all sources are readily accessible with minimal wait times. This assignment can include a component that familiarizes the student with this service (eg. ILLiad), preparing them for more advanced assignments later.

For my research-based and writing intensive courses, I dedicate further class time offering a complete treatment of the various types of sources available. Distinguishing between primary and secondary sources, for example, can serve as insightful and useful information for the beginning student. This is also the time I discuss the anatomy of a primary research article, and some strategies on how to read and comprehend them. I am also preparing them for the assignments below and larger paper assignments. It always starts here with a formal greeting of the literature.

ASSESSMENT

Assessment can be accomplished in various ways. I use the following grading method, which is meant to provide both summative and formative assessments (Halonen, 2003; Harlen, 2005; Yorke, 2003). First, a total point value is given to the assignment, relative to other homework. In turn, each question is worth a certain number of points, proportional to the amount of work required. Most of the questions need to be answered with specific responses, such as the number of the items found in a search query. Therefore, they could be graded as full or zero credit. Since this is a skill-building exercise, I prefer to add some leniency. For student responses “in the ballpark” or somehow demonstrate an “honest effort”, I would give full credit or at least most of the points. If extensive in-class instruction and practice occurred beforehand, the threshold could be raised. I always provide some type of formative assessment, or feedback, when returning the graded assignment. So, even if full credit is awarded, students can see where improvement is needed, if any. The rubric scale shown in Table 1 could be used to assess simple questions or when a specific skill is to be demonstrated. For open-ended responses and where writing quality is desired, the rubric scale in Table 2 may be more appropriate. An extra column to write instructor comments can be added to either scale.
Table 1. Rubric scale for simple questions or skill demonstration.

<table>
<thead>
<tr>
<th>Score</th>
<th>Assignment question or task.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Below Expectations</td>
<td>Poor execution or low ability to apply required skill or task. Significantly incomplete or inaccurate response.</td>
</tr>
<tr>
<td>2 - Basic</td>
<td>Satisfactory application of required skill or task. Minor aspects missing or not completely accurate response.</td>
</tr>
<tr>
<td>3 - Proficient</td>
<td>Good to excellent demonstration of required skill or task. Complete and/or accurate response.</td>
</tr>
</tbody>
</table>

Table 2. Rubric scale for open-ended or complex written responses

<table>
<thead>
<tr>
<th>Score</th>
<th>Assignment question or task.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Below Expectations</td>
<td>None to minimal response and/or reasoning; or most elements missing. Poor writing quality and/or organization.</td>
</tr>
<tr>
<td>2 - Basic</td>
<td>Some to most elements present, but lacks significant depth and/or reasoning. Subpar writing quality and/or organization.</td>
</tr>
<tr>
<td>3 - Proficient</td>
<td>Satisfactory response; mostly complete, but lacks some depth. Satisfactory writing quality and/or organization.</td>
</tr>
<tr>
<td>4 - Outstanding</td>
<td>Complete, thoughtful, well-reasoned response with very clear, articulate, and organized writing.</td>
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SKILL SET: LITERATURE REVIEW AND PARAPHRASING

Learning goals: A classroom workshop and two paraphrasing exercises (Appendices B & C) are designed to develop scientific literacy. Students are exposed to the presentation format of the primary literature, and learn how to comprehend and relay its content. Paraphrasing is used as a platform to also encourage awareness of how information, either consumed or written, can be organized.

INTRODUCTION

Once students become acquainted with searching and retrieving relevant sources, they must learn to efficiently and effectively consume them. A classroom workshop is first described, followed by two homework assignments in paraphrasing. The workshop prepares students for self-guided practice. The class begins with a definition of plagiarism, and a short discussion on common student challenges. Namely, how does one communicate content in new, original phrasing? I tell them by the end of the period they will be able to do just that. At this point, they seem somewhat hopeful, and do not realize we have seemingly skipped how to read the literature, moving directly to writing about it. The point is made to the class that writing about a set of information in meaningful and clear ways IS a terrific method in comprehending that information. In other words, the ability to recount source content is integral in reviewing and reporting the literature.

IN-CLASS ACTIVITIES

For the class activity, a research article is distributed for them to practice paraphrasing with. I choose a short paper at a fairly easy level. It should be within the field of literature in which they will be working from. And the study is usually one I have previously discussed, and preferably described in their textbook as well. Any boost in familiarity and context can be very useful. I have them read a particular part of the Methods section, for instance, such as the task or procedure. A research article I routinely use features a weather predicting task, which tests cognitive abilities (Knowlton et al., 1996). We discuss the study ahead of time. The article is brief, and students practice describing the test procedure only for the activity. This makes the most efficient use of class time, targeting an isolated topic to paraphrase. The purpose of this activity does not require a thorough understanding of the introduction and discussion portions of the paper. The main goal is to read a technical passage, and communicate the information in their own words.

After reading the selected passage, students list the main ideas. They are instructed to avoid writing full sentences for now, and, instead, jot down key points only using short phrases at the most. Before proceeding, we discuss some possible responses and make sure all the pertinent details are retained. From their list, they craft their own paragraph presenting the methodology. Students find it much easier to paraphrase when referring to their own informal outline because they are not staring directly at the original source and its phrasing. Also, they are prompted to weave the details into a coherent “story,” because they already created a rough outline, forcing them to organize and think about the content beforehand. To achieve this, a certain level of reading comprehension must occur first. And now they can pay more attention to the flow and organization of the paragraph, rather than worrying about
copying (or avoiding) the original source’s wording. The instructor can walk around the room to see the output, and provide individual and immediate feedback, which can accelerate writing improvement (Black & Wiliam, 1998; Fallahi et al. 2006). Once I get a quick assessment of the class, I follow up with a group discussion on what I observed and how to combat certain obstacles. Showing both good and bad examples can be insightful, or talking them through how I might approach the task. I strategically save some of these points to inject at the end, so that they attempt to try their own methods first to see, firsthand, what works and what does not.

In my experience, a recurring issue in student-written literature reviews is the inclusion of too many methodological details. Students do not always stop to evaluate whether information is pertinent or irrelevant to the goal of their paper or investigation. I discuss the editing process of prioritizing the importance of each piece of information and how much it should be emphasized, if it is included at all. For the class activity, I challenge them to cut their paragraph down by about a third to see if they can edit appropriately and proportionally. The temptation is to simply lop off or combine sentences, but usually at the expense of the overall cohesiveness and balance of the paragraph. When I ask them to reduce even further, they begin to understand that a change in the parameters usually calls for a different approach or reapportioning of the elements. I like to refer to the entire process as “engineering” for the purposes of a specific goal, and “realignment” when adjustments to a new goal are necessary. If the exercise is done correctly, students gain self-awareness, critical thinking skills, and clearer writing (Condon & Kelly-Riley, 2004; Fallahi et al. 2006; Glynn & Muth, 1994).

Twists can be added to this exercise to fine-tune a student’s awareness towards a specific purpose. One example would be considering one’s audience, or whom the writing is aimed at. I ask them who they were writing to when doing the above exercises. They do not think about this. The seemingly simple question can spark increased awareness in the students’ perspective. Then I have the students, once again, write a new version of a Methods summary geared towards an expert in the field, and another version to a relative or friend. As the target audience changes, the use of language should consequently differ, as well as the choice of content and level of detail. I imagine in a clinical course or for social work research, for example, students might write for a practitioner audience.

**HOMEWORK ACTIVITIES**

The first take-home assignment, shown below, is a direct extension of the classroom exercises, providing further practice. I usually choose a different article, which is more complex, to make this assignment a bit more challenging but not unnecessarily difficult. If possible, the article is drawn from one of the existing course readings. From my experience, the less time I spend in class on paraphrasing, the more practice is needed as homework, and vice versa.
Homework Assignment IIA:

Paraphrasing I - Summarizing the Methods Section

Before citing and relaying information, you must first have a firm grasp of the content you will be writing about. In addition to comprehending a given passage that you are citing, you must extract the pertinent points and clearly present them in your paper. The exercises below help you achieve this, along with practice with paraphrasing information in your own words. Use the article handed out in class (Knowlton et al., 1996) to respond to the following.

1. List the key aspects of the methods section. Use phrases instead of full sentences to focus on the content rather than the wording. What are the pertinent details needed for one to fully understand the methodology? What points are essential, and which are less essential? These questions will help you decide what content is important to relay in your own paper.

2. In your own words, summarize the methods section in a paragraph of 7-9 sentences. Given this amount of space, what points should you include and what information should be left out? The level of detail included should be proportional to the space allotted. Make sure the sentences flow together, clearly and logically. Try to tell a story, instead of listing a bunch of information.

3. Try this again, but only using 3-5 sentences. Remember to still tell a story with a cohesive set of descriptions. Adjust the level of detail to fit the allotted space, being mindful of the key points needed to relay how the research was conducted. The restriction of space will force you to prioritize important information.

4. Try this again, but only using 1-2 sentences. This will require further streamlining, and may be the toughest challenge.

5. How would your summary be different if your audience changed? Pretend you are describing the methods section to relative, friend, or someone with no background to this field of study. What terminology would or would not be appropriate? Give it a try using 3-5 sentences (you would not want to bore them with a longer presentation!).
The second homework assignment expands paraphrasing skills to other parts of a journal article. The emphasis here is less about maintaining the fidelity of the content in each section of the article, and more about understanding the main points of the entire study. Identifying the main hypothesis and succinctly explaining how it was developed and why it is a new contribution to the field, for instance, is an essential skill in digesting the scientific literature. The discussion section can be even more difficult to navigate, even for a more advanced student. Preliminary class discussions may be necessary to reveal the structure of dense sections in certain articles, and how to navigate them. By having these smaller exercises focused on a specific goal, a student is less likely to be overwhelmed when they must review and manage an entire set of articles.

**Homework Assignment IIB**

**Paraphrasing II - Journal article review**

Using the article given to you in class today (Nielson et al., 2005), address all of the questions listed below. Be sure to use your own words by paraphrasing information from your sources. So do not use direct quotes from the article, even if you cite correctly. This is a paraphrasing exercise, after all.

1. List the full citation of your article in APA format. Include authorship, year, article title, journal title, volume, issue, and page numbers.

2. What was the goal of this study? Why is it important or what is the significance of the research? (Respond in 1-5 sentences for each question)

3. Highlight the main methods and overall experimental design of the study. (Respond in 5-10 sentences)

4. What were the main results of this particular study? (Respond in 3-8 sentences)

5. What was the impact of their findings to that field or area of research? (Respond in 4-10 sentences)

6. List three questions that you have about this particular study.
ADDITIONAL INFORMATION

The exercises within this model are ultimately aimed at demonstrating the organization of a scholarly article. Students can then more readily access appropriate sources and write about them more competently. They begin to see the structure of information. This is important for competency in both reading and writing (Armbruster et al., 1989; Calisir & Gurel, 2003; Pearson et al. 2010). When students are assigned term papers, such as literature reviews, these abilities are key. In a later section, outline instruction is discussed, where the organization is further emphasized. The exercises in the current section lay a solid foundation for this type of thinking.

ASSESSMENT

The rubric scales presented above are adopted to assessing the two paraphrasing assignments. Apart from Question 1 in the second assignment, the rubric scale in Figure 2 is suitable for these kinds of responses. You could tailor the wording within the scale to perfectly match each question, but I do not think this is necessary for small assignments, especially since the primary learning goals are improving competency and confidence. Customized feedback can be shared in a designated comments section by adding a column to the scale.

SKILL SET: CRITICAL ANALYSIS OF THE LITERATURE

Learning goals: Students often have difficulty evaluating source material. This assignment offers initial practice before conducting a more formal, independent analysis. A primary source is compared to a corresponding secondary report, where the student critiques the accuracy and completeness of the secondary presentation.

ACTIVITY DESCRIPTION

Undergraduate students, I have found, become good reviewers of the literature, but may lack evaluative ability. They are adept at communicating information as long as it is not too difficult to comprehend. Writing with a keen organization, which is addressed in the previous and subsequent sections, and other writing mechanics can be still problematic. Nonetheless, literature reviews seem to be where many students shine when it comes to term papers geared towards practicing scientific literacy. Even very thorough reviews, though, can lack critical analysis at a rudimentary level, as well as judicious editing. For example, student papers often relay rather inconsequential information, like the number of test subjects in a given study, without much thought to why it should be included. And rarely does a student offer any reasoning or context, let alone an assessment of the included material. Similar to the question above which I often pose to students, I also find myself saying to them, “If you don’t know exactly why a component in your paper is important to include, then how will anyone else?” This is the kind of critical analysis I like to introduce in the paraphrasing exercises, and further emphasize upon here before asking for more advanced critiques.
As supplemental training for more formal critiques of the primary literature, this assignment elicits practice evaluating aspects of a study or article. Many, unfortunately, struggle with the ability to offer thoughtful, reasoned evaluation of research articles. This issue can be problematic for a literature review, because even this type of paper still requires at least a minimal assessment of the studies presented, as illustrated above. Within this assessment, a student must stay focused on a particular line of inquiry, select appropriate articles, recognize trends, contrast differences, and draw overall conclusions. Though the assignment presented here is probably not necessary for simpler review papers, the exercises may still be useful for instructors to employ.

My favorite assignments relate scholarly research to either an application or public interest. When the laboratory can be connected to the real world, students naturally connect as well. When I explain complicated concepts, the topics are more relatable to the students always win out. The present assignment is an attempt at forming meaningful connections by using the contemporary news media to bridge the gap between student and scientific mindsets. A secondary source relaying a research study to the public is compared to the original article. Students read both, and are asked to assess how well the scientific writer did their job. They must reason out their arguments, and suggest improvements. Normally, I pick high-quality news articles, but particularly bad examples can be a great learning experience too. A bonus comes when you can locate an article that also bolsters course material. Questions 3 and 4 in the assignment exemplify this feature, where I can ask specific questions relating the article to a class topic. This assignment is essentially a critique of a professional review of a given study. An alternative could be a critique of another’s critique of a study. Both versions allow the student to focus more on the critical analysis rather than writing a complete assessment themselves.

