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A Descriptive and Comparative Case Study of Undergraduate Psychology Students' Feedback Processes When Developing a Research Proposal Paper

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A DESCRIPTIVE AND COMPARATIVE CASE STUDY OF UNDERGRADUATE

PSYCHOLOGY STUDENTS' FEEDBACK PROCESSES WHEN

DEVELOPING A RESEARCH PROPOSAL PAPER

DEREK JOHN HERRMANN MEYERS

248 Pages

The current study was conducted to examine undergraduate psychology students' feedback processes associated with developing a research proposal paper. Previous research has investigated how feedback can be effective for student learning, but it has been limited by not considering the effectiveness of multiple, smaller assessments and the frequent feedback provided on them, from both instructors and peers, as students complete a single, larger assignment. It also has been limited by not considering the application of one model of feedback at the postsecondary education level. The case study research design was selected both to describe my students' feedback processes when completing a semester-long assignment and to compare these feedback processes when the feedback was provided by either me or other students. Course-based data, including students' assessments, the feedback provided on them, and their responses to questionnaire items, from two class sections were analyzed using pattern matching within the two cases and cross-case syntheses between the two cases. The findings indicated students' feedback processes were: (a) informing them of the type and level of performance to be attained, (b) helping them to progress and attain the type and level of performance, (c) providing them with information associated with performance, (d) conveying their progress and how they should proceed, (e) impacting student learning, and (f) leading to greater possibilities for student learning. In general, students indicated these processes were more helpful when I provided feedback rather than when other students provided feedback, although most feedback provided by both me and other students was directed at the same levels.

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CHAPTER I: INTRODUCTION

This chapter is divided into five sections. The first section provides background and contextual information for the research problem in the current study, and the second section provides a summary of the reviewed literature associated with the research problem. The third section provides an explanation of three deficiencies in the reviewed literature as associated with the research problem, and the fourth section provides the significance of the current study through addressing those identified deficiencies and potentially contributing to both education practice and policy. The fifth section provides the purpose of the current study and concludes this first chapter.

Statement of the Research Problem

Prior to the second year of my doctoral program, I was asked to be an instructor of an advanced research methods in psychology course (hereafter referred to as the ARMP). I completed this course as an undergraduate student seven years earlier, and the initial ARMP I taught was based primarily on my own experiences within it. Similarly to the course I completed, a major assignment was a research proposal paper I had developed for an assessment/evaluation course during the first year of my doctoral program. At the end of the semester, I was disappointed because my students' performance on the research proposal paper did not indicate they knew or could do as much as I had expected. These discrepancies prompted me to consider students did not understand the process of developing and writing about a research study, from considering a topic and reviewing the literature to determining research questions and selecting appropriate methods. I thought students could benefit from additional guidance and support when completing their research proposal papers, so I focused on models to help improve their performance on this assignment. To begin, I wanted to revise the scoring rubric I had used, and this prompted a literature review regarding the learning, instruction, and assessment of research writing within postsecondary education that guided the changes I made to the initial ARMP I taught.

During the following semester, I worked with my faculty advisor to alter the scoring rubric I developed. Through this work, I had the opportunity to complete a year-long independent study with her and another instructor in which I was involved with a pair of two-semester, master's-level research courses completed by teachers. The primary assignment these students completed was a classroom-based, action

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research study with their own elementary or secondary education students. Their progress on this two-semester assignment was documented through multiple drafts of their research papers and discussions both with other students and with me and the instructors. As I worked with these students and instructors, I noted several similarities between the ARMP and these research courses. Because students in both courses were novice researchers, I thought they likely would have similar questions and concerns when completing a research paper. These research courses provided a two-semester model of guiding and supporting student learning that was consistent with the literature I reviewed. I began to consider how the one-semester process of developing a research proposal paper in the ARMP could be similarly guided and supported with more feedback from me on multiple assessments throughout the semester.

During the following fall semester, I first taught the revised ARMP that included additional guidance and support compared to the initial ARMP. I then taught this during four more semesters prior to the current study, including one semester with approximately twice the number of students that required more peer-based feedback in addition to my feedback. Due to increased program enrollment, I taught this adapted ARMP a second time during the semester impacted by the emergency shift to remote learning due to the COVID-19 global pandemic. Because of the pandemic, I taught the adapted ARMP during the following two semesters as a synchronous-online course. The revisions and adaptations I made to the ARMP prompted me to consider the effectiveness of these changes and the feedback provided to students, both as associated with their learning and completion of the research proposal paper assignment. To better understand these changes and the feedback provided, whether by me as the instructor or by other students as peers, I conducted the current study to examine my undergraduate psychology students' feedback processes associated with developing a research proposal paper.

Research that Addresses the Problem

Evaluation can be distinguished based on purpose, with formative evaluation used for improvement and summative evaluation used for judgment (Palomba & Banta, 1999). Within education, formative evaluation addresses student progress, whereas summative evaluation addresses student performance (Maki, 2004). Regardless of purpose, the evaluation of student learning requires comparisons of actual student performance with desired learning goals. It also requires both improvement-focused and judgment-focused

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information within this process (Walvoord, 2004), and one type of formative evaluation in this context is feedback on student learning. For such feedback to be effective, students must understand the learning goal, compare their performance to the learning goal, and adjust their performance to align with the learning goal (Black & Wiliam, 1998; Sadler, 1989). Both self- and peer evaluation can assist students with these processes, but guided instruction and task modeling from instructors are needed for these to be beneficial for students (Andrade & Valtcheva, 2009; Black & Wiliam, 1998; Sadler, 2010). The use of scoring rubrics can address these issues because they not only include the evaluation criteria that should be aligned with the learning goals but also provide feedback on student performance that is reflective of those criteria (Andrade, 2000; Mertler, 2001; Moskal, 2000, 2003). Such tools can be integrated with standards-based grading systems given these assist with the alignment among learning, instruction, and assessment and facilitate clearer communication of student progress toward meeting learning standards (i.e., achieving learning goals; Colby, 1999). Although scoring rubrics can provide additional guidance for students, instructors must ensure students can both understand and incorporate any feedback they receive to make the necessary improvements to their performance (Sadler, 2010).

Because of these and other factors, some feedback does not assist in improving student learning or performance, but there are ways to increase the likelihood of providing effective feedback. Two large-scale meta-analytic studies have examined the role of feedback in student learning to better understand the conditions of its effectiveness. One general condition is task familiarity, such that providing feedback that targets students' performance on (or their learning associated with) a familiar task is more effective than providing feedback that targets an unfamiliar task or the students themselves (i.e., praise; Kluger & DeNisi, 1996). Another, more specific condition is associated with the methods of providing feedback, and grades are one method often assigned based on students' performance. Unlike other methods such as rubrics, however, they do not provide formative or improvement-focused information but rather only provide summative or judgment-focused information which can negatively impact both students and the learning process (Kohn, 2011). Although providing grades as feedback is better than providing no feedback at all, providing only grades often decreases intrinsic motivation and increases extrinsic motivation among students (Koenka et al., 2019). Providing comments as feedback rather than only grades, however, often increases intrinsic motivation

and decreases extrinsic motivation. Based on their review and analysis of the literature, Hattie and Timperley (2007) proposed effective feedback addresses three dimensions and can be directed at four levels. The three dimensions are associated with the learning goals (i.e., Feed Up), student progress toward learning goals (i.e., Feed Back), and improvement of student performance (i.e., Feed Forward). The four levels at which feedback can be directed are task performance, task processing, self-regulation, and self (personal). Their model provides mechanisms for examining the effectiveness of feedback on student learning, and several previous studies (e.g., Brooks et al., 2019; Brown et al., 2012; Dewit et al., 2021; Gan & Hattie, 2014; Harris et al., 2015) have incorporated it to better understand these mechanisms. Given its basis in the literature and the alignment among this model, others' conceptions of feedback (e.g., Black & Wiliam, 1998; Sadler, 1989), and the process of evaluating of student learning (e.g., Walvoord, 2004), Hattie and Timperley's model of feedback served as the primary component of the conceptual framework for the current study.