### Homework Assignment III

**Article Critique: Comparing primary and secondary sources**

First, go to the website listed below, and read the article on ‘How being left-handed changes your perception of the world’ (Resnick, 2015). The article is a secondary source. Retrieve the original source (Casasanto, 2009), and answer the following questions using both articles. Be sure to use your own words by paraphrasing information from your sources. So, do not use direct quotes from the article.

Web link for the Resnick (2015) article:


1. Compare the methods of the original article (Casasanto, 2009) with the secondary report (Resnick, 2015). Evaluate Resnick’s (2015) account. How accurate is it? Was there any information that should have been retained? Left out? Explain your rationale behind your evaluations.

2. Present a similar evaluation of the results.

3. Relate Casasanto’s (2009) discussion on neural circuitry to concepts we learned in class.

4. Are there any other course concepts that are pertinent to this study that Casasanto (2009) did not cover?
ADDITIONAL INFORMATION

I admit that this kind of assignment is not an actual critique of a research article. Rather, it is a critique of someone else’s literature review or evaluation (the scientific writer’s news article). If used strategically in a comprehensive lesson plan, it can hone critical thinking skills (Parkinson & Adendorff, 2004; Wade, 1995) and serve as a launching point to writing real critiques. The student, nonetheless, obtains practice generating critical analyses, along with sound reasoning to support their arguments. Subsequently, critiquing the primary literature should not be such a big leap. Since the primary source was integrated into the assignment, I argue that the execution of evaluating original research articles has already gained traction.

ASSESSMENT

The assessment approach is congruent with evaluating the paraphrasing exercises. The same rubric scale (Fig. 2) is used with an analogous approach. Again, I tend to set a moderate threshold in grading criteria, and still provide supportive, helpful feedback in the spirit of continued development of these skills.

SKILL SET: OUTLINING

Learning goals: Outlines serve as a blueprint to follow when writing any significant document. Students learn how to construct an effective outline, plan what and how information is presented, and, hopefully, realize the benefits of using one.

ACTIVITY DESCRIPTION

It would be remiss to not promote the use of outlines more formally. As pointed out earlier, creating an outline can help students produce better papers, as it has for me. I guess I am also carrying on the tradition of torturing the next generation of students with crafting outlines. Outlines, and other prewriting strategies, have been shown to increase the quality of writing (Goldstein & Carr, 1996; Kellogg, 1990). The main benefits lie in the development of organizational skills and dispersed cognitive load (Kellogg, 1988). An outline can help a student focus on the overall structure of a paper while maintaining specific features, such as organization, order of progression, completeness, and strategic employment of references. Developing an effective outline requires close scrutiny of what information should be included, how it will be presented, and the amount allocated. In other words, a significant part of the editing process can take place before writing, which can save time and allow the author to spend more time writing key passages of their paper. All of this requires mindfulness of the predicted outcome of the paper. The document then serves as a map or set of directions for students to follow, keeping them on track, and, hopefully writing meaningful and logical sentences and paragraphs in support of the requirements of the assignment. Additionally, the outline provides a reflection of the planned paper’s intent, where the student or instructor can refine the direction of the effort. This assignment has an added benefit for the instructor as a checkpoint prior to the formal writing.
The paraphrasing exercises presented earlier are an introduction to the outline process by creating a list or set of bullet points to extract pertinent information. Students were asked to produce a brief, informal outline, highlighting the main aspects of a given passage. Hopefully, it was practice for identifying the structure and organization of an article, as well as extracting the key points. Here, they are asked to produce a formal outline for their own article or paper.

The exercise of developing a formal outline in of itself can be very insightful, but applying it can show students an outline’s usefulness. I recommend spouting its virtues and indicating its application. To get the most out of the exercise and derive a useful product, students need to know why they are doing this exercise and exactly what it will be used for. Since outlines require thought and preparation, most will not take the time to use them regularly, let alone even try it at all. Lots of practice is required in order make effective ones. Thus, formal assignments for outlines allow students to realize their benefits, and see firsthand their usefulness. Hopefully then, they will continue the practice, in your course and beyond. In addition to touting the benefits of an outline, I take class time to present the relevant components, and how to construct one. Also, many examples can be found on the internet, and a couple of which is listed in the reference section.

The prewriting assignment (below) prompts students to develop an outline. It contains a sequence of questions that should be answered in the proposed order to create the overall structure and direction of a paper. For each step, the students should show their work, so the instructor can view and monitor the process behind the outline construction. Some or all the assignment can be a class activity, where you can offer immediate feedback on an individual basis. The first step in the exercise is describing the main goals of the paper in about three sentences. I call this the ‘Mini-abstract’. It should reveal the overall plan and purpose for the paper, which may include a thesis or issue to investigate. In contrast to a regular abstract, this one will probably not contain any details, and conclusive points may not be formulated yet. However, it should possess enough information for the instructor to evaluate whether the topic is appropriate, in content and direction. The Mini-abstract can be an assignment itself, and can serve as a beginning checkpoint for a term paper. The Title cannot be well defined until the overall approach and specific area of focus are stated.
Homework Assignment IV
Creation of an outline for your paper

As discussed in class, outlines serve an important function of clarifying your plan before the actual writing of your paper. It can save you a lot of time by working out the ideas and components of your paper ahead of time. A blueprint, of sorts, can efficiently guide your writing, keeping you focused and organized. This assignment provides you an opportunity to create your own customized outline, and see the benefits for yourself. All this planning will pay off with a more focused paper and save you time with the actual writing. So, take extra time now to think about how you will present information. That way when you start the actual writing, you can focus on the phrasing of sentences, because the content and its direction has largely been sorted out already. Construct a formal outline by addressing the following points in the listed order.

1. Once a topic has been identified, write a 2-4 sentence Mini-abstract that describes your paper’s goal(s) and approach. This short passage should articulate a specific direction of your overall storyline, yet refrain from touching on too many, if any, specific details.

2. Propose a Title of your planned paper. It should be concise, extracting the essence of your mini-abstract.

3. Outline the Main Body of your paper by following these steps:
   a. Decide on the key topics necessary to support your paper’s thesis or overall investigation. List them by bullet points. You do not need to write in full sentences, but each point should at least be a phrase describing the topic and its purpose.
   b. For each bullet point, write an appropriate subheading representing that section in your paper. Show your subheadings in your formal outline listed in a logical order. Base the format on the sample outlines discussed in class and/or available on the internet.
      *The subheadings may or may not end up in your final paper. Here, they help organize your outline in distinct sections so you can plan your paper’s structure, and use it as a blueprint when you are ready to write.*
   c. Now include some details under each subheading. Under each, plan specific points to cover by adding them to your outline. For each point, do not simply just list a subject. Rather, fashion a phrase stating the purpose of the point you want to include. Be sure to refer to your statements from 3a to keep you on task, since they should contain your goals for each subheading. And be mindful of the order in which you present each point.

4. Outline the Introduction of your paper.
   a. What are the key points needed in this section? Place them in a logical order within your outline. Make sure the proposed content appropriately introduces and sets up your paper.

5. Outline the Discussion/Conclusion of your paper.
   a. What are the key points needed in this section? Place them in a logical order within your outline. Since you might not have things quite figured out as much for this section,
you can still propose some discussion points and modify as needed. For an initial outline, you should at least be able to anticipate the organization of this final section.

b. Make sure the proposed content appropriately introduces and sets up your paper. Did you provide enough detail and description for someone else, like your instructor, to understand your plan and visualize it as a viable paper?

6. Proofread and revise your outline. Make sure to consider the following questions. Revise and seek help when necessary.
   a. Does it follow a logical progression?
   b. Is it complete in content and meeting the requirements of the assignment?
   c. Did you provide enough detail and description for someone else, like your instructor, to understand your plan and visualize it as a viable paper?

ADDITIONAL INFORMATION

After the Mini-abstract and Title are fashioned correctly, the paper can be outlined. They serve as beacons to guide how all the information included will support it. The content must support the overall goals. I recommend outlining the Main Body of the paper first. Once this section is organized, an Introduction can be geared towards the featured content within the body. The Discussion/Conclusion section can then be tailored to complement and connect with the previous sections. Sometimes students need specific instruction on what makes each of these sections successful. Of course, your own requirements for a writing assignment will dictate how the outline should be customized. The questions I pose in this exercise are designed to prompt the student to think about the major features of what any outline should contain, and how it should be organized.

The intent of the assignment is introducing students to creating useful outlines. For some projects, the level of detail requested might be overkill, especially for shorter papers or essays. Nonetheless, even brief writing assignments could benefit from a prewriting strategy (Goldstein & Carr, 1996; Torrance et al. 2000). On the other hand, longer term papers may call for more elaborate outlines. And some students may benefit from more detailed outlines. Extra features that add more structure could include the designation of specific paragraphs, and noting which references will be used and how. Topic sentences can even be written for each paragraph or few select ones. I, oftentimes, preach ‘portion control’ to my students, telling them to be mindful of how many paragraphs or pages a topic should consume. What purpose does it serve? Is the amount planned proportional to the rest of the paper? A successful outline will address these types of questions. Of course, these prewriting steps are time-consuming. If done correctly and wisely, though, this exercise can pay off greatly in a more polished paper, and save time with the actual writing.

If you do not want to spend a lot of time on outlining, you could incorporate some of these features in other assignments. For instance, the paraphrasing exercises require them to extract main points and list them. You could
bolster this assignment by having them construct a more formal outline before you have them summarize the section assigned. This extra elaboration does not add much work, but still provides practice in outlining. Anytime students work directly with the identifying or designing the structure of a paper (their own or another's), they develop valuable skills in comprehensively extracting and relaying information, pillars in scientific literacy.

This assignment is more involved than the other ones in this chapter, and, accordingly, so is the assessment. Still, a moderate grading threshold is implemented. Compared to the previous assignments, a higher threshold may be called for when it is critical that the outline must be at a certain standard before proceeding to writing the planned paper. Moreover, this checkpoint is an opportunity for the instructor to intervene at a critical juncture before more time is invested by the student, which could possibly be in the wrong direction. Conversely, outlines for shorter papers will probably not warrant such scrutiny.

ASSESSMENT

My complete grading rubric for the outline is below. When I distribute the assignment in class, a copy of the rubric is included. The students appreciate a clear preview of the standards expected of them. The point values are merely suggestions. With the exception of the Title and Mini-abstract, the evaluative criteria (e.g., Organization, Writing quality) are scored for the entire outline, rather than for each section (e.g., Introduction, Discussion). I find this simpler and more efficient. If a particular criterion varies wildly across the outline, I make note of it in the comment section.
### Grading Rubric for Outline Assignment

<table>
<thead>
<tr>
<th></th>
<th>1- Below Expectations</th>
<th>2 - Basic</th>
<th>3 - Proficient</th>
<th>4 - Outstanding</th>
<th>Score</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td>Inappropriate title, incomplete, or includes excessive information. Poor articulation, editing and writing quality.</td>
<td>Most of the content is appropriate. Subpar completeness, articulation, editing and writing quality.</td>
<td>Appropriate content. Satisfactory completeness, articulation, editing, and writing quality.</td>
<td>Appropriate content, specifying paper’s direction. Complete and carefully edited. Very clear, articulate writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mini-abstract</strong></td>
<td>None to minimal development of key direction and main points. Significant content missing or misarticulated. Poor writing quality and/or organization.</td>
<td>Presented key direction but not well articulated. Some main points missing or unclear. Subpar writing quality and/or organization.</td>
<td>Presented key direction with most or all of the main points adequately explained. Satisfactory editing, writing quality and/or organization.</td>
<td>Highlights key direction along with main points. Carefully edited, balanced. Very clear, articulate, and organized writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>Severely lacks organization. The structure of each section is unclear. Subsections are not clearly labeled and divided.</td>
<td>Subpar organization. Significant lack of structure evident for each section, and subsections are somewhat labeled and divided.</td>
<td>Satisfactory overall organization. For the most part, the structure of each section is evident, and subsections are clearly labeled and divided.</td>
<td>Excellent overall organization. Well-conceived. Clearly shows the structure of each section. Subsections are clearly labeled and divided.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flow/Sequence</strong></td>
<td>Significantly lacks logical sequential order. Significantly lacks cohesiveness, as well as progressive</td>
<td>Somewhat in logical sequential order. Somewhat cohesive. Some progressive</td>
<td>Mostly logical sequential order. Mostly cohesive. Satisfactory progressive</td>
<td>Logical sequential order. Excellent overall cohesiveness. Well-conceived. Excellent</td>
<td></td>
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<td>-----------------------------------------------</td>
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</tr>
<tr>
<td><strong>Format</strong></td>
<td>Little to no formatting, and/or inconsistent. Poor implementation of hierarchical/alphanumeric system. Not properly indented.</td>
<td>Subpar execution of outline format; Somewhat uniform and consistent. Subpar implementation of hierarchical/alphanumeric system, and use of indents.</td>
<td>Excellent execution of outline format; Uniform, consistent. Proper implementation of hierarchical/alphanumeric system. Properly indented.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Writing quality</strong></td>
<td>Poor articulation, editing and writing quality.</td>
<td>Subpar articulation, editing and writing quality.</td>
<td>Satisfactory articulation, editing, and writing quality.</td>
<td>Very clear, articulate, and organized writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Severely lacking the inclusion of relevant topics. Information does not support goals. Excessive extraneous information. Little to no presence of references, topic sentences, and other detailed indicators of planned content. Severely imbalanced (Lacks proportioned use of material, as well as appropriate level of detail).</td>
<td>Significant lacking the inclusion of relevant topics. Information somewhat supports goals. Excessive extraneous information. Little presence of references, topic sentences, and other detailed indicators of planned content. Not balanced (Disproportioned use of material; lacks appropriate level of detail).</td>
<td>Mostly complete inclusion of relevant topics. Information satisfactorily supports goals. Some extraneous information. Some presence of references, topic sentences, and other detailed indicators of planned content. Mostly balanced (Proportioned use of material; mostly appropriate level of detail).</td>
<td>Thorough, complete inclusion of relevant topics. Information substantially supports goals. Minimal extraneous information. Significant presence of references, topic sentences, and other detailed indicators of planned content. Very balanced (Well-proportioned use of material; appropriate level of detail).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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CONCLUSION

Following the entire sequence of exercises above is substantial work for the student, and could expend substantial class time. Completing each step fully may be tedious, especially considering that all of it is merely training for a formal literature review or other larger project. However, the assignments build essential skills that could result in huge payoffs in the long run. My preference is to use one class period as a workshop covering the tools needed for both database searches and paraphrasing. As long as students are adequately prepared to do the given assignments on their own, they should be able to refine their skills through self-practice. Of course, the number of assignments and their length can be modified to suit an instructor’s needs. Nonetheless, each facet within this prescribed program can be worthwhile in promoting scientific writing competency.

REFERENCES


**ADDITIONAL RESOURCES**

**APA Web Links**


**Web Links for Sample Outlines**

http://www.austincc.edu/tmthomas/sample%20outline%201.htm

https://app.shoreline.edu/doldham/Para%20Out%20Sample.htm

**Books for Students or Course Readings**


ABSTRACT

To help undergraduates write their first APA-style empirical research report, scaffolding activities have been implemented throughout the semester in an upper-level course. During the first half of the semester, reading assignments and in-class discussions focus on reading journal articles, critiquing methods, APA style, and writing about research without plagiarizing. During the second half of the semester, an in-class experiment replicates and expands on previously published research, and students are guided through planning each section of their research report. Self- and peer-review, and an opportunity for revision, provide students with opportunities to reflect on and develop their writing. This chapter explains the design of the scaffolded assignment in detail; appendices provide detailed timelines, specific activities, peer-review instructions and a grading rubric.

Few tasks seem to daunt my students as much as writing their very first empirical research report. The simple structural headings of Introduction¹, Methods, Results, and Discussion can paralyze otherwise excellent writers with uncertainty. *I don’t know how to write a Methods section*, they say, or *What gets discussed in a Discussion?* These uncertainties led me to implement a semester-long scaffolding process, designed to guide students from critically thinking about the literature through the concept of peer review in research. This process assumes students have no research experience: that they have not read an empirical report, that they have forgotten all knowledge from Statistics, and that they have never glanced at the APA Manual. If those assumptions all turn out to be true, even the scaffolded writing process becomes an intense trial by fire, but even so it provides a helpful foundation for student success.

THE COURSE

I use this scaffolding in a 200-level course required for majors, and typically taken by sophomores or juniors. Each course has a content area (most recently, the Neural Basis of Learning) that is the focus of instruction, with labs intended to simultaneously provide students with hands-on research experience and help them understand the origin of the claims their textbook is making. I schedule my 4-credit course to have one 90-minute lab session and two 70-minute lecture sessions each week over a 13-week Spring semester. I teach at a small liberal arts college for women, which graduates between 20 and 30 psychology majors each year, and the class size typically ranges from 8 to 18.

¹ Not an actual heading in APA format, of course, but I have yet to convince some of my students of this.
THE ASSIGNMENT

During the second half of the semester, students complete two behavioral research activities, designed by the professor, with data collected from the students themselves. Each research activity is a replication and expansion of published psychological research. The syllabus description is deliberately brief, informing students that “We will complete two in-class experiments, on the dates specified on the schedule. You will write a full APA-style empirical report motivating the experiment, describing the methods, presenting the results, and interpreting the findings.” During the writing process, students are informed of additional specific requirements, specifically describing three previous findings from empirical research reports in their introduction to motivate the study and their hypothesis, and presenting at least one finding in a figure.

THE SCAFFOLDING PROCESS

The scaffolding process consists of four phases:

1. **Selecting and designing the experiment.** This takes place before the semester and out of student awareness, but is absolutely essential to the success of the research activity.

2. **Developing foundational skills.** Several lab sessions early in the semester are devoted to essential skills such as reading empirical articles and writing in APA style (activities are listed in Table 1).

3. **Section-by-section writing of the manuscript.** This spans three weeks of the semester, with time devoted to planning each section of the research report. Individual class sessions focus on the study motivation, methodology, conducting the data analysis, and planning in the discussion (activities are listed in Table 2); students also complete a peer-review of a draft Introduction and Methods (using instructions presented in Table 3).

4. **Self- and peer-review.** Before submitting their assignment, students identify the strengths and weaknesses of their own writing and provide feedback to other students (using a grading rubric presented in Table 4) with an option for revision.
### TABLE 1: DEVELOPING FOUNDATIONAL SKILLS ACTIVITIES

<table>
<thead>
<tr>
<th>LAB SESSION</th>
<th>WEEK 3</th>
<th>PRE-CLASS READINGS</th>
<th>PRE-CLASS ASSIGNMENT</th>
<th>IN-CLASS ACTIVITY</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td><em>APA Manual</em> (6th Ed.) Chapter 2: Manuscript structure and content.</td>
<td>Identify as a word-for-word quote, following APA quotation format, the sentences from the journal article that best identify the 1) importance and rationale of the study; 2) hypothesis; 3) most important finding; and 4) most important statement of the Discussion.</td>
<td>Walk through the selected article as a class. First, review abstract; headings and subheadings; figures. then, students read each section, identifying the purpose of each individual paragraph and discussing their choices for the “best sentence” preparation assignment. Students practice paraphrasing by writing a new abstract.</td>
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<tr>
<td></td>
<td></td>
<td>A selected journal article relevant to the current class topic.</td>
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<tr>
<td>LAB SESSION</td>
<td>WEEK 4</td>
<td><em>APA Manual</em> (6th Ed.) Chapter 6: Crediting sources.</td>
<td>Write a paraphrased statement of the theory, essential characteristics of the participants, an explanation of the purpose for including each figure, and your take on whether the conclusions are warranted from the design of the study.</td>
<td>In pairs, students answer detailed questions analyzing the figures, to explain, without plagiarizing, the methods used for collecting the relevant data, scales of the X and Y axis, and practical significance of results (such as effect size or error bar analysis). Then, students identify reasons to be skeptical of and accepting of the authors’ conclusion, based on the methods of the study.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A selected journal article relevant to the current class topic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAB SESSION</td>
<td>WEEK 6</td>
<td>A selected journal article relevant to the current class topic.</td>
<td>1) Analyze two statements/facts from the procedure, and explain why it is necessary to include that information: why the design is more trusted from knowing this, and/or what questions would be raised if that fact was not included. 2) Write a one-sentence summary of each of the two figures, explaining what point that figure makes.</td>
<td>Walk through the selected article as a class, focusing on the methods. Students are asked to explain what each detail of the methods adds: what would have been different if that detail had been done differently, and what questions or uncertainties we would have if that detail had been omitted.</td>
</tr>
<tr>
<td>LAB SESSION WEEK 7</td>
<td>APA Manual (6th Ed.) Chapter 1: Writing for the behavioral and social sciences.</td>
<td>Look back over a recent writing assignment you've completed. Evaluate yourself on your tendency to use economy of expression, precision and clarity, the appropriate level of specificity, misplaced modifiers, and parallel constructions. Which do you need to keep an eye out for as you write your first behavioral research report?</td>
<td>Present the hourglass structure and key features of each section of an empirical research report. Students receive an example student report, which received a strong grade in the previous semester, and use a copy of the grading rubric to determine what characteristics led to the grade and what feedback was likely received by the author.</td>
<td></td>
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</tbody>
</table>
SELECTING AND DESIGNING THE EXPERIMENT

Selecting and designing the experiment is the most essential – and time-consuming – aspect of the scaffolding process. If the experiment itself is too complicated, the topic too esoteric, or the journal article presenting the original findings too abstrusely written, students will struggle both with motivating themselves to care about the research and with understanding it. When hunting for the best experiment, I keep in mind:

1. The experiment should have a natural “hook” that makes the research question interesting to students. Their favorite topics (such as mental health issues or child development) may be impossible, but the nitty-gritty details of refining our understanding of topics they may not have studied before (such as my own area of research, separating working memory and inhibition in our executive functions) add an extra layer of unfamiliarity.

2. The experiment should be a close, but not identical, adaptation of previously published research. Similarity to an existing research study provides students with a source other than the professor for information about the research topic and a directly relevant example of what information is included the methods and what analyses should be conducted. Expanding on the study, rather than just replicating, forces students to find additional references to motivate the new twist on the research and to grapple with results that have not been discussed before.

3. The methods of the experiment should work well in a time-constrained, group data collection setting. A pen and paper activity that can be passed around to the entire class to complete quietly is ideal for minimizing the time and equipment needed. Data collection should take no more than 30 minutes, to leave more time for discussion of the hypothesis and methods while the experience of being the participant is still fresh.

4. The data analysis in the experiment should be require only one kind of statistical method, preferably a student’s t test. This requirement could be relaxed for students with a stronger statistics background, but focusing on one analysis makes it possible to re-teach the method in a limited time frame.

5. The journal article that presents the original research study should be a model of good writing practices. This article will be considered paragraph-by-paragraph or even sentence-by-sentence during class discussion, and students will be reading it multiple times. I hate to have all my scaffolding efforts fall flat when a student commits a major writing taboo and then says, “But in the article we read...” Each instructor will have their own personal preference for writing style; I look for articles that use more plain language than jargon, follow an hourglass structure (broad to narrow in the introduction, narrow to broad in the discussion) with topic sentences for each paragraph, format their results in my preferred style, and use good graphing practices.

This is a tall order for any experiment, and it can take hours to settle on the best one for a given topic. For my Neural Basis of Learning course, I have settled on adapting Richland, Kornell & Kao’s (2009) report of a “pre-testing effect”,

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where being forced to guess answers before reading a passage improves recall later. The original experiment had groups of participants answer five fill-in-the-blank questions, read a 2-page excerpt from a psychology book, and then answer the same five questions again as well as five new ones. Across five experiments that varied the methods slightly (such as bolding or highlighting information in the text), they found that participants answered the questions they had seen before reading better than the new questions, even though their answers on the pre-test were usually wildly incorrect guesses.

My expansion on that research was to have students consider the topic of the passage being read: would the same pre-test effect be observed for relatively familiar, interesting material (a biology story about snakes) as for relatively unfamiliar, complex material (a physics article about quantum mechanics). This allows a 30-minute data collection process: students receive handouts with the pre-test, article, and post-test, take a brief break, and then repeat. All students can be given the same verbal instructions about answering questions and reading the articles, without realizing that they have different sets of questions. From a researcher’s perspective, the experiment is a failure; two classes have failed to find a pre-testing boost for either article. From an instructor’s perspective, however, this is an excellent opportunity for students to problem-solve in their Discussion just why we failed to detect anything. I may change the specific articles and questions for a future semester, but otherwise the research question and manipulation are well suited to a first behavioral research experience.

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**Developing Foundational Skills**

The foundational skills of reading journal articles, understanding research methods, and thinking critically about results are integrated throughout the first half of the semester. Journal articles, or selected excerpts of them, feature frequently in the assigned reading. These articles are chosen to be relevant to the current topic of the class, with a design and writing style that are appropriate for undergraduates. Ideally, the selected articles were featured in the current textbook chapter, allowing a comparison of the description in the textbook and the original source material. When the original articles are too long for a supplemental reading assignment or too detailed for the class, excerpts are created that pull select sentences from the introduction and methods and the figures from the results to help students focus on the most essential information without being overwhelmed by the complexity of an experiment.

Four lessons during this time are devoted to scaffolding research literacy skills, using a selected journal article to provide students with hands-on experience reading and thinking about empirical research. Each lesson has a preparation assignment, a written reflection based on some assigned readings that must be brought to class (worth 0.5% of their final grade each class day). This is designed to have students begin actively thinking about the journal article on their own, to form some specific ideas that can be supported or challenged by instruction during an in-class activity. The pre-class preparation and in-class activities (listed in Table 1) are designed to help students begin

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2 Although the class is small, students are strictly forbidden from discussing sample size as a reason for null results, and must consider the experiment design instead.
developing an understanding of how journal articles are structured, how to think about the information they contain, and how to write about them without plagiarizing.

**How to read a journal article**

Most students begin reading journal articles the same way they read a textbook: once, from beginning to end, highlighting anything that they think is important—which is often the vast majority of text, and sometimes seems to be everything that they didn’t understand. In the pre-class assignment, students are asked to think more actively about the article, identifying a series of “best sentences” that set up the rationale, hypothesis, and key findings of the study. The class meeting provides a process of reading the abstract, headings, and figures before tackling the text, to gain a better sense of direction. Students are informed that by doing this, they can have a better sense of what the main claims and ideas will be, which they can then keep in mind to guide their reading. For example, if a subheading in the results promises “reliably different between-subjects effects”, the students should keep an eye out for what the between-subjects manipulation is in the methods; if a figure presents results divided into “first degree pairs” or “second degree pairs”, the students should read with a goal of understanding what those terms mean.

**How to write about research without plagiarizing**

The abundance of technical terms in journal articles often leaves the impression that students must be equally technical to “write like a scientist”. Unfortunately, they do not yet have the experience to fully understand the terms they are reading, leading them to copy-and-paste large chunks of the original text. What they think is paraphrasing—swapping or deleting a word, switching the order of clauses—is in fact plagiarism. As soon as journal articles become assigned reading, class time is devoted to providing examples of failed paraphrasing, offering guidance such as writing notes after reading not while reading, and practicing writing. Inadequate paraphrasing is not a habit that can be broken in a single lesson, so students begin by writing in lab one week, and then for both their pre-lab assignment and in lab again the following week.