Although much of previous research regarding feedback has been conducted at the elementary and secondary education levels, some studies have examined the effectiveness of feedback at the postsecondary education level. One important factor is class size such that less feedback often is provided to students in larger, lecture-based courses (Keirle & Morgan, 2011). Smaller, lab/discussion-based courses (Caroll, 1995), educational and online technologies (Bakke et al., 2007; Barrett et al., 2005; Boatright-Horowitz, 2009; Ghilay & Ghilay, 2015), and group activities with peer evaluation (Magalhães & Magalhães, 2014; Thomas & Sondergeld, 2015; Wright, 1996; Zher et al., 2016), however, allow more opportunities to provide feedback to students. Much of previous research regarding student writing also has been conducted at the elementary and secondary levels, but some studies have focused on research writing at the postsecondary level. These have targeted factors such as the connections between writing at the secondary and postsecondary levels (Addison & McGee, 2010; Hassel & Giordano, 2009), undergraduate student motivation when writing (Ekholm et al., 2015; Prat-Sala & Redford, 2012), using conversation as an instructional method for writing (McMillen & Hill, 2006), and graduate/doctoral-level student writing (Aitchison, 2009; Barnett et al, 1998; Elbaz-Luwisch, 2010). Among previous research, some studies also have focused on the feedback provided on students' research writing at the postsecondary level. These have targeted factors such as why students may not use feedback on summative evaluations (Harrison et al., 2014), providing feedback only on components with

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which students have most difficulty (Verkade, 2015), providing audio-based feedback (Martini & DiBattista, 2014), using portfolios of writing assignments in large courses (Birkett et al., 2012), and incorporating rubrics to better evaluate writing assignments among multiple instructors (Boyd, 2010).

During the late 1990s, standards for psychology education at the secondary level were established (Halonen, 2015), and the American Psychological Association then developed and revised guidelines for undergraduate-level psychology education (APA, 2002, 2013). Although accreditation is not available for such programs (McCarthy et al., 2015), recommendations have been provided that include course(s) in research methods and statistics as part of the core all psychology students should complete (McMinn & Dunn, 2015). The inclusion of such courses in the core has been criticized because not every psychology student intends to conduct research in their careers, but they often are required both to provide an understanding of the methods psychologists use to advance the discipline and to develop students' critical and empirical thinking (Saville, 2015). Incorporating research-based activities can support these because students are active in their learning of the research process, whether that occurs individually or in groups and as components of lecture- or laboratory-based courses (Thorsheim, 2015). Lecture has been a primary method of classroom instruction within undergraduate-level psychology education, but more laboratory-based courses have been integrated (Bazar, 2015). Although research methods courses often are required for psychology students, laboratory-based courses are not always required, despite their benefits for student learning of the research process (Holmes & Beins, 2015).

Within undergraduate-level psychology education, a developmental approach can be integrated with curricula to include different assignments of and expectations for student writing at introductory, intermediate, and advanced course levels (Smith, 2015). Such an approach can occur as part of general composition courses (i.e., teaching APA style; Luttrell, et al., 2010; Zafonte & Parks-Stamm, 2016), research methods and statistics courses (Dunn, 2017; Holmes & Beins, 2015; Obeid & Hill, 2017; Saville, 2015), writing in psychology courses (Johnson et al., 2011), content-focused courses (e.g., cognitive psychology; Kennette & Frank, 2013), and out-of-class workshops (Skues & Wise, 2014). Given scoring rubrics are effective for providing feedback on performance assessments (e.g., research papers), several studies have incorporated them, as well as peer-based feedback using scoring rubrics (Greenberg, 2015; Stellmack et al., 2009, 2012, 2015). Based on their

literature review, Ishak and Salter (2017) suggested undergraduate psychology students should receive more writing instruction that includes both practice and feedback opportunities throughout the curriculum. They also suggested research methods and statistics courses should be completed early in the curriculum because they often are used to develop, if not also to advance, students' research writing knowledge and skills.

Deficiencies in the Research

Previous research has provided a foundation on which additional studies can continue to examine the effectiveness of feedback on student learning. Based on my literature review, I revised the ARMP from the initial course I taught and then adapted it for a larger class size as the undergraduate psychology program enrollment at my institution increased. Most research studies I used were based at the postsecondary education level, which was appropriate given two primary factors. One factor concerns the different populations of students at this level compared to those at the elementary and secondary education levels and the developmental differences among these students associated with their learning. For example, developing a research proposal paper (or other similar type of scholarly paper) is a common expectation within undergraduate-level courses, especially those at advanced levels (e.g., the ARMP). Such an assignment, however, would have to be somewhat adapted if used for secondary-level students who may not be as able to complete such abstract tasks and completely revised if used for elementary-level students who may not be able to complete abstract tasks at all. Beyond the developmental differences, postsecondary-level students also represent a biased sample of the population given the more selective nature of undergraduate-level admissions processes compared to the compulsory nature of elementary and secondary education (at least within the United States). Thus, focusing on previous research conducted regarding postsecondary education acknowledged these differences among the populations of students at the elementary, secondary, and postsecondary levels.

The other factor concerns the different contexts associated with learning, instruction, and especially assessment among these levels. Most aspects of these three components are much less standardized, if at all, at the postsecondary education level compared to the elementary and secondary education levels (at least within the United States). For example, state- and/or national-based standards for learning and standardized examinations to assess student learning are required elements for public education institutions at the

elementary and secondary levels. The incorporation of these largely impacts the learning expected of students, the instruction used to assist students in their learning, and how their learning then is assessed. The lack of such elements at the postsecondary level, however, greatly increases the flexibility for students, instructors, and administrators regarding learning, instruction, and assessment. Although accreditation at the postsecondary level is similar to such standardization, this is not available for undergraduate-level psychology programs, which further contributes to the diversity among such programs. Thus, focusing on previous research conducted regarding postsecondary education also acknowledged the differences among the educational contexts at the elementary, secondary, and postsecondary levels. Despite my use of previous research regarding postsecondary education to both revise and adapt the ARMP, I noted three primary deficiencies as associated with the current study.

The first deficiency concerns research that examines the effectiveness of feedback based on multiple, smaller assessments that address a single, larger assignment and thus, includes feedback provided to students over time (i.e., similarly to what was incorporated with the revised ARMP). Although the reviewed studies provided examples of how the effectiveness of feedback on student learning can be examined at the postsecondary education level, they were limited by not providing examples aligned with the multiple assessments of the research proposal paper assignment in the revised ARMP. The second deficiency concerns research that considers the effectiveness of feedback provided to students from students over time (i.e., similarly to what was incorporated with the adapted ARMP). Although the reviewed studies provided examples of how the effectiveness of peer-based feedback on student learning can be examined at the postsecondary level, they were similarly limited by not providing examples aligned with the peer-based feedback on the multiple assessments of the research proposal paper assignment in the adapted ARMP. The third deficiency concerns research that incorporates Hattie and Timperley's (2007) model to examine the effectiveness of feedback on student learning at the postsecondary level. Although this model has been used in several previous studies, all but one of them were limited by focusing on the elementary and secondary education levels.

Significance of the Current Study

Although I used previous research to revise and then adapt the ARMP from the initial course I taught, these three deficiencies provided a rationale for conducting the current study. The lack of similar models in previous research was addressed by considering the effectiveness of the multiple assessments students in both the revised and adapted versions of the ARMP completed and the frequent feedback on those assessments provided to students as they completed the research proposal paper assignment. The current study also addressed the lack of peer evaluation in previous research by considering the effectiveness of the peer-based feedback students provided to other students on the multiple assessments as they completed the research proposal paper assignment in the adapted ARMP. Hattie and Timperley's (2007) model of feedback provided several implications and helped me as an instructor to consider not only the importance of providing feedback to assist in student learning but also the different ways feedback can (and cannot) be effective for student learning. The current study both addressed the lack of previous research that applied Hattie and Timperley's model at the postsecondary education level and integrated this model with others associated with the evaluation of student learning as the conceptual framework for the current study. As such, the current study contributed to the literature by addressing these three deficiencies in the previous research regarding feedback on student learning, research writing, and psychology education, all at the postsecondary level.

The current study also contributed to educational practice as associated with feedback on student learning, research writing, and psychology education, all at the postsecondary level. In reviewing the literature, I noted similarities as associated with feedback on student learning and research writing at the postsecondary level, regardless of academic discipline/field, and determined implications based on the previous research despite contexts not always based in psychology education. Although the current study is most relevant to similar contexts (i.e., research methods courses) within undergraduate psychology programs, feedback on student learning is (or should be) part of every learning experience students have. Similarly, research (or scholarly) writing is part of every academic discipline/field and as such, the revised and adapted versions of the ARMP provide models instructors within other disciplines/fields can modify based on their own contexts to provide feedback on student learning regarding research (or scholarly) writing in their courses.

To the extent other instructors incorporate the current study as part of their educational practices and/or other researchers integrate it with their scholarly agendas, the current study also could contribute to educational policy and decision making. Despite the importance, if not necessity, of providing feedback as part of the learning process, it not always is provided to the extent students could most benefit, often due to the time and energy required to do so. There may be other concerns presented as 'more important' or 'more necessary' than providing feedback, and these vary based on education level (e.g., more focus on learning standards and standardized examinations at the elementary and secondary levels, more focus on scholarly or creative activities at the postsecondary level). Peer-based feedback has been noted to balance providing both feedback to students and time for other instructional activities, but this may not always be an appropriate way to achieve this balance (e.g., elementary-level students may not be able to provide effective feedback to other students). As such, the current study has the potential to begin influencing changes in education to help better understand the mechanisms of feedback and how they assist in the learning process through more research and scholarship. In addition, this could help to shift the focus from other, less impactful activities to those more beneficial for student learning through more opportunities for providing effective feedback to students.

Purpose of the Current Study

To both address the deficiencies of previous research and contribute to educational literature, practice, and policy/decision making, the purpose of the current study was to examine undergraduate psychology students' feedback processes associated with developing a research proposal paper. As such, the central phenomenon of the current study was feedback on student learning and based on the literature, a general definition of this phenomenon was any information that targets the discrepancies between actual student performance based on demonstration and the performance standard based on a learning goal. Previous research provided several enhancements to this general definition that better specify students' feedback processes as part of their learning, and these were incorporated as the conceptual framework for the current study. As part of those feedback processes, Sadler (1989) indicated students must understand the performance standard, compare their actual performance with the performance standard, and take some action to move their performance closer to the standard. Similarly, Black and Wiliam (1998) indicated feedback includes information on the current and desired levels of performance, a mechanism for knowing where the differences

are and how to improve, and a process for decreasing those differences as part of those feedback processes. Hattie and Timperley (2007) indicated feedback consists of any information provided to reduce the differences among one's understanding of a goal, their performance to demonstrate an understanding of that goal, and the actual goal itself as part of those feedback processes. Thus, the conceptual framework for the current study indicated the alignment among these conceptions of students' feedback processes and given its use in previous research, Hattie and Timperley's model of feedback specifically guided the data recording and analysis procedures.

Given the current study examined the feedback processes associated with student learning, the case study research design was selected to investigate my students' feedback processes within the contexts of the ARMP I had both revised and adapted. The changes I made to the ARMP prompted me to consider the effectiveness of both those changes and the feedback provided to students throughout the semester as associated with student learning and completion of the research proposal paper assignment. To better understand these changes and the feedback provided, I combined both the descriptive and comparative case study types to examine my undergraduate psychology students' feedback processes associated with developing a research proposal paper. These provided a methodology for examining both my students' feedback processes and how those processes were different when feedback was provided by me only and when feedback was provided by both me and other students. The descriptive and comparative case study types also led to the two central questions that guided the current study (i.e., one based on description and one based on comparison), and Hattie and Timperley's (2007) model led to six subquestions that also guided the current study and assisted with answering the two central questions.

CHAPTER II: LITERATURE REVIEW

This chapter is divided into eight sections. The first section provides information regarding conceptions of the formative evaluation of/feedback on student learning, and the second section provides information regarding feedback on student learning within postsecondary education. The third section provides information regarding research writing within postsecondary education, and the fourth section provides information regarding feedback on student learning of research writing within postsecondary education. The fifth section provides information regarding the postsecondary education of psychology, and the sixth section provides information regarding feedback on student learning of research writing within postsecondary education of psychology. The seventh section provides both the classroom-based implications and the study-based limitations of the reviewed literature, and the eighth section provides additional background and contextual information, the conceptual framework, and the research questions of the current study and concludes this second chapter.

Formative Evaluation of/Feedback on Student Learning

Within the broad field of evaluation, a basic distinction exists between formative and summative purposes for conducting an evaluation study. Palomba and Banta (1999) indicated formative evaluation is conducted during a program or performance with the purpose of improving the program or performance. In contrast, summative evaluation is conducted after a program or performance with the purpose of judging the program or performance. These two purposes are not necessarily mutually exclusive, such that a formative evaluation of a program or performance can be used as part of a later summative evaluation of that program or performance. Within education, the evaluation of student learning fulfills both purposes regarding the effectiveness of education programs. In this context, formative evaluation provides evidence of student learning throughout their progression of a course or a program, and summative evaluation provides similar evidence but at the end of the course or program (Maki, 2004). Regardless of purpose, the evaluation of student learning consists of reviewing information in part to determine mechanisms for improving student learning. The specific elements of this process include defining student learning goals (or objectives, outcomes, etc.), gathering information regarding student performance, considering that information in relation

to the learning goals, and incorporating what is determined from those considerations as part of improvement (Walvoord, 2004).

The student learning goals that are defined should describe what students will be able to do after completing a unit, course, or program and often are aligned as specific components of broader course, program, or institutional goals (Maki, 2004). The various measures to evaluate student learning should include both direct and indirect evidence (Palomba & Banta, 1999). Direct evidence refers to students' demonstrations of the extent to which they have attained the learning goals and consists of both traditional assessments (i.e., examinations; whether selected response, produced response, or oral) and performance assessments (e.g., presentations, projects, portfolios, juried activities, internship evaluations). In contrast, indirect evidence refers to stakeholders (e.g., students, instructors) reporting on the extent to which students have attained the learning goals and consists of responses to questionnaires, interviews, and focus groups (Palomba & Banta, 1999), as well as other quantitative indicators such as job placement and graduate/professional school placement rates (Walvoord, 2004). As part of this indirect evidence, students' perceptions of their learning experiences (including programs and services that support their learning) should be included which, when combined with direct evidence, can assist in interpreting the direct evidence (Maki, 2004). The learning experiences designed for students to attain the learning goals must be considered with how the structural (e.g., lecture, seminar, laboratory, field), process (e.g., use of instructional time, exemption or remediation based on students' prerequisite knowledge), and management (e.g., mastery learning, individualized instruction) options interact with the sequence of content (Diamond, 1998). A review of those learning experiences, the measures of student learning, and students' attainment of the learning goals then is completed, with the findings used to revise the learning goals, the measures to evaluate them, and the learning experiences for future students (Walvoord, 2004).

Both the formative and summative purposes are implicit within this process such that student learning should be evaluated using both improvement-focused (e.g., feedback on a draft to write a better paper) and judgment-focused (e.g., assignment and course grades to determine the extent of learning) information. Formative and summative information also is used as instructors consider their pedagogies and revise them based on the direct and indirect evidence gathered from students (Diamond, 1998). Feedback on learning

provided by instructors to students is an effective method of formative evaluation for improving student learning by focusing on the discrepancies between actual student performance based on demonstration and the performance standard based on a learning goal. To be considered feedback, Sadler (1989) noted students must: (a) understand the performance standard, (b) compare their actual performance with the performance standard, and (c) take some action to move their performance closer to the standard. Black and Wiliam (1998) provided a similar definition such that feedback includes: (a) information on the desired and current levels of performance, (b) a mechanism for knowing where the differences are and how to improve, and (c) a process for decreasing those differences. Although standards may be used to provide learning goals, Sadler (1989) explained how such standards often include multiple criteria that are not well-specified. To assist in specifying those criteria, instructors can review and evaluate a past performance based on the whole while defining the criteria as part of the evaluation (i.e., the holistic approach) or they can identify the criteria and then use those when evaluating a past performance (i.e., the analytical approach). Regardless of approach, both communicating performance standards through multiple exemplars to show how they can be met in different ways and providing students with guided, direct, and authentic experiences with evaluating actual performance allows them to develop a more complete understanding of the evaluation to be completed (Sadler, 1989).

Implicit in these components are interactions between instructors and students and the students' roles in formative evaluation/feedback, both of which are important in classroom learning (Black & Wiliam, 1998). They noted increased accountability efforts at the elementary and secondary education levels (i.e., more emphasis on summative evaluations, often standardized examinations) have decreased both the use and effectiveness of feedback. In part, this is due to the lack of time for instructors to consider individual students' learning differences (e.g., ability, effort) and how those interact with the classroom environment, both of which are necessary for providing effective feedback. Thus, the learning activities and feedback generated from them need to be developed given students' understandings of, and interactions with, the activities. Black and Wiliam noted self- and peer evaluation, both with guided instruction and task modeling, can assist students with increasing their comfort with the performance and the feedback received, as well as their confidence in using the feedback to improve their performance. This guided instruction and task modeling requires instructors to consider and use both the descriptive (e.g., information on the performance) and predictive (e.g., information

on how to improve) components of feedback when developing interactions to support students' use of feedback. Thus, Black and Wiliam stated improving student learning through feedback requires clear goals for performance, appropriate learning activities and accompanying instruction that both include feedback, and use of feedback by students.