**How to evaluate the author’s interpretation**

Students’ acceptance or rejection of a scientific claim often hinges on whether they like it; if they do, the research is good, but if they don’t, then the research was flawed. Simultaneously, if contradictorily, students accept that the data supports whatever claim the author says it does, without considering the appropriateness of the analysis, the effect size or the generalizability of the design. With a partner, students are prompted to look for reasons to accept the author’s conclusions, but also to be skeptical of their claims. Critically, students are explicitly instructed to look for those reasons in the design and details of the methods, not just on the results themselves.
Where to look for information within a journal article

Experienced researchers have internalized the empirical report structure, but undergraduate students may still be looking for statistical analyses in a Discussion section. My students first read about the structure in their APA manual, and then a few weeks later they receive an in-person lesson reviewing the same key ideas, on the principle of reintroducing material just as it is being forgotten. Essential ideas that the introduction should open with a “hook” that makes the reader care about reading on, and end with a meaningful hypothesis, are reviewed.

What to include in a methods section

The undergraduate student’s methods section tends to either have no detail at all, perhaps mentioning that participants “read an article about snakes”, or to have far too much unnecessary and distracting detail, perhaps that the article was “printed in 12-point Times New Roman font, single spaced, on the front and back of a single sheet of paper that participants either laid on the desk in front of them or picked up to hold while they read”. Unfortunately, there is no hard and fast rule that can be given about what the appropriate level of detail is, so we discuss as we read each journal article why this detail was necessary, and why other details could be omitted.

Although most of this phase of the scaffolding process uses published research, one lesson uses an example of a student research report from the previous semester. Students view this activity as the most essential, as it provides a more direct model for what they will be writing than the professional journal articles. I use this lesson to ensure they know what the grading criteria and standards will be, as they must comment on a copy of the grading rubric (Table 4) to identify what the student author did well and what feedback that author might have received. This provides the final scaffolding step before students begin to write their own research reports.

SECTION-BY-SECTION WRITING

The writing process beings on the day of data collection. Each class meeting for a week has preparation and in-class activities (listed in Table 2) that provide roughly an hour of instruction and practice writing each section of the research report.

To ensure students have a solid understanding of the original journal article they have built upon, they first hear a description from the professor as a lecture on the day of data collection, then read the original article and write a paragraph summary of it, then participate in a guided discussion of the experiment design.
**TABLE 2: SECTION BY SECTION WRITING ACTIVITIES**

<table>
<thead>
<tr>
<th></th>
<th>Emphasis of Instruction</th>
<th>Pre-Class Assignment</th>
<th>In-Class Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Session</td>
<td>Data collection.</td>
<td>None.</td>
<td>Data collection.</td>
</tr>
<tr>
<td>Week 8</td>
<td></td>
<td></td>
<td>Instruction on the theory, design and findings of the original research, with an</td>
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<td></td>
<td></td>
<td></td>
<td>explanation of the new feature added in the current research.</td>
</tr>
<tr>
<td>Lecture</td>
<td>Introduction</td>
<td>The summary of Richland, Kornell &amp; Kao (2009) you plan to</td>
<td>Guided class analysis of experiment details, partnered sharing and individual</td>
</tr>
<tr>
<td>Week 8</td>
<td></td>
<td>include in your research report introduction, including a</td>
<td>revisions of written article summaries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>statement of what question they left unanswered that our lab</td>
<td>Instruction and advanced tips on literature searches, such as using Google Scholar’s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>attempts to address.</td>
<td>“cited by” and applying modifies such as phrases in quotes, AND or – in search terms.</td>
</tr>
<tr>
<td>Lecture</td>
<td>Methods</td>
<td>Analyze Richland et al.’s (2009) methods section by filling</td>
<td></td>
</tr>
<tr>
<td>Week 8</td>
<td></td>
<td>out the provided table considering each piece of information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>from Experiment 1. Think about why that information is included</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>in the methods, why it is presented in that study, and what it</td>
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<tr>
<td></td>
<td></td>
<td>adds to either the trust in or application of the study.</td>
<td></td>
</tr>
<tr>
<td>Lab Session</td>
<td>Results</td>
<td>Complete draft of Introduction and Methods sections.</td>
<td>Self-review of Introduction and Methods.</td>
</tr>
<tr>
<td>Week 9</td>
<td></td>
<td></td>
<td>Review of hypothesis testing. Data analysis, conducted as a class.</td>
</tr>
<tr>
<td>Lecture</td>
<td>Discussion</td>
<td>Draft of Results section.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Week 9</td>
<td></td>
<td>Why did we fail to replicate Richland, Kornell &amp; Kao? Identify one difference in procedure (not participants!) and explain why that difference would lead to non-replication. After class discussion of explanations, individually rank preferences for most likely explanations.</td>
<td></td>
</tr>
</tbody>
</table>
This lesson transitions to instruction on writing the introduction, beginning with the example of how the original authors motivated their research and presented alternative theories to be tested by their experiment. A major point of instruction is that an introduction should move from idea from idea, not from citation to citation. My students often come into the class with a habit of starting a paragraph with “Research by...”, describing the research that was done, providing the original authors’ conclusion, and then moving on to their next paragraph and their next citation. I emphasize opening each paragraph with the point they want to make, such as an explanation about a theory or a limitation of the previous research.

We also devote part of the class meeting on the Introduction to running effective literature searches to find the other two references they will be required to have. My students are accustomed to entering search terms into Google or a library database, but so far none of them have had the full bag of tricks such as “cited by” searches and using quotes or modifiers that help produce the most relevant search results.

The next class meeting focuses on writing the methods. We begin by turning to the original article again. Before arriving at class, students fill out a table that places sentences from the methods section of the article down the left column, with a prompt to fill out the right column by answering the question “Why is this information included, and described at this level of detail? Why was the study done this way? Is any information missing, or confusing?” As a class, we step through the reasons behind including each detail, and what it would mean if that detail were left out. We also discuss which details are the same in our own experiment, and why those were made.

A week after data collection, a lab session has two goals: self-review of the Introduction and Methods, and data analysis. During the self-review, students are asked to read through their current drafts, with active exercises such as creating a “reverse outline” of the Introduction by copying over the first sentence of each paragraph, and reviewing their Methods sentence by sentence asking “Does this detail convince the reader that my design is good, and that they should trust the results? Would this detail being different change the results - if so, how?” Students are asked to reflect on the state of their drafts, giving themselves a grade (the draft is officially worth 2% of their final grade) and identifying what they need to do to improve these sections.

Before we conduct data analysis, students are provided with a handout reminding them of the idea of hypothesis testing, the purpose of a t-test, and an example of how to write significant or non-significant results. We conduct data analysis together, viewing the raw data and t-test output from Excel’s “Data Analysis” feature. I demonstrate one t-test, then lead the students step-by-step through the second t-test asking “What do I do next”, and the have students to plan and direct me through the full procedure for a third t-test.

Finally, a class meeting focuses on the Discussion. Students bring drafts of their results, to check their presentation and APA formatting of the statistics, and as a stepping stone to discussion. Students begin by summarizing our goal and whether our results matched it, which they are then told is what the first paragraph of their Discussion should be. Students then work in small groups to brainstorm explanations for our failure to replicate, focusing on identifying
aspects of the materials and procedures could be responsible, and articulating exactly why those changes would have negated or hidden the pre-testing effect. Finally, students consider the possibility that pre-testing does not in fact provide an advantage, and come to a decision about whether the pre-testing effect is real, and we failed to detect it in our study, or whether it is not real, and our results just demonstrate it is not an effective learning strategy. This will form the bulk of their Discussion section, concluding with the answer they plan to provide to the motivating “hook” in the opening paragraph of their introduction.

There is one additional class meeting on the schedule before the full research report is due. There is no scheduled assignment or topic for this meeting; in some semesters, I have canceled this class to provide additional writing time, and in others (with smaller enrollment) I have required students to have a 5-minute meeting with me to check on their progress and let them ask any final questions. While there are many additional aspects of research writing I could instruct them on in class, the most effective instruction is sometimes to have students do the best they can on their own to apply the previous lessons and complete their first research report.

Peer- and Self-Review

Although I avoid using the word “draft”, which many students interpret as “an outline” or “a few paragraphs” rather than a fully functional manuscript, what my students bring on the official due date is in fact a first draft. Experience has taught me that they might not even have read their writing through from start to finish. As peer review is essential to professional research, taking a lab day for peer- and self-review both gives students experience with the full research process and improves the quality of manuscripts that I will be grading – a boon for both my students and myself.

Peer review can be hit-or-miss, depending on the tendencies and training of individual students. When I was an undergraduate, my peer reviews were too critical, pointing out every flawed sentence with a complete lack of tact. Other students are too hesitant to give feedback, simply saying that student has done things well and offering corrections only to typos. Sometimes students may be willing to give more feedback, but are insecure about their own knowledge; they aren’t sure if it is the author or themselves who has it wrong. To be effective, then, the peer-review process needs to include careful guidance to help students learn what to comment on, and incentives to have them review carefully and thoroughly.

I set my students into peer-review trios, and have them rotate their manuscripts. Each student will review two other students, and receive two sets of comments. This exposes students to multiple other ways of setting up the same research report. With a small class, I try to arrange the groups to counterbalance strengths and weaknesses. During the writing process, students bring in separate drafts of their Introduction, Methods, and Results, which I read over briefly. The three sections involve such different writing techniques that students rarely excel at all three, so I try to put a student who had a strong Introduction but a weak Methods with others who had strong Methods but struggled with the Introduction.
The review process is highly structured, to remind students about what should be in each section and what guidelines were given on doing that section well. Each student receives a packet with five or six specific prompts for each section (Table 3) and a grading rubric (Table 4). A quarter of a page is provided beneath each prompt for student comments. Students are instructed to note the manuscript text they are basing their comment on, and to provide specific, detailed responses. Finally, after each section, the students are instructed to underline the statements in the rubric that describe the paper they read.

For example, one of the prompts for the Methods is “M1. Comment on the presentation of information about the independent variable. Is there sufficient evidence that the only difference is the intended one? What confounds are explicitly rule out by careful description of the design?”. If they think the author addressed potential confounds, their comment might mention that “The author ruled out potential concerns about time of day, the difficulty of the assigned reading, and the type of questions being asked”, and should write “M1” in the margin of the manuscript next to the text that does so. The reviewer might then underline the section of the Methods rubric that reads “Each task is provided in sufficient detail to allow the reader to evaluate whether the purpose would be achieved.”

The incentive for students to provide careful, detailed feedback is that each of their peer reviews is worth 1% of their final grade. To make grading of this as straightforward as possible, each student receives the full point if I can just write checkmarks agreeing to their comments, because they are on point and constructive; 0.7 points if they provide some helpful feedback but also miss an important issue or provide inaccurate corrections; and 0.3 points if they wrote comments but did not provide useful feedback. Although the peer review guidance isn’t perfect, in my last class only 1 of 18 students received the lowest marks for their first peer review.

Finally, students receive the comments from their peer reviewers. They are given 30 minutes to read the feedback, and to read their own research report again now that they have read two other examples. Then, each student is given a choice. They have the option of submitting the research report they brought that day for grading, or of taking the feedback and an extra four days to revise and resubmit their report. If they opt to revise, they must also write a “response to reviewers”, an item-by-item response to the peer’s comments identifying what changes were made or stating why they decided those changes were not necessary. Students who take to the option to revise ultimately submit their original manuscript, the peer review comments, their response to those comments, and a revised manuscript. It makes for a large stack of paperwork, which I tell them is tangible evidence of the thought and effort that went into their first research report. Tables 3 and 4 follow.

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3 An extension from the original Monday due date to the Friday class meeting. In my experience, giving students more extended deadlines for drafts or revisions only means that they delay beginning them, so that the ideas from class fade before writing or revising begins.
Table 3: Peer-Review Instructions

Introduction
I1. Comment on the effectiveness of the opening paragraph at interesting someone to keep reading the remainder of the report, and explaining why the research matters beyond an academic interest in psychology.

I2. Comment on the foundation laid by each of the cited studies. What does each individual study contribute to the motivation for the study and hypothesis? Are the studies described in sufficient detail for you to know how the study supports the point being made, instead of just trusting the author’s claim, and is the study description easy for you to follow?

I3. Comment on the presentation of the theory behind the current study’s hypothesis. Could someone unfamiliar with the foundational article understand why the hypothesis is predicted as it is?

I4. Comment on how clearly and persuasively the author explained what new information this study will add, and why getting this information is useful (not just research for the sake of research).

I5. Comment on the setup for the current study in the final paragraph of the introduction, and whether a reader would enter the methods knowing the primary manipulation and design.

I6. Comment on the organization and clarity of expression throughout the introduction (considering the hourglass structure, topic sentences, using one idea per paragraph / a new idea when moving to a new paragraph, economy of expression, and minimizing jargon).

Methods
“Sufficient evidence” must be shown with examples, excerpts or detailed descriptions, not just told.

M1. Comment on the presentation of information about the independent variable. Is there sufficient evidence that the only difference is the intended one? What confounds are explicitly rule out by careful description of the design?

M2. Comment on the presentation of information about the dependent variable. Is there sufficient evidence that measures were thoughtfully and competently constructed/chosen, and that they would reveal the desired difference in behavior?
M3. Comment on the presentation of other information about the design. Is evidence of the trustworthiness of design (sampling, assignment, counterbalancing) provided? Is there evidence that the tasks and measures are appropriate for the sample, and for the question being asked?

M4. Comment on the presentation of ideas throughout the methods section. Is there a purpose-first organization, so reader can quickly identify why methods are designed the way they are? Is the organization chronological, or are details out of order or repeated?