Sadler (2010) indicated that although feedback can be very useful for improving student learning, providing it alone does not mean it will be used, such that students cannot use feedback without the background or contextual knowledge instructors have and often assume students also have. Most instructors' feedback is more objective and understandable to them, but students may divide their focus between what they submitted and what they intended and must determine what the concepts or criteria included within the feedback are. Students also may not have the background knowledge to understand feedback and can have difficulty synthesizing feedback with their knowledge base. Instructors provide feedback based on their knowledge of overall quality and comparability and when they model these for students, they share this knowledge by using peer evaluation in a more natural context (i.e., similarly to the peer review process). Opportunities for students to experience the evaluation process and provide feedback can assist in developing their knowledge and skills and should relate to task compliance (i.e., the form and structure of a task), task quality (i.e., how performance on a task serves its purpose), and task criteria (i.e., characteristics for determining quality). Students may be able to define the criteria, but whether they can judge them in their own or others' work, as well as discuss these judgments and provide feedback, are different processes that need to be developed. By becoming familiar with task compliance, quality, and criteria through the evaluation of several examples, students increase their knowledge of both the specific task and the more general information related to it. This can greatly assist in ensuring students have the knowledge and skills needed to react to the feedback provided to them (Sadler, 2010).

As Black and Wiliam (1998) noted, self-evaluation can be effective as a component of feedback, especially when information is provided to assist students in completing this process. Andrade and Valtcheva (2009) indicated engaging students in the self-evaluation process requires defining the expectations, showing students how to self-evaluate, and allowing for revisions to be made based on the self-evaluation. They noted students' responses to self-evaluation suggested their attitudes became more positive with more experience,

they were more likely to self-evaluate when they knew the expectations, and they revised and reflected on their work after self-evaluating (Andrade & Valtcheva, 2009). Peer evaluation also can be beneficial in helping students because the work they review is similar to their own but varies in both form and quality (Sadler, 2010). To be most effective in encouraging students' future evaluation, however, Black and Wiliam indicated teaching these skills should allow for student reflection on the learning process.

Scoring rubrics are tools instructors (among other evaluators) can use to both define the evaluation criteria of a performance and evaluate a performance based on such criteria (Moskal, 2000). Although checklists can be used to indicate whether evaluation criteria have been met, scoring rubrics indicate the extent to which those criteria have been met through different levels of performance. Despite being a common evaluation method, receiving a grade for a performance does not indicate how future performance can be improved, whereas a scoring rubric not only indicates an evaluation of the performance but also specifies expected levels of performance and indicates how future performance can be improved. In addition to these benefits, scoring rubrics provide a method for evaluation that demonstrates the alignment among broader learning standards (i.e., learning goals) and specific evaluation criteria of a performance. As such, scoring rubrics better clarify how individual assessments are associated with the evaluation of student learning and can be situated within standards-based grading systems that have increased at both the elementary and secondary education levels (Colby, 1999). Thus, scoring rubrics should be used with performance assessments because they include expectations (i.e., evaluation criteria) that can be explained and provide students with feedback on their work, both of which support student learning and development (Andrade, 2000). As Sadler (1989) indicated, scoring rubrics can be structured more holistically in which criteria are evaluated on a single scale or more analytically in which criteria are evaluated individually on their own scales (Moskal, 2000). The structure and format of any scoring rubric should depend on the task and its criteria, as well as the intended use of the information gathered (i.e., formative or summative purposes; Mertler, 2001).

Several literature reviews and meta-analyses have been conducted to better understand feedback and the conditions in which it can be most effective. Kluger and DeNisi's (1996) meta-analysis of feedback-based interventions indicated that although most of them improved students' performance, some did not. Based on those discrepancies, they suggested feedback directing students' attention onto themselves (i.e., not onto the

task or students' performances of the task) may have a negative impact on future performance, whereas feedback directing attention to either the task or the learning associated with the task can have a positive impact on future performance. Furthermore, the effectiveness of feedback seemed to be dependent on task familiarity, such that if feedback to support learning and improve performance on a more familiar task is provided without information directed onto students themselves, then task performance is most likely to improve. Koenka et al.'s (2019) meta-analysis focused on the effectiveness of providing grades and comments as feedback, as well as providing no feedback, on student motivation and achievement. Previous research has suggested grading student performance (i.e., without other types of feedback) negatively impacts both student motivation and achievement, in part because grades distract students from the learning process and instead direct attention on the evaluation itself (Kohn, 2011).

Although numerous studies have supported this, Koenka et al. (2019) examined other factors important to consider, such as students' education and achievement levels. Their results indicated students who received grades had higher achievement than those who did not receive any feedback, but the former group had lower intrinsic motivation and higher extrinsic motivation than the latter group. Students who received comments in addition to grades, however, had the opposite pattern regarding intrinsic and extrinsic motivation, as well as higher achievement than those who only received grades. These results were influenced by various characteristics, such as education level (e.g., elementary-level students who received grades had higher achievement than secondary-level students who received grades) and achievement level (e.g., students who were academically struggling and received grades decreased their intrinsic motivation compared to those who were academically thriving and received grades). In addition, comment content was important, such that comments focused on the task seemed to increase both intrinsic motivation and achievement compared to comments that were broader (i.e., similarly to Kluger & DeNisi, 1996). Although students who received broader comments had slightly higher intrinsic motivation than those who only received grades, there was no difference regarding achievement between these two groups (Koenka et al., 2019).

Hattie and Timperley (2007) reviewed and analyzed the literature to develop their model that considered feedback to be information provided to reduce the differences among one's understanding of a goal, their performance to demonstrate an understanding of that goal, and the actual goal itself. The

effectiveness of feedback can be considered in terms of three dimensions aligned with questions to be answered through the feedback and four levels that specify the direction of the feedback provided. The first of the three dimensions was called Feed Up and is used to answer the questions, 'What are the goals?/Where am I (i.e., the student) going?' Hattie and Timperley noted that because learning goals are needed to provide feedback, these should be challenging for students to achieve and also motivate students to achieve them, as well as motivate instructors to help students achieve the goals. The second dimension was called Feed Back and is used to answer the questions, 'What progress is being made toward the goal?/How am I going?' Hattie and Timperley indicated that although this is the typical purpose of feedback, traditional evaluation methods (i.e., examinations) specify students' progress but not how they can improve on their progress (i.e., unlike scoring rubrics that provide both). The third dimension was called Feed Forward and is used to answer the questions, 'What needs to be done to make better progress?/Where to next?' Hattie and Timperley noted the sequential nature of curricula allows for feedback that can and should be used to increase performance regarding the specific task at hand, as well as to affect future performance on other similar tasks.

In addition to these three dimensions, Hattie and Timperley (2007) stated the effectiveness of feedback also can be considered at four levels. The first level is Task (or task performance) and is associated with how well a task is performed, such as whether it is correct or incorrect and if more or different information is needed. Hattie and Timperley indicated this level can be most effective when feedback includes specific comments in addition to (or in place of) grades and if it is associated with feedback provided at other levels. The second level is Process (or task processing) and is associated with understanding how a task is performed and the learning processes associated with that performance. Hattie and Timperley indicated this level can be most effective when students have developed error-detection strategies as part of self-evaluation and if they are motivated, also have developed error-correction strategies. Hattie and Timperley also indicated the interaction between the Task and Process levels is very effective, although both are limited to the task at hand or other similar tasks. The third level is Regulation (or metacognitive, self-regulation) and is associated with the strategies students use to monitor, direct, and control their actions toward achieving the learning goals. Hattie and Timperley indicated this level is affected by students' abilities to self-evaluate, motivation to seek and then use feedback, confidence in their performance, attributions regarding achievement, and

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proficiency with seeking assistance. As such, feedback at this level is as effective as students' self-regulation abilities and thus, is associated with the interactions among students' commitment to the task, control of actions to complete the task, and confidence in their ability to complete the task. The fourth level is Self (or self as a person) and often is used but does not seem to be effective in terms of improving student performance. Hattie and Timperley indicated this is due to its lack of information regarding any of the other three levels of feedback, but the Self level can be effective if the reinforcement (i.e., praise) is directed at students' performance of the task rather than directed at the students themselves.

Based on their model, Hattie and Timperley (2007) indicated to be most effective, feedback on student learning should be frequently provided, appropriate for the learning goals and the students, and thoughtful by considering the three dimensions of feedback and the four levels at which feedback can be directed. Several research studies have incorporated this model to examine the effectiveness of feedback on student learning by identifying these mechanisms among the feedback provided to students. Brooks et al. (2019) observed and recorded the feedback one teacher provided to their late elementary-level students during classroom interactions and then coded these data regarding both the feedback dimension and feedback level. Their results indicated feedback aligned with the Feed Back dimension and directed at the Task level were the most common, whereas feedback aligned with the Feed Forward dimension and directed at the Regulation level were the least common. Harris et al. (2015) collected self- and peer-based feedback from late elementary-level and secondary-level students' notebooks and assignments several teachers provided and then coded these data regarding the feedback level. Their results indicated feedback directed at the Task level was the most common in both the self- and peer-based feedback, whereas feedback directed at the Regulation level was the least common in the self-based feedback and absent in the peer-based feedback. They also noted a developmental difference such that compared to the younger students, older students provided more feedback at the Regulation level when evaluating themselves but more feedback at the Self level when evaluating their peers.

Gan and Hattie (2014) either did or did not incorporate prompts for secondary-level students to use when providing feedback on other students' assessments during their classroom interactions and then coded these data regarding the specificity and feedback level. Their results indicated the students who were prompted provided more feedback directed at the Task, Process, and Regulation levels, whereas students who were not

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prompted provided more feedback directed at the Self level. In addition, more feedback from both groups of students was directed at the Task level, followed by Process, then Self, and finally Regulation levels. Dewit et al. (2021) used comparative judgment (i.e., two products are assessed in relation to each other) to guide postsecondary-level students' learning when completing a technology design project and then coded students' peer-based feedback regarding both the feedback dimension and feedback level as one set of codes. Their results indicated the feedback aligned with the Feed Back dimension was the most common and feedback directed at the Task level was the most common, followed by Process and then Self levels (with Regulation level absent). In all these studies, Hattie and Timperley's (2007) model guided both the data collection and analysis, such that different types of feedback were collected (i.e., written or verbal, by teachers to students, by students to other students or to themselves) and the three dimensions (Brooks et al. [2019] and Dewit et al. (2021)] and four levels of feedback (all four studies) were used to analyze the data. Although they did not examine feedback directly, Brown et al. (2012) also used Hattie and Timperley's four levels of feedback among other models to examine the associations between elementary- and secondary-level teachers' beliefs and practices regarding feedback. Their results indicated that although teachers could differentiate among the four levels theoretically, they may not always do so when providing feedback to students.

Feedback on Student Learning within Postsecondary Education

Within postsecondary education, it can be difficult to integrate feedback on student learning with instruction due to increased student enrollments, often among courses offered at lower undergraduate levels, without corresponding resources to accommodate such increases (Keirle & Morgan, 2011). These large-course settings greatly limit interactions between instructors and students, as well as interactions among students. These then can limit the amount of feedback on student learning provided and hinder students' engagement with the content and their learning of it. When smaller, lab/discussion-based sections of larger, lecture-based courses are offered, providing feedback on student learning can be more manageable given the lower number of students (Caroll, 1995). Similarly, providing tutorial sessions or workshops in which students can seek additional feedback on their learning can be beneficial and may result in students seeking more of these opportunities for assistance.

One strategy to address increased enrollment has been to incorporate technology to provide feedback on student learning. Various online-based learning management systems (i.e., LMS) provide students with self-directed activities that can increase their understanding of the content through both opportunities to practice difficult content and the feedback provided, as well as increase their sense of control over their own learning (Bakke et al., 2007). Such self-directed learning activities often are completed outside of the classroom because they are part of an LMS, but other tools have been integrated with the classroom to provide more immediate feedback on student learning. Ghilay and Ghilay (2015) administered in-class, self-evaluations to students using an online questionnaire so student difficulties could be addressed immediately by the instructor. Students perceived this as a beneficial way to improve their learning of the course content, and this improvement was associated with students' perceptions of identifying and addressing difficulties in their learning, as well as a sense of belonging and motivation because they felt more positively about the instructor. Personal response systems or interactive response technologies (e.g., 'clickers') also have been used to provide interactive opportunities through integrating feedback on student learning with classroom instruction. Barrett et al. (2005) indicated students were not overwhelmingly satisfied with 'clickers,' but they preferred to complete courses that integrated them. This was because students reported more participation during class meetings (i.e., increased engagement) and they learned more because the instructor used the 'clickers' (i.e., increased learning). Similarly, students have indicated 'clickers' increased their confidence and comfort regarding classroom-based discussions in addition to assisting with their learning of the content (Boatright-Horowitz, 2009).

Another strategy to address increased enrollment has been to incorporate group-based activities and assignments with feedback on learning from both the instructor and other students. Wright (1996) implemented group-based learning activities within a large course that included smaller, laboratory sections. In these smaller sections, students received feedback from teaching assistants regarding the questions and concerns they had after reviewing research papers but before completing associated assignments. Students indicated this course increased their understanding of the content through conducting a research project and the group-based activities they completed. Zher et al., (2016) incorporated several group-based activities that included peer evaluation throughout the course. Students were satisfied with these peer-based activities, and

Zher et al. concluded feedback can be incorporated best through considering it as a continuous dialog throughout a course. Thomas and Sondergeld (2015) encouraged instructors to provide opportunities for students to discuss content together while completing guided practice activities (i.e., modeled by the instructor) with feedback provided to students. The results from doing so indicated students felt more confident in their performance and their actual performance improved. Similarly, Magalhães and Magalhães (2014) indicated the use of group-based activities should assist in students' development of collaborative skills, and their results also were positive through improved collaborations among students.

Research Writing within Postsecondary Education

Addison and McGee (2010) examined the trends within writing education research that have indicated a decline in the quality of student writing at both the secondary and postsecondary education levels. They stated students complete writing assignments, some deep learning occurs as part of these assignments, and both students and instructors believe writing is important. Considering many students believe they are prepared for postsecondary-level writing, Hassel and Giordano (2009) examined the extent to which 'well-prepared' (i.e., based on standardized test scores) students transferred their writing skills from one composition course to the second in a two-course sequence. Their results indicated most students had difficulty with both adjusting their writing for different audiences and transferring the writing skills they learned when the writing assignments were altered. Students did not have difficulty citing information from sources but did have difficulty analyzing the information to support their claims and specifically, from sources they located as opposed to those provided to them by instructors.

One construct that can influence students' writing is their self-efficacy or the beliefs they have regarding their writing abilities. Prat-Sala and Redford (2012) considered the extent to which writing self-efficacy and previous writing experiences were associated with undergraduate students' writing performance. As expected, their results indicated writing self-efficacy was positively associated with writing performance. In addition, this association was stronger among second-year students than among first-year students, which suggested providing more writing experiences can influence students' writing self-efficacy and thus, their writing performance. Another construct that can influence students' writing is their self-regulation or the behaviors completed as part of the writing process, and both students' writing and their self-regulation can be

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impacted by the feedback provided regarding their writing. Schunk and Greene (2017) noted self-regulation is a cyclical process and as such, both working toward goals and receiving feedback regarding performance are essential for increasing students' self-regulation abilities. Ekholm et al. (2015) examined the associations among undergraduate students' writing self-efficacy, self-regulation, and their perceptions of the writing feedback provided. The results indicated that although writing self-efficacy was predictive of writing self-regulation, students' perceptions of writing feedback were better predictors of their writing self-regulation. Such results are consistent with the social-cognitive framework of self-regulated learning that suggests students' perceptions of feedback is part of the self-reaction subfunction in which students reflect and consider the next steps in their learning (Usher & Schunk, 2017)

McMillen and Hill (2006) examined the use of conversation when teaching research writing and asserted this model is effective because conversation is a familiar process and research can be viewed as a second language that can be developed through conversation. In addition, they believed this strategy was beneficial because both conversation and research are used to build meaning, are contextual, and are interactive and recursive processes. At the graduate level, Elbaz-Luwisch (2010) noted the use of autobiographical writing was helpful for teachers to continue developing their pedagogies through opportunities to reflect on and discuss their pedagogies with other teachers. Barnett et al. (1998) incorporated a scholarly writing project focused on content, process, and critique within an early doctoral-level course, and students indicated this project assisted throughout the program by increasing their confidence as writers and clarifying the expectations for coursework. In addition, students indicated the scholarly writing project influenced the various professional writing-related responsibilities they had, assisted in their collaborative work with colleagues, affected how they approached the critique of their own writing, and increased their confidence as professionals (Barnett et al., 1998). Aitchison (2009) investigated how out-of-class experiences with doctoral student writing groups assisted in their development due to the opportunities for students to discuss their writing and for learning to occur through these discussions. Students indicated learning to write occurred before, during, and after the writing group meetings, both at the individual and group levels. The giving and receiving of peer-based feedback was an important component of the learning that occurred as part of critiquing other students' writing.