M5. Comment on the ability of other readers to replicate this study. Could another researcher create an exactly replication from reading this methods section? How much extra effort would replication required? If five different researchers tried to replicate, would they come up with similar studies, or each unique?

Results
R1. Comment on the presentation of statistical information. Are descriptive statistics (M and SD) presented accurately, with units or scale, for both groups, in the proper location? Are inferential statistics (t, df, p) presented accurately, with appropriate formatting, after the descriptives?

R2. Comment on the phrasing of the findings. Does each test appear as a distinct, clear sentence, which states the direction of difference (or lack of difference, if not significant) and what is being compared? Could someone who does not know statistics understand the findings if they skipped over the parentheses, or would they encounter jargon or confusion?

R3. Comment on the organization of findings: How does author go beyond listing the results of the analyses to identify the overall pattern of how they relate to each other and how they relate to the hypotheses?

R4. Comment on the inclusion of any non-required analyses. Is there a clear rationale for why those analyses are included and clear statement of what they show?

R5. Comment on the figures depicting the results, if present.

Discussion
D1. Comment on the first paragraph: does it concisely reiterate the goal of the study, and the pattern of findings, without excessive detail or statistical information?

D2. Comment on explanation for how our results compare to previous findings in the literature. Failure to replicate: Is a case made to explain what aspect of procedure is different, specifying how that change in procedure would change participants' behavior/thinking to lead to non-replication?
D3. *Hypothesis Not Supported*: Comment on the author’s evaluation of the possibility of error: does the author offer a thorough and convincing explanation of their choice between this study making a Type II error, a correct rejection, or demonstrating limited applicability of the idea? Do they address all logical questions; if data could be analyzed to evaluate the possibility, did they?

D4. Comment on their proposal for a future study. Do they offer a convincing explanation for what question remains to be answered, why that matters, and enough info on change for new study to show that it would answer the question?

D5. Comment on the concluding paragraph. Does it connect back to real-world concern raised in the opening, and does its answer or recommendation follow logically from the evidence and points raised in the author’s report?
### Table 4: Grading Rubric

| Abstract | | Achieved. The abstract motivates the research, describe the key components of the methods and results, and interprets the main findings. The sentences flow smoothly into each other, and are written for the abstract not taken from the main text. |
| --- | --- | |
| **Developing** | Competent. The abstract is present and summarizes the key aspects of the lab report, within the 150 (1 paragraph) word count guideline. | Achieved. The abstract motivates the research, describe the key components of the methods and results, and interprets the main findings. The sentences flow smoothly into each other, and are written for the abstract not taken from the main text. |
| **Potential** | | |
| **Introduction** | Competent. Identifies the research question. Presents three previous research studies and states how they fit in with the current study. Descriptions may move from study to study instead of idea to idea. States the hypothesis of the current study. Follows the hourglass structure, moving from broad to narrow, although organization, missing/excessive detail or awkward descriptions may lead to some confusion. | Achieved. Introduces the research question in a way that piques interest and convinces the reader to continue. Synthesizes findings from 3+ previous research studies to provide a compelling foundation for the current hypothesis and methodology, while making clear what new methods and information this study will add. The ideas are organized and ideas/previous studies are described in sufficient detail that someone unfamiliar with the literature and study will understand with no confusion. |
| **Developing** | | Achieved. Introduces the research question in a way that piques interest and convinces the reader to continue. Synthesizes findings from 3+ previous research studies to provide a compelling foundation for the current hypothesis and methodology, while making clear what new methods and information this study will add. The ideas are organized and ideas/previous studies are described in sufficient detail that someone unfamiliar with the literature and study will understand with no confusion. |
| **Potential** | | |
| **Methods** | Competent. Participants’ main characteristics are stated. Procedures identify the main purpose of each task. The key components of each task are identified. Anyone reading the lab report would know the major features of the research method, but might misinterpret or need to ask clarification of details to replicate. Tasks are presented in chronological order, although the details within the task may be out of order. | Achieved. Participants are described in a way that allows reader to evaluate to whom the results would generalize. Procedures are purpose-driven, leading with the role each task plays in the study and focused on details of the methods as they relate to that purpose. Each task is provided in sufficient detail to allow the reader to evaluate whether the purpose would be achieved. Anyone reading the lab report would be able to design a replication study that matched on all substantive points. |
| **Developing** | | Achieved. Participants are described in a way that allows reader to evaluate to whom the results would generalize. Procedures are purpose-driven, leading with the role each task plays in the study and focused on details of the methods as they relate to that purpose. Each task is provided in sufficient detail to allow the reader to evaluate whether the purpose would be achieved. Anyone reading the lab report would be able to design a replication study that matched on all substantive points. |
| **Potential** | | |

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4 I couldn’t find an adjective that encapsulated a “B” grade, so each semester I explain to students that it’s like “potential” with a B, as in potential to reach an A.
<table>
<thead>
<tr>
<th>Results</th>
<th>Competent. All required results are included. Each analysis is presented in its own sentence, with descriptive and inferential statistics included (although placement or format may be incorrect). The phrasing of results may be indirect (&quot;different&quot;, &quot;significance&quot;), and the relation between the analysis may be unclear. A chart presenting one of the analysis is included, presenting the average and variability (error bars) with minimal errors in formatting.</th>
<th>Achieved. Results are organized and synthesized to provide a clear statement of the overall findings and how they relate to the hypothesis of the study. Each result statement provides a simple, directional statement, with descriptive and inferential statistics appropriately formatted, placed, and stated, with no statistical jargon. The chart conveys a meaningful aspect of the findings with a clear caption and no errors in formatting.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
<td>Competent. Briefly summarizes the main goals and findings of the study. When results were significant, identifies an alternative explanation (other than the hypothesis) for the pattern of the findings. When results were not significant, identifies flaws in the design and how they might affect the results. States how the results related to the research cited in the Introduction. States implications for how the theory and how it might apply beyond the lab. Follows the hourglass structure, moving from broad to narrow, although organization or descriptions may lead to some confusion.</td>
<td>Achieved. Places the results in context of the cited research, theory, and methods of the current study. Thoroughly evaluates an alternative explanation (for significant results) or methodological/theoretical error (for non-significant results) with a nuanced and insightful understanding of the research context and design. Connects findings to the previous literature, and presents meaningful but appropriately limited applications beyond the lab. The ideas are organized and described so that the reader will understand with no confusion.</td>
</tr>
<tr>
<td>APA Formatting</td>
<td>Competent. The lab report follows the major components of APA style, with double-spaced 12 point Times New Roman font, division into appropriate headings (although heading title and format may be off), and APA format in-text citations and references. There may be errors in other components of APA style including the heading titles, the running head, figures/captions, cover page, or abstract.</td>
<td>Achieved. The lab report follows all components of APA 6th edition format, including advanced components such as the heading titles, running head, and figure citations and format.</td>
</tr>
</tbody>
</table>
REFLECTIONS ON THE SCAFFOLDING PROCESS

As gradual and thorough as I have tried to make it, the scaffolding of research reports is not a cure-all. I was pleased overall with my students’ final submissions, and heartened to see that students showed some improvement from their first attempts to final submissions – but about 15% failed the assignment (one due to plagiarism), and another 15% earned D’s. For some students, a D on such a challenging assignment (graded by such a strict professor) was an achievement that the scaffolding process helped them reach, but there are also some who slipped off the scaffold or couldn’t quite make a leap to the next tier and fell behind.

One place I have identified where additional scaffolding is needed is helping students learn how to revise. To take full opportunity of this process, students need the skill to look at feedback, from their professor or their peers, and use those comments to make changes. However, many students seem to see comments a checklist, without looking beyond a specific marked sentence. Correct “the data is” to “the data are” in one sentence, and it will be fixed in that sentence, but not anywhere else in the manuscript; indicate that the number of participants is an unnecessary detail when describing a cited study, and they will remove it from that paragraph, but not from any of the other study descriptions they provide. It may be that adding an explicit self-reflection step of “Is there anywhere else you might have made a similar error?” for each correction will help them revise more thoroughly, but it may be that this particular skill cannot be developed within a single assignment.

A potential adjustment that could have advantages for student understanding would be to make the first research assignment a poster presentation, saving the written research report for a final paper. This would provide even more scaffolding, by allowing students the opportunity to learn the research structure and content of each section and to practice with statistical analysis and critical evaluation of research before attempting to write it all coherently. I recently used the poster assignment to replace a second written research report, which the students found both challenging and interesting. Unfortunately, putting the poster first would put a major writing assignment at the very end of the semester, and that timing could hamper the students’ ability to revise based on peer feedback and lead them to discount the professor’s final feedback if no additional assignments will follow it.

Overall, however, the scaffolding process does mean that students were given a great deal of support and opportunity to succeed on an unfamiliar, difficult assignment. And beyond the specific research report assignment, hopefully the practice of peer review, revising, and thinking about their writing will create a foundational for success on other assignments in their future.

REFERENCES

ADDITIONAL RESOURCES FOR SCAFFOLDING RESEARCH REPORTS


OVERVIEW

This assignment is a semester-long autonomous exploration of the relationship psychology literature, which provides students with (a) practice searching the literature for interesting and relevant research; (b) experience communicating science to a non-expert audience; and (c) the opportunity to engage more deeply with topics of specific interest that may not be covered in the planned text or lecture topics, among other learning objectives (see APA Guidelines 2.0 for an extended list).

CONTENT AND SUGGESTED COURSES

Though blogging assignments may take many forms and therefore may be adaptable to many levels and topics, this assignment in its current form is recommended for upper-level students who have already had experience with searching the literature, reading empirical research, and summarizing/synthesizing the research in formal writing. I recommend it for advanced or special topics courses. Though this assignment is framed for psychology of close relationships, it is well-suited for any content whose public understanding could use an empirical lens, such as parenting (developmental psychology), learning (cognitive psychology), brain myths (neuroscience), nutrition and exercise (health psychology), and more.

APA GUIDELINES FOR THE UNDERGRADUATE PSYCHOLOGY MAJOR 2.0

Goal 1: Knowledge Base in Psychology

1.1 Describe key concepts, principles, and overarching themes in psychology
1.3 Describe applications of psychology

Goal 2: Scientific Inquiry and Critical Thinking

2.1 Use scientific reasoning to interpret psychological phenomena
2.2 Demonstrate psychology information literacy
2.3 Engage in innovative and integrative thinking and problem solving
2.4 Interpret, design, and conduct basic psychological research
2.5 Incorporate sociocultural factors in scientific inquiry

Goal 3: Ethical and Social Responsibility in a Diverse World
3.2 Build and enhance interpersonal relationships

Goal 4: Communication
4.1 Demonstrate effective writing for different purposes
4.3 Interact effectively with others

Goal 5: Professional Development
5.1 Apply psychological content and skills to career goals
5.2 Exhibit self-efficacy and self-regulation
5.3 Refine project-management skills

DETAILED ASSIGNMENT EXPLANATION
Recent concerns about “fake news” and the public’s familiarity (or lack thereof) with scientific findings have led to efforts to both increase scientific literacy and increase the efficacy with which academics can better communicate with the general public, not least of which was Janie Wilson’s Society for the Teaching of Psychology 2016 Presidential Taskforce on Taking Psychology into the Community. Academic researchers continually struggle with communicating our findings clearly with a general audience, and the blogging assignment described herein provides students the opportunity to practice this important skill early and often. In addition, as I explain to my students, regardless of their career paths, many of them will have jobs where they need to take some kind of technical information and clearly communicate it to an audience without the same background they have, whether that audience is a boss, a client, or the general public.

In any given course, it is difficult to balance class time between the foundational and/or classic material with any number of new or niche topics about which students are curious, and I find this difficulty amplified in a course that typically has extremely high student intrinsic interest. A collaborative class blog, in which each student is responsible for individual contributions across the semester, has been a great way to sample multiple topic domains while simultaneously practicing non-scientific writing, long-term project management, and critical engagement with course material. Though a work-intensive project for students and faculty alike, students report favorably on the project and value the opportunity to customize their learning experience. It’s also a chance for students to be creative and have fun, and this is reflected in their work.
Self-Determination Theory proposes that intrinsic motivation will be maximized when three basic psychological needs are supported: competence, autonomy, and relatedness (Ryan & Deci, 2000). Research on need satisfaction in a classroom context confirms that when these needs are perceived to be supported by the instructor, students enjoy the class and instructor more, feel more competent in the subject, and perform higher in the course (Black & Deci, 2000). Accordingly, I designed this writing assignment to not only support the development of written communication skills, but also to foster intrinsic interest by supporting students’ relatedness and autonomy needs.

CONSIDERATIONS FOR GETTING STARTED

This assignment requires many skillsets. To be successful in this assignment, students are expected to already be proficient with literature searches, comfortable with reading and understanding academic articles, and able to synthesize multiple articles to support an argument so that they are able to focus on communicating complex statistical and scientific ideas to a general audience, as well as on the new-to-most technical skills associated with setting up and maintaining a blog. It is for this reason that I strongly recommend saving an assignment like this for upper-level students who have already encountered literature searches and summaries in previous classes.

This assignment also requires a substantial amount of work upfront for both the instructor and students, before we even get to writing (and grading!) the posts themselves. Everyone involved must familiarize themselves with the chosen blog platform and become proficient with the technical tasks of creating a class blog and inviting students to be authors on the account (for the instructor) as well as of setting up individual accounts, writing blog entries, and using WordPress functions like tags and keywords, as required (for the students). In addition, although informal Internet writing has exploded in popularity, students vary substantially in their familiarity and experience with the blog format. Suggestions for addressing these challenges are discussed below; suffice to say for now that given the amount of investment required for this assignment to make it successful, I also recommend this project be a large proportion of the overall course assessment.