Feedback on Student Learning of Research Writing within Postsecondary Education

Knowing feedback provided is not always used, or at least used effectively, Harrison et al. (2014) asked students why they may not use feedback on clinical evaluations and examinations. Because of the summative nature of these clinical-based assessments, students were not focused on and did not use the feedback provided due to their concerns with performing well enough to pass the assessments rather than excelling on them. This was considered further evidence for the importance of providing feedback on student learning over time rather than only at the end of a course or program of study. Verkade (2015) addressed common difficulties students had when writing laboratory reports by assigning and then providing feedback only on the results sections of four reports. Students' scores increased between the first and the fourth reports, and when the final reports (i.e., a full-length report based on one of the previous four results sections) were compared with the previous results sections, students seemed to have used the feedback because there was a significant increase in scores. As further support of this conclusion, students' final reports from a previous semester were compared with the final reports from the semester during which the study was conducted. The results sections were structured better in the final reports from the latter semester, indicating the feedback provided on only the results sections was beneficial for students.

Martini and DiBattista (2014) implemented audio-based feedback related to the content and structure of students' introduction sections of a research paper with the purpose of transferring students' learning to another similar assignment. The students indicated this feedback was detailed and easy to understand and believed it would be useful for their final research papers. The students' scores supported their perceptions as the introduction sections of the final research papers were scored higher than the introduction sections of previous students who did not receive audio-based feedback. Although it is less common for instructors to implement many writing assignments in large-course settings, some have considered how feedback on such assignments can be used within this context. Birkett et al. (2012) examined whether portfolios of writing assignments promoted both student learning of the course content and engagement with a course topic within a large course. The evaluation of the portfolio components indicated most students enjoyed completing the portfolios because they were able to choose and research a topic of interest. In addition, most students believed their learning and engagement with the course content improved through choosing their own topic and

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developing the portfolio, and this course's final grades were higher than in a previous semester during which students did not complete these portfolios.

Research writing knowledge and skills are most likely to be demonstrated through students' writing of papers, which are considered performance assessments because they provide opportunities for students to demonstrate what they have learned. Moskal (2003) stated performance assessments should be used for students to demonstrate an important, valued activity and should provide a learning experience through their completion. In addition, performance assessments should include instructions understood by students, resources to support students in completing the assessment, and a scoring rubric provided to students before the performance is completed. Because scoring rubrics provide criteria that describe expectations for performance, they can be useful when multiple individuals assess performance by specifying a common set of information to be evaluated consistently across individuals. To assist in managing the evaluation of writing assignments within a large-course setting, Boyd (2010) developed holistic assessments using a scoring rubric and normed the rubric scores among the instructor and teaching assistants. Teaching assistants then made minimal marking while evaluating students' writing assignments using the scoring rubric, and a student appeals process was implemented if there was disagreement regarding the rubric scores. All these were believed to contribute to fairness and consistency in evaluating students' writing and seemed to be positive in terms of student learning of the course content and preparing them to write in the discipline.

Postsecondary Education of Psychology

The beginning of postsecondary-level psychology education occurred within courses offered through philosophy departments and expanded to psychology-based courses and departments as more psychology-based research was conducted and published (Bazar, 2015). Like many disciplines, lecture (i.e., direct instruction) has been used as a primary method of classroom instruction but as more laboratory-based coursework has been integrated, greater consideration has been made regarding how this content is taught and learned. During the late 1990s, the first set of standards for psychology education were developed for the secondary level (Halonen, 2015). Using those standards, the American Psychological Association (APA) developed a framework for student learning of psychology at the postsecondary education level called the *Undergraduate Psychology Major Learning Goals and Outcomes* (APA, 2002). These included performance

indicators for a set of five specific, psychology-focused goals and five broad, general education-focused goals supported by psychology content. This framework was well-received by programs and departments given it was the first that could be used for program-level assessment, review, and accountability initiatives and purposes (Halonen, 2015).

The *APA Guidelines for the Undergraduate Psychology Major, Version 2.0* reorganized the previous 10 goals into five goals that include performance indicators at both the foundational (i.e., first two years or general education) and baccalaureate (i.e., second two years or psychology education) levels: (a) knowledge base in psychology, (b) scientific inquiry and critical thinking, (c) ethical and social responsibility in a diverse world, (d) communication, and (e) professional development (APA, 2013). Included in this revised framework is an emphasis on how the knowledge and skills students learn can and should enhance both their personal and professional lives (Halonen, 2015). Diversity and cultural competence also should be incorporated through a specific course, as part of several courses, or within an interdisciplinary perspective through course readings, activities, and assignments (McMinn & Dunn, 2015). In addition to student learning of psychology at the postsecondary level, attention has been focused on the teaching of psychology, such as recognizing: (a) excellent teaching consists of both professional and interpersonal components (Buskist & Keeley, 2015); (b) excellent instructors consider their own teaching and their students' learning as forms of scholarly inquiry (Halpern & Butler, 2015); (c) instructors who conduct research on their teaching should acknowledge the synergy among them, their students, and the learning environment (Dunn & McMinn, 2015); and (d) program-level assessment can and should inform both instructor teaching and student learning (Stanny, 2015).

Although the APA has provided guidelines for undergraduate education within psychology, accreditation is not available for those baccalaureate degree programs (McCarthy et al., 2015). Recommendations have been made regarding the undergraduate program curriculum such that a core set of courses completed by all psychology students should include: (a) an introductory course; (b) course(s) regarding research methods and statistics; (c) courses regarding cognitive/behavioral, developmental, physiological, and social psychology (i.e., the primary subfields of the discipline); (d) a capstone course/culminating experience for students to integrate what they have learned; and (e) opportunities to encounter diversity and ethical reasoning and to apply what they learned in the classroom through out-of-

classroom experiences (McMinn & Dunn, 2015). Despite the potential benefits, this recommended core has been criticized, with one area focused on research methods and statistics courses and specifically, multiple courses regarding this content. These have been criticized for being required because not all (and in fact, few) undergraduate-level psychology students enter research-oriented careers. These courses often are required, however, because the content both includes the different methods psychologists use to understand the discipline and allows for instruction in how to think critically and empirically (Saville, 2015). Because of these reasons, many believe every psychology student regardless of career should understand the ways in which psychological research is conducted and have opportunities to develop the skills associated with the research process (McMinn & Dunn, 2015).

Courses in research methods (i.e., experimental psychology) can be effective at helping students understand how psychologists study the discipline. This often is accomplished through incorporating research-based activities such as conducting research studies to actively learn the research process individually or in groups, within and outside the classroom, and as part of lecture- or laboratory-based courses (Thorsheim, 2015). Despite research methods courses often being required for psychology students, laboratory-based courses or laboratory components of courses are not always required (Holmes & Beins, 2015). Yet not only do these courses allow students to develop their research knowledge and skills, but they also can help students develop a value for research, enhance their understanding of research within the subfields (i.e., transfer of knowledge or skills to advanced level/specialized courses), and provide opportunities for students to work together throughout the process. Thus, the purpose of laboratory-based courses is not for students to conduct and publish original research studies but rather to better understand the research process and methods and how those are integrated within psychology. If a laboratory component is incorporated with a research methods course, then this understanding should occur through learning about the advantages and disadvantages of different approaches, the ethical considerations that must be made, and how APA style assists in the process of disseminating research.

Feedback on Student Learning of Research Writing within Postsecondary Education of Psychology

Student writing is a common concern among postsecondary education instructors and although under-preparation often has been blamed, it seems postsecondary education does not provide the necessary

opportunities for students to develop as writers (Smith, 2015). When instructors have high expectations, however, students often will attempt to meet them, and incorporating reading and writing activities with courses can assist in developing students' knowledge and skills as writers so they can meet or exceed instructors' expectations. Such activities also help develop students' critical thinking and logical reasoning, so writing opportunities should not be limited to one or two courses but rather should be integrated with several (if not many or most) courses, especially at the advanced level. Within undergraduate education in psychology, a developmental approach to research writing can include: (a) short writing assignments at the introductory level to apply content to students' lives while considering grammar and mechanics; (b) shorter research writing assignments at the intermediate level to report on small-scale research students conducted while considering APA style; and (c) longer research writing assignments at the advanced level while considering overall quality (i.e., grammar, mechanics, and APA style) through editing and revising as part of a peer review process.

Given the purpose of research methods courses, as well as laboratory-based courses in general, these often are the first place within a curriculum in which research writing is formally addressed and thus, often where psychology students first learn about APA style (Holmes & Beins, 2015; Saville, 2015). Luttrell et al. (2010), however, developed a one-credit-hour course focused on research writing to assist students with experience using APA style in their learning of it. The responses on pre- and post-course questionnaires regarding APA guidelines were compared between students who completed this course and students who did not but were completing another similar course. Both groups of students exhibited significant differences between the questionnaires, and an interaction between these two factors indicated pre-course differences were not significant between the two groups of students. The post-course differences, however, were significant, with students who completed the one-credit-hour course being more knowledgeable regarding APA style than those who did not. In contrast to providing instruction regarding APA style within psychology-focused courses, some institutions integrate APA style with broader-focused courses, often first-year composition as part of a general education program. Zafonte and Parks-Stamm (2016) examined the effectiveness of face-to-face and blended (i.e., both face-to-face and online) instruction on first-year student learning of APA style within two composition courses. Students' scores on an APA style examination increased during the course, but this increase was greater for students who received face-to-face instruction than those who received

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blended instruction. Students' scores on the rubric to evaluate their first and last essays in the course, however, did not indicate a significant difference between the two learning environments, although the trend was the same and students' rubric scores on the first essay did predict their scores on the last essay. Both results suggested the more consistent face-to-face interaction among instructors and students may have been beneficial regarding student learning of APA style.

Obeid and Hill (2017) implemented an intervention to reduce plagiarism within research methods courses by providing students with additional content (i.e., beyond a warning statement in the course syllabus or reference to departmental/institutional policies) and activities, such as an assignment to help students recognize plagiarism. Their results indicated students who completed the intervention had fewer instances of plagiarism than those who did not, but they noted, given the potential confounds associated with the research study (e.g., multiple semesters, different instructors teaching the course), additional examination of such interventions is needed. Skues and Wise's (2014) out-of-classroom intervention consisted of direct instruction regarding writing and APA style, without any discussion of psychology-focused content, for students to attend as they completed research papers for their psychology courses. Students' evaluations of the intervention indicated it was a positive experience because of the opportunities for students to limit other distractions, focus only on their writing, and have something written to which they could return to edit and revise later.

Because scoring rubrics can be used to provide feedback on student learning and because group-based activities seem to be an effective means of providing feedback, both have been used to assist students in their learning of research writing in psychology. Across their three research studies, Stellmack and colleagues indicated students' rubric scores increased between the draft and final research papers they completed, and these results occurred regardless of whether the scoring rubric was used to provide self-, peer-, or instructor-based feedback (Stellmack et al., 2009, 2012, 2015). Similarly, Kennette and Frank (2013) compared rubric scores regarding a research proposal paper when instructor- or peer-based feedback was provided on a draft. The rubric scores did not differ based on the provider of feedback, which indicated peer-based feedback can be as helpful as instructor-based feedback. Students also reported they appreciated receiving feedback from peers, and this seemed to be helpful because the feedback was both complimentary and critical. In addition, Greenberg (2015) examined the effectiveness of both scoring rubrics and peer evaluation on student learning

of research writing. One group of students either did or did not use a scoring rubric when writing research papers, and another group either did or did not complete a peer evaluation of another students' draft paper using the scoring rubric (although they did not receive written or verbal feedback). Both seemed to assist in student learning, as those who used the scoring rubric or completed the peer evaluation with the scoring rubric received higher grades on their final research papers, which suggested experience with the evaluation criteria was helpful even if feedback was not provided.

Drawing from best practices, Johnson et al. (2011) developed a 'critical thinking and writing in psychology' course based on the APA's guidelines for undergraduate psychology programs and research-based resources on the course topic. A scoring rubric was used to evaluate critical thinking essays from students who did and who did not complete this course, and instructors of advanced level courses were asked to provide these students' grades and to rate their critical thinking and research writing abilities. The students who completed this course showed improvements in their writing between essays completed at the beginning and at the end of the course. Similarly, instructor reports of grades and ratings of students' skills indicated those who completed the course had both higher grades and ratings of their research writing than those who did not complete the course. As part of a two-semester statistics and research methods course sequence, Dunn (2017) incorporated writing workshops during several class meetings that included assignment guidelines, model papers, and the scoring rubric as the materials and students' peer evaluations and discussions of their writing assignments as the activities. Dunn indicated to maximize the effectiveness of such instruction, it should be made explicit that the entire writing assignment should be considered during the revision process, not only the errors or other concerns noted by peers. In addition, such writing workshops can help students to perceive the writing process as less difficult because they have a better understanding of it.

Ishak and Salter (2017) reviewed the literature regarding best practices in teaching research writing to undergraduate psychology students and noted it is important for instructors to consider when students should learn APA style throughout the curriculum and then to structure the curriculum such that writing is taught in a developmental progression. Instructors also should be explicit when teaching APA style, especially paraphrasing and summarizing to avoid plagiarism, and should be intentional with the journal articles used as models when teaching. Instructors should provide explicit instructions when explaining writing assignments to

students, and such writing assignments should be completed in stages. To determine the extent to which these best practices are incorporated, Ishak and Salter also surveyed postsecondary level instructors of psychology regarding their teaching of research writing. Their results indicated most instructors used their class meetings to provide writing instruction and integrated the previously described best practices when doing so, including a developmental progression of writing instruction and assignments. Based on their review and results, Ishak and Salter recommended more writing instruction, with practice and feedback opportunities, should be provided and research methods courses be completed earlier within the curriculum due to these courses' typical emphasis on research writing.

Implications from and Limitations of the Literature Review

Based on this review of the literature, several considerations regarding feedback on student learning and its integration with instruction can be made. Kluger and DeNisi (1996) indicated how the directed attention of feedback (e.g., onto the student, onto the task) and task familiarity can influence the effectiveness of feedback, and Koenka et al. (2019) provided several factors (e.g., education level, comment content) that also can influence the effectiveness of feedback on student learning. Hattie and Timperley's (2007) model specified both the three dimensions of feedback (i.e., Feed Up, Feed Back, and Feed Forward) and four levels at which feedback can be directed (i.e., Task, Process, Regulation, and Self), all of which should be considered by instructors. Providing feedback to postsecondary education students enrolled in larger, lecture-based courses can be difficult for instructors, but incorporating technology (e.g., Bakke et al., 2007; Barrett et al., 2005; Boatright-Horowitz, 2009; Ghilay & Ghilay, 2015), smaller, lab/discussion-based sections (e.g., Caroll, 1995), and group-based activities with peer evaluation (e.g., Magalhães & Magalhães, 2014; Thomas & Sondergeld, 2015; Wright, 1996; Zher et al., 2016) can be effective for student learning in these contexts. Postsecondary-level student learning of research writing can be improved by considering both students' self-efficacy and self-regulation regarding their writing (e.g., Ekholm et al., 2015; Prat-Sala & Redford, 2012) and incorporating alternative pedagogical methods such as autobiography (e.g., Elbaz-Luwisch, 2010) and conversation (e.g., McMillen & Hill, 2006) with which students are more familiar and comfortable.

Feedback on postsecondary-level student learning of research writing should be provided over time (e.g., Harrison et al., 2014), focus on content most difficult for students (e.g., Verkade, 2015), and incorporate

technology as appropriate (e.g., audio-based feedback; Martini & DiBattista, 2014). Portfolios of student writing can promote both student learning and engagement (e.g., Birkett et al., 2012), but portfolios, as well as all writing assignments, are performance assessments (Moskal, 2003) and should be evaluated either holistically or analytically using scoring rubrics with specific criteria (Andrade, 2000; Moskal, 2000; Mertler, 2001). Within postsecondary education psychology programs, students often learn research writing (e.g., APA style) through courses focused on research methods and statistics (Holmes & Beins, 2015; Thorsheim, 2015). A developmental progression, however, should be implemented throughout undergraduate psychology programs so students have multiple opportunities to practice and refine their research writing knowledge and skills, not only within courses but also across courses (e.g., Smith, 2015). When providing these multiple opportunities for students to write, both self- and peer evaluation (e.g., Kennette & Franck, 2013; Stellmack et al., 2009, 2012, 2015), writing workshops (e.g., Dunn, 2017), and scoring rubrics (e.g., Greenberg, 2015) can be incorporated to assist student learning of research writing in psychology.