One strategy I have found quite effective for managing grading is to have blog posts due on a rolling basis; students submit one post every 4 weeks (in a 15-week semester), but deadlines are staggered so a few posts are submitted each week. Blogs are easier and more interesting to follow with regular posts instead of huge waves of posts less frequently, so this system ensures a steady stream of a few posts a week on varying topics. From a grading perspective, the large amount of writing is also easier to manage with a few posts every week instead of receiving many at a time, a great help to time management (e.g., grading four new posts a week rather than 16 posts every four weeks). This can be a little confusing to track for students, though, so I started to provide a submission checklist to great effect.
Student Handout: Submission Checklist

Deadlines
- Primary Posts – Every 4 weeks, see syllabus (Sundays at 10pm)
- Quickies – Any time before the end of Week 15 (Sunday, May 7, 10pm)
- Comments – Any time before the end of Week 15 (Sunday, May 7, 10pm)
- Audit – End of Finals Week (Friday, May 12, 10pm)

Submission Checklist
- Check word count (Primary: 400-500 words, Quickie: 75-100 words)
- Interesting title
- Assigned to TWO Categories on WP: Post Type and Semester
- Tags: 2-5 useful keywords
- Proofread
- APA-style in-text citations
- APA-style references at end of post
  - 1 for Quickie and Spotlight; at least 3 for all other article types
- Published to correct class blog
- Submitted to correct assignment on Canvas

Optional but Strongly Recommended
- Appropriately-cited relevant image, video
- Hyperlinks to related content

I have submitted:

☐ Primary Post 1    ☐ Primary Post 2    ☐ Primary Post 3

☐ Quickie 1        ☐ Quickie 1

☐ Five Comments
Given the above considerations, I have found that the more time we spend reviewing the project components and requirements up front, and the more reflective time built into the assignment, the more confident students feel to tackle their first blog post and the more smoothly blog administration tasks go. Below, in addition to the assignment overview and the associated final paper component, I also provide examples of the smaller activities that support students’ reflection, growth, and understanding of the benefits of such an assignment.

ASSIGNMENT COMPONENTS

PRIMARY POSTS AND QUICKIES

As the major portion of this assignment, students submit five posts to a class blog over the course of the semester. These posts take two forms; Primary Posts are longer posts (400-500 words) that either review one recent empirical article (a Research Spotlight) or integrate multiple sources to answer or analyze a problem of interest, while Quickies are much shorter (75-100 words) and are brief, yet catchy summaries of very recent empirical work. Over the semester, students must submit three Primary Posts (one Research Spotlight and two of any other format) and two Quickies. Students quickly discover that a 400-500 summary, while still maintaining a personal voice, is much more difficult than they anticipate, and Quickies are even harder. For this reason, we spend time in class dissecting and practicing Quickie-style posts, and I recommend that for the first post they set aside more time than they anticipate needing, at least four hours. The length limit serves two functions. First, effective and engaging online writing is best when it is pithy. Second, the ability to communicate complex ideas concisely and clearly requires a deeper understanding of the topic at hand and forces students to say only what they mean and no more.

Topics should be chosen to generally reflect the broad syllabus topic from the week the post is due (e.g., Attachment or Attraction), but in the interest of supporting autonomy and allowing students to follow their intrinsic interests, I encourage students to take this opportunity to explore questions that genuinely excite them. This topic-based guideline is useful, though, because it ensures topics are spread out across the semester, rather than allowing the possibility of 75% of posts on one or two “sexy” topics, like attraction, social media, or sex. The topic limitation also helps manage the anxiety students might feel at having their choice of anything in the entire literature.
Handout: Detailed Instructions

Class Blog Project – Detailed Instructions

Using ScienceOfRelationships.com as a guide, your contributions to the blog will include 3 Primary Posts (1 “Research Spotlight” and 2 of any other type of post (i.e., they can’t be quickies or research spotlights)) and 2 “Quickies”. The 2 “Choose Your Own” posts should be different formats (i.e., they can’t both be Hot Topics). All articles must focus on a topic from close relationships.

For each type of article, you will need to use empirical journal articles as the foundation (not class notes or the textbooks). When using a journal article, you should indicate the key results as well as how the study was done in your own words (i.e., avoid quotes and be sure to avoid plagiarizing). Be sure to provide sufficient detail (more than you can simply get from the Abstract) so that someone unfamiliar with the study understands what was done in the study and what they found.

Each article (regardless of type) should include: a title, APA style citations and references, a relevant picture(s), audio and/or video links, article type (WordPress’s “category”), class semester (e.g., category :Spring 2017”) and several key words (WordPress’s “tags”).

Here are the article types:

- “Quickie” – 75-100 word summary of a very recent (last 2 years) empirical article.*
- “Research Spotlight” – 400-500 word summary of a recent (last 5 years) empirical article.*
- “Relationships and Pop Culture” - 400-500 word examination of a celebrity relationship (real or fictional) using multiple journal articles/relationship concepts.
- “Fact Checker” - 400-500 word examination of a claim you find in the media. Think of this as “I read/heard that ____, but in reality the research says ____”
- “Hot Topic” – 400-500 word review of a particular research area that summarize findings from a handful of articles (e.g., “Top 10 reasons for ____” or “A Step by Step Guide for ____”)
- “Q&A” – Pose an interesting question about relationships, then provide a 400-500 word answer backed up by research. This can take the form of an advice column (i.e., write a fictional “Dear Researcher” letter to then respond to).

Topic Selection:

Choose a topic in the general domain we will be discussing that week (e.g., Group 1’s first post should be something on Attachment or Attraction, or anything from the textbook’s chapters 1, 2, or 3). Ideally, this will be a topic that we do not cover in depth in class, in order to broaden our scope, but if you are especially inspired by an article that mirrors (or contradicts!) something we learn in class, go for it! If you have questions or concerns about the appropriateness of a source or topic, please check in with me. Quickies can be written at any time, on any topic that you find interesting.

* Quickies and Research Spotlights should focus on ONE empirical article (i.e., where data was collected, not a theory paper or meta-analysis). ALL OTHER article types should incorporate multiple sources to support your position/argument (at least 3 articles).
Submissions are posted to both our course management system (to allow for use of the TurnItIn.com plagiarism checker) as well as published to the public blog. An alternative would be to simply collect the posts as part of a writing portfolio without needing to tackle the technical requirements of an active online blog, but students are happy to engage with their classmates and see what everyone else writes about. The public format and encouragement to post on each other’s blogs is also one way in which this assignment supports relatedness needs.

To assess the blog posts, I use a holistic 20-point rubric with 5 general benchmarks, adapted from the blog rubric at www.samplereality.com (Sample, 2009; see Appendix A for rubric). The score given reflects overall engagement, effort, and quality. To provide more guidance for students as they develop comfort and competence with this writing style, I also provide high quality examples of actual posts from previous semesters as well as extensive feedback on each post with specific objectives for the next submission (e.g., “In future posts, focus on avoiding jargon except when necessary, and make sure to define all key terms; if you’re short on space, you can link to external pages like Wikipedia that give more in-depth explanations,” “This post would be made stronger with a vivid example or hypothetical question at the beginning to draw in the reader.”). In my classes, this holistic rubric is similar to ones I use for another writing assignments and discussion questions, so students are familiar with its basic structure. I recommend modifying as necessary to be most consistent with your own grading style and student expectations.
Handout: Project Submission and Grading Information

Submission:
You will be assigned a letter A-D. The course calendar specifies the week when the primary posts for these groups are due (e.g., Group A’s first post is due no later the end of Week 4). Specifically, posts will be due by 10pm on the Sunday of that week (e.g., Group A’s first post is due by 10pm, February 12, the Sunday AFTER Week 3 classes). The quickies can be submitted at any point during the term; I recommend you spread them out so you are not scrambling to complete them before finals week. ALL posts and comments must be completed by the end of Week 15 – Sunday May 7, 10pm (Spring 2017).

To submit, you must do two things:
1. Post the blog itself, using WordPress.
2. Submit the text of your specific blog to one of the Canvas assignments, so that TurnItIn can analyze your text. Please submit one post per assignment, in the order of writing. Therefore, each person will have one submission for Post 1 that corresponds with their first post, one submission for Post 2 that corresponds with their second post, and so on.

Grading:
Each blog post will be assessed using the following rubric

<table>
<thead>
<tr>
<th>Rating</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Exceptional. The blog post is focused and coherently integrates examples with explanations or analysis. The blog post demonstrates awareness of its own limitations or implications, and it considers multiple perspectives when appropriate. The blog post reflects in-depth engagement with the topic.</td>
</tr>
<tr>
<td>15</td>
<td>Satisfactory. The blog post is reasonably focused, and explanations or analysis are present. Fewer connections are made between ideas, and though new insights are offered, they are not fully developed. The blog post reflects moderate engagement with the topic.</td>
</tr>
<tr>
<td>10</td>
<td>Underdeveloped. The blog post is mostly description or summary, without consideration of alternative perspectives, and few connections are made between ideas. The blog post reflects passing engagement with the topic.</td>
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<tr>
<td>5</td>
<td>Limited. The blog post is unfocused, and displays no evidence of student engagement with the topic.</td>
</tr>
<tr>
<td>0</td>
<td>No Credit. The blog post is missing or consists of one or two disconnected sentences.</td>
</tr>
</tbody>
</table>
BLOG AUDIT

The final assignment is an audit and reflection, adapted from the assignment described by Sample (2009). The first part of the assignment, the “audit,” is a metacognitive assignment designed to help students reflect on the experience as a whole and identify the most salient challenges and benefits to blogging. As noted by Sample, this reflection process also helps students to take ownership of their own ideas and learning. The second part, the revision, is an opportunity to revise one Primary Post, whether they wish to revisit a much-loved post on which they want to elaborate or they want to improve upon a post that could have been better. This part of the assignment also requires getting feedback from one additional reader and providing a brief statement on the changes/additions made and why. Though there are inevitably a few grumbles about the perceived redundancy of this assignment, most students appreciate the expanded word count that allows them to more fully develop their ideas. Further, this assignment is my way of reminding them that writing is a process, not done once they click “submit.” In addition, many existing blogs (including scienceofrelationships.com and learningscientists.org) welcome reader submissions; you may wish to offer an additional optional carrot to students in the form of submitting revised posts to one of these outlets for publication, to help students realize that, far from just doing busy work, they are contributing to a real public body of knowledge.

This assignment is assessed using a rubric with the same basic structure as that which is used for the blog posts. Each section (i.e., the reflection and the revision) is given a holistic score representing overall quality, effort, and thoughtfulness, and a few additional points are dedicated to assignment mechanics (e.g., word counts/limits; evidence of feedback included).
Handout: Blog Audit Assignment

The goal of this assignment is two-fold: first, to look back over your writing this semester and reflect on changes in your own thinking and writing; and second, to allow you to revisit and revise one post with your newfound wisdom. Therefore, this assignment has two parts.

Part One: Blog Audit (20 points)

Must be written after at least four out of five (4 out of 5) posts of any kind have been published to the class blog. If your Quickie posts are complete, Group D could begin this part as early as Monday, April 2.

Part Two: Blog Revision (30 points)

Both parts are due to Canvas no later than the end of Finals Week, Friday, May 12, 10pm.

Grading out of 50 points (5% of Final Grade)

Submission Details

Submit to Canvas as ONE document (either Word or PDF) by Friday, May 12, 10pm.

No title page necessary; simply include last name and page number in footer of document.

Although this assignment reflects and expands on a body of informal writing, it should still be a thoughtful, edited, and professional submission. Grammar, spelling, and format will be considered in your final grade.

Submission Checklist

- Content
  - Audit (500-800 words)
  - Revision (800-1000 words)
  - Commentary (150-200 words)
  - Evidence of Peer Review

- Style
  - Proofread
  - Sections clearly indicated using headers
  - Last name and page number in footer of document
  - Format: Word or PDF only
  - All pieces condensed into ONE document before submission

Part 1: Audit Details

For this part of the paper, you will read all of your posts and comments as one body of work and reflect on how your writing developed over the semester.

Begin by printing (or saving) and reading all of your posts and comments. As you reread them, take notes, critically reading your entries as if they were written by somebody else (or at the very least, recognizing that they were written by a different you at a different time).
Compose a short analysis and reflection of your posts. This “meta-post” is open-ended and the exact content is up to you, although it should be thoughtful and directed. You should refer to or quote briefly from your own posts or comments to provide evidence for your observations.

Example: I noticed over the semester that I became more comfortable with reporting complicated statistics; for my first post, I remember purposefully choosing a post with simple findings (correlations between attachment style and relationship satisfaction), while for my last Quickie, I was able to report longitudinal findings in just 100 words (growth curve modeling for the effect of frequent sex on relationship satisfaction)! I was not aware of this change at the time, but it seems to be a good example of my increasing fluency with the relationships literature.

Some questions to consider might include (but are not limited to): What do you usually write about in your posts? Are there broad themes or specific concerns that reoccur in your writing? Has the nature of your posts changed over the semester? What changes do you notice, and how might you account for those changes? What surprised you as you reread your work? What ideas or threads in your posts do you see as worth revisiting? What aspects of the blogging do you value most, and how does it show up in your posts? What aspects of blogging were most challenging, and how did you deal with them? If you were to do this assignment again, how might you approach it differently? If you were to continue blogging, how would you continue to grow?

Part 1: Grading Details
Word count: 500-800 words
Grading: Out of 20 points, same basic rubric as blog posts

<table>
<thead>
<tr>
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<td><strong>Limited.</strong> The blog audit is unfocused, and displays little to no evidence of student engagement with the topic.</td>
</tr>
<tr>
<td>0</td>
<td><strong>No Credit.</strong> The blog audit is missing or consists of one or two disconnected sentences.</td>
</tr>
</tbody>
</table>
Part 2: Revision Details

For this part of the paper, pick one of your primary posts and using (a) my feedback, (b) your new perspective, and (c) the feedback of at least one additional editor, revise and expand it into a longer, richer blog post.

There are several ways to go about this. You can pick a post that in hindsight you are unhappy with and revise it upwards. Or you can pick a post that you think is fantastic but still contains ideas that can be fleshed out. Or simply pick a post you enjoyed writing and can see value in pushing it further in light of our latest readings and class discussions. This can also be an opportunity to enhance your post with multimedia and external links. In any case, your revisions should be non-trivial; that is, substantive changes that truly fulfill the etymological roots of re-vision.

In addition to the post revision, submit evidence of feedback of one additional editor; this could be a classmate, a peer not in our class, or someone from the CPI or Howe Writing Center. This evidence should take the format of brief, typed comments from your reviewer.

Finally, please submit a brief commentary summarizing the changes you made and why (primarily as evidence that this blog is in fact substantively different from the original post).

You are not required to publish this revision to the class blog (either as a new post or a replacement for the original post), but you are certainly welcome to do so.

Part 2: Grading Details

Word count: 800-1000 words (post), 150-200 words (commentary)

Grading: Out of 20 points, same basic rubric as blog posts (post), 5 points (evidence of peer feedback), 5 points (brief commentary); 30 total points

<table>
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</table>
SUPPORTING ASSIGNMENTS

The following assignments are just a few examples of how I encourage students to reflect on the larger goals of the project and to document their own ideas and growth. Each assignment is typically worth a small amount of points (5-15) and are included in the participation/homework component of the grading scheme. Time-permitting, it may also be beneficial to require a draft of the first blog post and have students engage in guided peer review before publication.

BLOG EXPLORATION ASSIGNMENT.

This assignment is completed individually at home and discussed in class, and serves as an introduction to blog-style writing. Independently, students search for at least two blogs whose goal is communicate scientific findings to a lay audience, and then identify the expertise of the authors, the audience, and the scope of the blog. They then select one blog post they like and one they don’t, and describe briefly what it is about the posts that works or does not. Finally, we have a short in-class discussion (about 20 minutes or so) about their findings and identify a few key principles as to what makes a good blog post.
Handout: Blog Exploration Assignment

The goal of this assignment is to get a feel for the types of blogs out there and to help you think about what type of blogger you want to be. The reason you are submitting this assignment as a discussion post is so that you and your classmates can learn from each other about what works and what doesn’t.

**Instructions:**

Explore the internet and find at least three active blogs that cover any kind of research (psychology, sociology, biology, etc). Try to search beyond Jezebel and Huffington Post to find smaller, more niche blogs. A few favorites include:

- [http://www.scienceofrelationships.com/](http://www.scienceofrelationships.com/)
- [https://thesocietypages.org/socimages/blog/](https://thesocietypages.org/socimages/blog/)
- [http://www.spring.org.uk/](http://www.spring.org.uk/)

*Hint:* This one also has a list of great psychology blogs to get you started. You’ll find that blogs often have lists of affiliated blogs or friends, sometimes called a “blog roll.”

**Important:** The blog you choose must report on research of some kind, and may not simply be someone’s personal experience or opinions (though this can be one component).

- Skim the blog’s history or about page to get a feel for the **author** (one person or many? what is their expertise or authority?), the **message** (what is the goal of the blog? what do they seem to want their readers to get out of the blog?), and the **scope** (what kind of topics do they cover? how broad or narrow are these topics? are there posts of different formats?).

- Select two posts (from any blog): one that works for you, and one that doesn’t; briefly describe what you like and dislike about these posts.

- Post your findings to the discussion board with brief answers to the above questions. See example format on the next page.

- Come to class prepared to discuss your findings.
Example post format:

1. **Blogs:**
   
   
   Author(s): various relationships researchers
   
   Message: fairly unbiased, just want to communicate that even relationship things can be enhanced by science
   
   Scope: all relationship topics seem to be fair game, mostly psychological research. Lots of types of posts – research summaries, Q&A, pop culture.

   [https://thesocietypages.org/socimages/blog/](https://thesocietypages.org/socimages/blog/)
   
   Author(s): four sociologists
   
   Message: sociology is everywhere – in infographics, commercials, ads, etc.
   
   Scope: all sociology topics, but all are based on some kind of visual

   
   Author(s): one psychologist
   
   Message: communication of psychology to general audience – started in 2004 when this was rare!
   
   Scope: all psych topics


I liked this because it not only clearly described research, it summarized a few different studies to support one point – that gifts of experience are better than material goods. Also, I like that it provided concrete advice – not only are experiences better, but maybe try a cooking class, spa day, or quality time. They even provided links for places to purchase experiences! It was also effective because they included the full references and not just links to other internet sources.


This post wasn’t bad, necessarily, but I don’t like just how brief the summary was – it was accurate and clear, but not very engaging. Also, I dislike the clickbait-y headline – yea, it would get some people to click on it, but others might not read it simply because titles with things like “one simple trick” don’t usually come with quality.
QUICKIE PRACTICE.

This in-class activity is designed to tackle the deceptively difficult “Quickie” format. Students read both the original journal article and the corresponding Quickie for a given academic work, and then in small groups or pairs, they walk through a discussion of how the formats compare in terms of both content and style; the features that make Quickies effective; and how they would be received by a psychologist or a lay reader. This short discussion helps to prepare students for the task ahead and encourages them to not underestimate the Quickie format.

Blog Quickie Practice Class Assignment

Names:

Example Quickie:  http://www.scienceofrelationships.com/home/2014/12/2/love-or-lust-follow-the-eyes.html


The goal of this exercise is to examine a “Quickie” style blog post and its source material side by side in order to understand how to distill a scientific article down to just 75-100 words. Together with a partner, take a few minutes to skim over the article you read before class and to look at the Quickie-style post. Answer the questions below.

Besides the obvious differences in length, examine the Quickie and article side by side and identify the major differences. What information does the journal article contain that the Quickie does not? What information does the Quickie contain that the journal article does not?

Now look at the style. How do the Quickie and journal article compare in terms of language used, vocabulary, style, visuals, and so on? [Feel free to look at other Quickies on the class blog or scienceofrelationships.com too]

You’ve learned the major parts of a journal article (i.e., Introduction, Method, Results, Discussion). If you were to break down the Quickie into 3-4 major parts, what would they be?

Reading as a psychology student, how do you think the Quickie does in describing the original work? Given the limitations of a blog post, is there anything else you wish they could have included?

Reading as a lay person, how do you think the Quickie does in communicating scientific findings at the appropriate level while inspiring interest? If you were to show this post to your mom or cousin, would they get it? Like it?
**GOOD BLOG TIPS.**

Following the blog exploration and the quickie practice, I compile a summary of our class discussions about what makes a good blog post and provide this document to students as a reminder as they embark on their own blog posts. One example is included below.

<table>
<thead>
<tr>
<th>Class Blog Project – What Makes a Good Blog?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Here are some tips for writing good blog posts, using information from the blog exploration assignment, our in-class discussion on 1/31/17, and my own experience with class blogs in past semesters.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Easy to read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text broken up with headings, paragraphs</td>
</tr>
<tr>
<td>Written in clear, sometimes conversational tone – no jargon</td>
</tr>
<tr>
<td>Don’t need to google just to understand it!</td>
</tr>
<tr>
<td>Easily navigable site</td>
</tr>
<tr>
<td>This is why we use categories and tags!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses (relevant) images, videos, comics, and other things to draw you in</td>
</tr>
<tr>
<td>Has a good hook (opening line)</td>
</tr>
<tr>
<td>Connects content to something in life or pop culture</td>
</tr>
<tr>
<td>Poses interesting rhetorical questions</td>
</tr>
<tr>
<td>Makes you think about something differently</td>
</tr>
<tr>
<td>NOT just a list of facts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Informative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides links and citations to relevant material so you can learn more about a topic</td>
</tr>
<tr>
<td>Links and citations can enhance a post, but the post should stand alone</td>
</tr>
<tr>
<td>Uses evidence (describes methods and statistics used), but explained clearly for a lay audience</td>
</tr>
<tr>
<td>Well-curated images (figures and graphs, for example) to support the explanation</td>
</tr>
<tr>
<td>Willing to critique, not just summarize</td>
</tr>
</tbody>
</table>
BLOG REFLECTION.

This is a brief reflective activity that students complete about four weeks into the blog calendar, after everyone has had a chance to post one Primary Post. This activity is typically completed on the course management system on their own time. This reflection serves as a brief metacognitive check-in for students to consider the assignment more broadly, and consistent with the literature on goal pursuit, making a concrete plan for how to improve future posts help to ensure students follow through on such intentions (e.g., Gollwitzer & Oettingen, 2016).

Blog Reflection Questions

Now that everyone has submitted at least one blog post, I’d like us to take a moment and reflect on the assignment so far.

What has been the most challenging part of blogging so far?

Take a few minutes and skim through the blogs of your peers [https://relationshippsych.wordpress.com/]. What stands out to you? What works well? Reflect briefly on your observations here.

Set one goal or challenge for yourself for your next post. Are you going to use more multimedia? Are you going to write about something you disagree with? Are you going to spend one more hour than you did last time? Describe your goal or challenge, and detail a concrete plan for achieving it.

FINAL THOUGHTS

Although a project of this scope is complex and comes with myriad challenges, I have found it to be well worth the time and effort. As the instructor, it is a joy to read some truly inspired posts, I get new media and pop culture examples to use in future semesters, and rarely does a week go by without laughing out loud at least once while grading; how often do we get to say that? Students also report favorably on the assignment in their course evaluations and end of term reflections in which I ask them to give future students advice. Common themes are of enjoying the opportunity for creativity, the chance to dive into research topics not covered in class, and the ability to engage with peers through the comments. They typically advise future students to not underestimate the assignment, allow for time and feedback, and to “enjoy it, because enjoyable assignments do not come around often.”
RECOMMENDED RESOURCES AND REFERENCES


- The blog on which this assignment was based, a great model for communicating research to the general public. I also gratefully acknowledge the support from Gary Lewandowski while I was developing this assignment, and his permission to share this assignment here.


- A great blog model and resource from cognitive psychology.

http://relationshippsych.wordpress.com

- For an example of how this assignment is executed in a real class, check out my students’ work from the last few semesters here. (Students are notified at the beginning of the assignment that the blog is public and may be shared with other researchers and educators).

https://www.socialpsychology.org/blogs.htm

- A non-exhaustive list of other psychology blogs for your reference.

Please note that this assignment is an amalgamation of resources and tips from many sources over multiple years, some for which I was unable to find the provenance. In addition to the SoR blog and public instructor reflections on blogging assignments (a brief internet search will return many), this assignment benefitted most from, and was most shaped by, the following resources:


EXPLORING DIFFERENT WRITING STYLES THROUGH A 5-STEP JOURNALING ASSIGNMENT

REBECCA D. FOUSHÉE, LINDENWOOD UNIVERSITY

ABSTRACT

This semester-long Journaling Assignment uses 5 journal prompts to encourage and facilitate students’ use of various writing styles. Students are expected to incorporate into their journal entries descriptive, narrative, reflective, and expressive writing styles. I have used differing versions of this journaling assignment in my Introductory Psychology, Environmental Psychology, and Psychology of Adolescence courses, but the concept of a 5-step journal assignment that incorporates the use of different writing styles could apply to most undergraduate content courses in the psychology curriculum. Prompts can be modified to fit the specific content of the course. This journaling exercise provides an example of how low-stakes writing exercises can be used to foster integrative and reflective thinking among undergraduate students. The journal entries are also designed to increase students’ comfort with the writing process itself, as each assignment is not heavily weighted in final grade schemes. Entries are graded on theme, narrative cohesiveness, descriptiveness, and creativity, as opposed to grammar, spelling, or sentence-structure.

ALIGNMENT TO APA GUIDELINES FOR UNDERGRADUATE EDUCATION:

This assignment meets the following content and/or skill competencies for APA Guidelines for Undergraduate Education:

- Describe key concepts, principles, and overarching themes in psychology (1.1)
- Describe applications of psychology (1.3)
- Engage in integrative and integrative thinking and problem solving (2.3)
- Demonstrate effective writing for different purposes (4.1)

LEARNING OBJECTIVES

After completing this assignment, students will be able to:

1. Demonstrate well-developed reflective and integrative thinking skills
2. Demonstrate effective narrative style and expressive writing used to represent human behavioral, cognitive, and emotional experiences
3. Demonstrate an ability to effectively describe and verbally represent common human developmental processes
4. Discriminate between different types of writing used to represent aspects of real lived human experience during the adolescent period
SUGGESTED ASSESSMENT OF LEARNING OBJECTIVES

- Learning Objective 1: Assessed through Journal Entries #1, #3, #4, and #5
- Learning Objective 2: Assessed through Journal Entries #3, #4, #5
- Learning Objective 3: Assessed through Journal Entries #2, #3
- Learning Objective 4: Assessed through successful completion of all 5 steps of the journaling assignment

COURSE LEVEL AND RECOMMENDED COURSES

- 5-Step Journal Assignment format is recommended for all undergraduate courses, particularly those that are lower- and mid-level, elective courses, or content-specific courses.
- This specific assignment outlined in this chapter is designed for a Psychology of Adolescence course.

DETAILED EXPLANATION OF ASSIGNMENT AND MY EXPERIENCE

I began incorporating low-stakes writing assignments into my psychology courses several years ago, in an effort to encourage students to develop their general writing skills (i.e., non-expository writing) in a relatively risk-free and creativity-induced environment. The 5-Step Journaling Assignment is typically worth approximately 10% toward the final course grade (2% for each individual journal entry), so the overall impact on final grades is negligible. Journal entry submissions are due in approximately 3-week intervals throughout a traditional 16-week semester.

These types of writing assignments have historically been underutilized in the majority of psychology courses, in part because psychologists heavily emphasize expository and technical writing styles as the primary means of communication within our discipline. Although expository writing does promote analytical and scientific thinking, it may limit the creativity and variety of written expression styles that are necessary for professional success after graduation. The many benefits of non-expository writing include enhanced intellectual, emotional, and psychological development, as well as integrative and creative thought (see Foushée, 2018, in this volume for a review of why low-stakes, non-expository writing should be included in the undergraduate psychology curriculum).

Over the years, most of my students have reported that they appreciate these journaling exercises, and some of them have even used the word “love” in reference to the assignments. From a qualitative perspective, I generally view any sentence that includes both “love” and “writing papers” in reference to psychology assignments as a checkmark in the success column. Specific comments I have received from students include “I love these assignments because they allow us to be creative,” “this assignment lets us write in a less choppy format than APA style papers,” and “we can express what we actually think, as opposed to just reporting what others think or what the data show.” Throughout the course of each semester, I have observed that the low-stakes nature of these assignments tends to reduce writing stress, promote creativity, and increase enthusiasm for processing course concepts. These assignments also get students in the habit of regularly writing.
BEST PRACTICES AND ADVICE TO INSTRUCTORS

One of the primary barriers to journal-writing assignments is monitoring regular journal entries. I have designed the 5-Step Journaling Assignment to address this common limitation. Collecting “entries” every three weeks throughout the semester promotes active and regular writing habits. Without these staggered due dates, students tend to write all their entries together in a short period of time, typically close to the final due date. With crammed writing, the quality of students’ writing – as well as the writing experience itself – suffers. In this way, the 5-Step Journaling Assignment mirrors more traditional assignment formats in which students turn in parts of a larger paper throughout the semester, with one large cohesive document that is typically due at the end of the term.

JOURNAL REFLECTION PROMPT #1

This is the first of 5 “journal entries” you will be writing this semester. Remember, this is a short, 2 – 3 page reflection exercise that is designed to help you a) review and reflect on the conceptual material we’ve discussed so far in the class, and b) practice your non-expository writing skills.

Prompt:

For this journal entry, imagine that you will be having “the talk” about physical changes in adolescence with your own pre-teen children. What would you tell them to expect? How would you describe the physical and biological changes that they are getting ready to experience? What would you discuss with them regarding the emotional and health changes that will be happening to them? Also reflect on how your own experience of adolescence compares with what the typical adolescent experiences during this time. Would you incorporate that into your discussion with your own children (discuss why or why not)?

Keep in mind that in your future lives, if you choose to have children of your own, this may actually be a real-life discussion that you will be having with them! So spend some time thinking about what that discussion might look like, and what you might actually say to your future child.

Writing Style:

This journal entry will require writing a draft of your talk using some combination of the descriptive essay format and informative/explanatory writing format. The descriptive essay genre involves writing in such a way that the reader can vividly see, hear, feel, imagine, or psychologically experience details about whatever topic you are discussing in the essay. Good descriptive writing provides sufficient enough detail that the reader has a clear impression of what the experience will be like. Informative/explanatory writing seeks to share knowledge, facts/data, ideas, or personal experiences with others. For this brief essay, combine these types of writing together to describe the experience of biological and health changes that are typical of the adolescent period with your imaginary future children. You may choose to write your journal entry using either essay or letter format.

Target Length:  2 – 3 pages  Total Points Possible:  20 points

Scoring:  10 points for creativity of descriptions & writing style + 10 points for accuracy of information
JOURNAL REFLECTION PROMPT #2

Prompt:
For this journal entry, describe and reflect on a specific ritual or ceremony that is associated with adolescents’ transition to adulthood from any culture around the world (including the U.S.). When, where, and in what context does this ceremony usually take place? What are the defining elements of the ritual or ceremony that serve as a clear “marker” of adulthood? Is this ritual or ceremony gendered? If so, what role does gender play in how adolescents participate in this ceremony? How might this ceremony affect adolescents’ psychosocial functioning, including their sense of autonomy, identity, sexuality, intimacy, and/or achievement? Does this ritual or ceremony change adolescents’ social standing in their community or culture, and if so, how?

Writing Style:
This journal entry uses some combination of the descriptive essay format and informative/explanatory writing format. As review, the descriptive essay genre involves writing in such a way that the reader can vividly see, hear, feel, imagine, or psychologically experience details about whatever topic you are discussing in the essay. Good descriptive writing provides sufficient enough detail that the reader has a clear impression of what the experience will be like. Informative/explanatory writing seeks to share knowledge, facts/data, ideas, or personal experiences with others. For this brief essay, combine these types of writing together to describe the distinctive aspects of adolescent transition ceremonies.

Target Length: 1 – 2 pages Total Points Possible: 20 points
Scoring: 10 points for creativity of descriptions & writing style + 10 points for accuracy of information

JOURNAL REFLECTION PROMPT #3

Prompt:
For this journal entry, reflect on your experience of social crowds and cliques in your own high school experience. Discuss how the specific structure of your high school environment (large, small, public, private, homeschool, or magnet/charter school) might have affected the formation of social groups among you and your adolescent peers. Were there any specific challenges that you and your peers encountered in this environment? How did your own personal developmental trajectory mesh with the social structure in your adolescent school environment? Were there any specific crowds to which you belonged?

Writing Style:
This journal entry uses some combination of the narrative essay format. Narrative writing seeks to share knowledge, facts/data, ideas, or personal experiences with others in a cohesive story format.

Target Length: 2 – 3 pages Total Points Possible: 20 points
Scoring: 10 points for creativity of descriptions & writing style + 10 points for accuracy of information
JOURNAL REFLECTION PROMPT #4

Prompt:

For this journal entry, you will be writing the “identity development” chapter of your life story/autobiography. Reflect on your own personal identity development experience during adolescence. What were the primary events, people, situations, scenarios, world views, or experiences that influenced you? Include a discussion of how you believe your identity formation period prior to arriving at college is connected to the person you have become today. Also discuss your current identity status using the framework of Marcia’s and Erikson’s conceptualizations of identity diffusion, foreclosure, moratorium, and achievement.

Writing Style:

This journal entry uses the narrative essay format. Narrative writing seeks to share knowledge, facts/data, ideas, or personal experiences with others using a cohesive story format. Narrative writing can reflect fictional stories (i.e., those based on imaginative events, including short stories, novels, novellas) or non-fictional stories (i.e., those based on real events, including autobiographies, biographies newspaper stories, narrative essays, poems). Narrative writing typically includes traits such as:

- Characters (Who are the main, secondary, protagonist “hero,” antagonist “villain” players in your life story?)

- Plot (What happened in your life story?)

- Conflict (Was there internal conflict, external conflict, both?)

- Setting (When and where did your story take place?)

- Point of view (Who is the narrator?) Narrators can be either first person (using pronouns me, my, I), where the narrator is a character in the story or third person (using pronouns, she, he, they), in which the narrator is an “observer” of the story – for this assignment, the narrator and main character will be you, so write in the first person.

Target Length: 2 – 4 pages (remember, this is only one chapter in your life story!)

Total Points Possible: 20 points

Scoring: 10 points for creativity of descriptions & writing style + 10 points for accuracy of information
JOURNAL REFLECTION PROMPT #5

Prompt:

For this last journal entry, you will need to write a reflective essay, poem (any form), letter, song lyrics, or narrative story that is designed to be given to your adolescent self from your current self. What would you like the earlier version of yourself to know about college life? How has your life changed since your middle and high school years? What were the experiences that hold particular meaning for you in terms of how they affected the current self you have become? Is there anything you know now that you wished you knew when you were in middle school and/or high school? What do you wish you had known then that you know now? Is there anything you have learned in Psychology of Adolescence this semester that would have been particularly helpful during the middle and high school chapters of your life?

Writing Style:

For this journal entry, you can choose any writing style that you feel most comfortable with in talking to your former self.

Target Length: 2 – 4 pages

Total Points Possible: 20 points

Scoring: 10 points for creativity of descriptions & writing style + 10 points for accuracy of information
### Sample Grading Rubrics for Individual Journal Entries

<table>
<thead>
<tr>
<th><strong>Descriptive/Explanatory Writing</strong></th>
<th><strong>Good: 2</strong></th>
<th><strong>Excellent: 3</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor: 1</td>
<td>Student provides limited written descriptors that make visualization, understanding, or conceptualization of this experience or concept difficult.</td>
<td>Student has a variety of descriptors that make the nature of the experience clear to the reader; may lack cohesion in terms of vivid representation of the experience or concept.</td>
</tr>
<tr>
<td><strong>Narrative Writing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor: 1</td>
<td>Student displays limited connections between his/her subjective interpretations of the experience; few relations to course material; missing most narrative elements in story structure.</td>
<td>Student explores at least two themes related to psychological or subjective experience; narrative connections may be lacking, but some connections to course material are include; some narrative writing elements are included in story structure.</td>
</tr>
<tr>
<td><strong>Reflective/Expressive Writing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor: 1</td>
<td>Student shows limited processing of the experience, or low self-awareness of how that experience relates to current life; major psychological elements or concepts are missing.</td>
<td>Student demonstrates some evidence of emotional or cognitive processing of a past experience; moderate self-awareness is present; psychological elements and concepts are present, but undeveloped throughout.</td>
</tr>
</tbody>
</table>

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**ADAPTING THE 5-STEP JOURNALING ASSIGNMENT TO VARIOUS PSYCHOLOGY COURSES**

Although the journal prompts presented in this chapter are specifically tailored toward a Psychology of Adolescence course, each of these basic templates can be tailored to include course concepts specific to other courses in the curriculum. By retaining the basic structure of the journaling assignment prompts, but changing the prompts to fit with key course concepts that are unique to individual courses in psychology, the 5-Step Journaling exercise can be adapted for use in a wide variety of other content courses.
Next, I have created basic templates for descriptive/explanatory writing exercises, creative expression assignments, narrative writing, and reflective/expressive writing. Any of these writing styles could be used more than once to complete the 5-Step Journal Assignment.

**Template for Descriptive/Explanatory Writing Journal Entry Prompts**

Prompt:
For this journal entry, imagine that you will be [giving a lecture/creating a presentation/having “the talk”] about [insert key concept here] with [a target audience to whom you are asking students to explain the concept]. In the next part of the prompt, describe any specific questions that might arise from whatever concept you are asking students to explain or discuss to the target audience.

This journal entry template might look something like:

“For this journal entry, imagine that you will be [giving a lecture/creating a presentation/having “the talk”] about [pick any psychological concept or set of concepts you want them to discuss] with [pick a target audience]. How will you explain these concepts? What types of examples would you provide from the psychological literature? What might you tell your audience about how these concepts work in “the real world”?

Writing:
This journal entry will require writing a draft of your talk using some combination of the *descriptive essay* format and *informative/explanatory writing* format. The descriptive essay genre involves writing in such a way that the reader can vividly see, hear, feel, imagine, or psychologically experience details about whatever topic you are discussing in the essay. Good descriptive writing provides sufficient enough detail that the reader has a clear impression of what the experience will be like. Informative/explanatory writing seeks to share knowledge, facts/data, ideas, or personal experiences with others. For this brief essay, combine these types of writing together to describe the experience of _________________________ with ____________________. You may choose to write your journal entry using [essay, letter, lecture, presentation] format.

Ex.: Imagine that you will be giving a lecture about stereotypes, prejudice, and discrimination to a group of high school students who have limited life experience

Ex.: Imagine that you will be discussing theories of motivation with someone who just started a new company

Ex.: Imagine that you will be explaining the stress response to a room of people who are about to go skydiving
Template for Narrative Writing Journal Entry Prompts

Prompt:
For this journal entry, you will be writing about how [insert any psychological concept here] has personally influenced your own life story/autobiography. Reflect on your own personal experience with [psychological concept]. What were the primary events, people, situations, scenarios, world views, or experiences that influenced you with respect to [psychological concept]?

Writing:
This journal entry uses the narrative essay format. Narrative writing seeks to share knowledge, facts/data, ideas, or personal experiences with others using a cohesive story format. Narrative writing can reflect fictional stories (i.e., those based on imaginative events, including short stories, novels, novellas) or non-fictional stories (i.e., those based on real events, including autobiographies, biographies, newspaper stories, narrative essays, poems). Narrative writing typically includes traits such as:

- Characters (Who are the main, secondary, protagonist “hero,” antagonist “villain” players in your life story?)
- Plot (What happened in your life story?)
- Conflict (Was there internal conflict, external conflict, both?)
- Setting (When and where did your story take place?)
- Point of view (Who is the narrator?) Narrators can be either first person (using pronouns me, my, I), where the narrator is a character in the story or third person (using pronouns she, he, they), in which the narrator is an “observer” of the story – for this assignment, the narrator and main character will be you, so write in the first person.

Ex.: For this journal entry, you will be writing about how reinforcement has personally influenced your life story/autobiography. What were the primary events, people, or scenarios that have shaped your behavior over the years?
Template for Reflective/Expressive Writing Journal Entry Prompts

Prompt:

For this journal entry, reflect on how your thinking has changed regarding [insert psychological concept here]. What emotions do you experience when you think about [insert psychological concept here]. What other concepts do you associate with [insert psychological concept here]? Based on your readings and class discussions, what two issues related to [psychological concept] do you think present significant challenges for the next generation of humans? Why are those problems particularly challenging? How might existing psychological theory/knowledge inform solutions to these problems?

Ex.: Reflect on your current living situation. Identify at least three sources of stress or interpersonal conflict that could be increasing your subjective experience of stress in your environment. Why are those problems particularly challenging? How might existing psychological theory/knowledge inform solutions to these problems?

Template for Creative Expression Journal Entry Prompts

Prompt:

For this journal entry, you will need to write a reflective essay, poem (any form), letter, song lyrics, movie script, or narrative story that is designed to represent [insert any psychological concept here].

Ex.: Write a reflective essay, poem (any form), letter, song lyrics, movie script, or narrative story that is designed to represent the stages of the sleep cycle.