Using this literature review, I developed the following actions I then implemented as part of the revisions and adaptations to the initial ARMP that I taught:

- develop activities to frequently provide feedback to students on their research writing and ensure this feedback aligns with clear criteria by which they will be evaluated;

- implement these activities in a developmental progression so students have multiple opportunities to write and receive feedback from and then discuss this feedback with both me and other students;

- direct this feedback onto the areas in which students seem to be having difficulties and focus on these areas during the discussions I have with students regarding this feedback;

- provide opportunities for students' self-evaluation of their research writing and include clear prompts to aid in reflection on their learning; and

- consider how the feedback will assist in generalizing students' knowledge of and skills in research writing to other, similar tasks and contexts, as well as consider their interpretations of this feedback.

Despite my use of this literature review, the previous research was limited regarding the current study in three ways. The first limitation was previous research has not examined the effectiveness of feedback based on multiple, smaller assessments that address a single, larger assignment and thus, includes feedback provided to

students over time (i.e., similarly to those incorporated with the revised ARMP). Among the previously noted studies, feedback was provided on a single stand-alone assessment such as a writing assignment (i.e., Boyd, 2010; Luttrell et al., 2010), on a single assessment associated with a second assessment such as a draft of a final paper (i.e., Caroll, 1995; Greenberg, 2015; Martini & DiBattista, 2014; Skues & Wise, 2014; Stellmack et al., 2012, 2015), on multiple similar assessments such as laboratory-based reports (i.e., Birkett et al., 2012; Verkade, 2015), or through the use of technology such as 'clickers' (i.e., Bakke et al., 2007; Barrett et al., 2005; Boatright-Horowitz, 2009; Ghilay & Ghilay, 2015; Zher et al., 2016). These studies provided examples of how the effectiveness of feedback on student learning can be examined at the postsecondary education level, but they were limited regarding the current study by not providing examples similar to the multiple assessments and feedback provided on them of the research proposal paper assignment in the revised ARMP. The second limitation was previous research has not examined the effectiveness of feedback provided to students from students over time (i.e., similarly to what was incorporated with the adapted ARMP). Among the previously noted studies, peer-based feedback was provided to students in Greenberg (2015) using research papers, in Stellmack et al. (2012) using draft introduction sections of a research paper, and in Zher et al. (2016) using online portfolios and projects. These studies provided examples of how the effectiveness of peer-based feedback on student learning can be examined at the postsecondary education level, but they were similarly limited regarding the current study by not providing examples similar to the peer-based feedback on the multiple assessments of the research proposal paper assignment in the adapted ARMP.

The third limitation was previous research has not incorporated Hattie and Timperley's (2007) model to examine the effectiveness of feedback on student learning at the postsecondary education level. Among the previously noted studies, Brooks et al. (2019) targeted the late elementary education level, Gan and Hattie (2014) targeted the secondary education level, and both Brown et al. (2012) and Harris et al. (2015) targeted both education levels. These studies provided examples of how the effectiveness of feedback on student learning can be examined using Hattie and Timperley's model, but they were limited regarding the current study by not providing examples similar to the research proposal paper assignment in the ARMP at the postsecondary education level. Although Dewit et al. (2021) applied Hattie and Timperley's model at the postsecondary level, this was the secondary purpose of their research study. In addition, neither the project nor

the feedback provided on that project were similar to the multiple assessments of the research proposal paper assignment or the feedback provided on this assignment in the revised or adapted ARMP. Given the differences regarding both the student populations and educational contexts among elementary and secondary levels compared to the postsecondary level (at least within the United States), further application of Hattie and Timperley's model within postsecondary education is needed to generalize its three dimensions and four levels of feedback among other populations and contexts within education.

The current study provided opportunities for me to examine my undergraduate psychology students' feedback processes associated with developing a research proposal paper and in doing so, addressed the limitations of this literature review. The lack of similar models in previous research was addressed by considering the effectiveness of the multiple assessments students in both the revised and adapted ARMP completed and the frequent feedback provided on them as students completed the research proposal paper assignment. The lack of peer evaluation in previous research was addressed by considering the effectiveness of the peer-based feedback students provided to other students throughout the semester as part of the adapted ARMP. In addition, the current study both addressed the lack of previous research that applied Hattie and Timperley's (2007) model of feedback at the postsecondary education level and integrated this model with other conceptions of feedback associated with the evaluation of student learning as the conceptual framework for the current study. As such, the current study contributed to the literature regarding feedback on student learning, research writing, and psychology education (all at the postsecondary level) by addressing these three deficiencies.

The Current Study

Before I taught the initial ARMP, I considered: (a) my previous experiences as a graduate teaching assistant for the prerequisite statistics and research methods courses, (b) my previous training as an undergraduate and master's student in psychology and as an early doctoral student in education, and (c) my conversations with past and present instructors of the ARMP. During this first semester, it was very similar to the course I completed as an undergraduate student regarding the course content, one of the major course assessments, and the overall structure of the course. Given the focus of my ARMP on developmental research methods, a short review of general research methods content (i.e., from one prerequisite course) was provided

before moving into the different methods used to study lifespan development. Given the frequent use of performance assessments, and specifically research papers (e.g., literature reviews, research proposals), within advanced level courses, I used a research proposal paper assignment and its accompanying scoring rubric I had developed for an assessment/evaluation course I completed as a major assessment in the ARMP. Given the purpose of the ARMP to provide more lab/discussion-based activities than most lecture-based courses include, I structured the class meetings as either lectures or accompanying labs and developed several activities students completed either to complement the preceding lecture topics or to assist with their research proposal papers. The latter set of activities included responding to questions regarding some of their sources and their ideas for the introduction and method sections, completing an IRB protocol submission form, and participating during an in-class review of their semifinal drafts. Little feedback or opportunities for discussing this feedback or students' progress, however, were provided when I taught the initial ARMP.

At the end of this first semester, I was disappointed because, based on their performance on the research proposal paper, my students did not demonstrate they knew or could do as much as I had expected regarding the process of developing and writing about a proposed research study. The discrepancies between my expectations and my students' performance prompted me to consider changes I would make to this course if I was asked to teach it again. Knowing the scoring rubric I used provided the evaluative criteria that served as both the learning goals and the performance expectations, I decided to alter this tool to include writing-focused criteria (e.g., grammar, mechanics) in addition to reorganizing the existing content-focused criteria (e.g., purpose of the research study). I reviewed the literature regarding the learning, instruction, and assessment of research writing within postsecondary education and worked with my faculty advisor to alter the scoring rubric I developed in her assessment/evaluation course during the previous year. Doing this then provided an opportunity to complete a year-long independent study with her and another instructor in which I was an 'unofficial graduate teaching assistant' for a pair of co-instructed, two-semester, master's-level classroom/action research courses completed by teachers. The primary assignment these students completed was a classroom-based research study with their own elementary- and secondary-level students, from conceptualizing the problem they wanted to address to presenting their results and conclusions. Their progress on this year-long assignment was documented through several drafts of their research papers and several

discussions with other students and with me and the two course instructors. These discussions focused on students' drafts, the instructors' feedback on those drafts, and the students' progress on their research studies and writing their papers. I noted several commonalties between the ARMP and these research courses, not only because of the similar content but also because it seemed both groups of students had similar knowledge and skill levels regarding research methods and research writing and thus, would likely have similar questions and concerns regarding their learning of the content.

These courses provided a two-semester model of guiding and supporting students' development and implementation of their classroom-based action research studies that was consistent with the literature I reviewed regarding student learning of research writing. I began to consider how the one-semester process of developing a research proposal paper in the ARMP could be guided and supported with more feedback from me, both written and verbal, on both students' performance and their progress. During the following summer session, I used a research methods course project to further review the literature regarding feedback on student learning of research writing and to revise the ARMP I then taught during the following fall semester. I reorganized the course content from being focused primarily on developmental research methods to being focused on both developmental research methods and general research methods. The latter occurred first during the semester as a review to better ensure students had the background information for completing the research proposal paper assignment. This revised ARMP also included multiple assessments throughout the semester on which I provided feedback to students, as well as an opportunity for students to provide feedback to other students. Providing feedback on the multiple assessments occurred through a division of the research proposal paper assignment into five components, and it was intended each component was mostly completed by the time students began to work on the next component.

The first was the references component in which students completed a literature search regarding their research topics and then submitted an APA-style references list on which I provided feedback. Students then completed the next three components that were aligned with three tasks: (a) the literature review component to determine what previous knowledge has been gained and how it was gained, (b) the introduction component to determine what new knowledge can be gained and why it is needed, and (c) the method component to determine how this new knowledge could be gained and what impact it could have. Each of these three

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components/tasks consisted of three assessments on which I provided feedback: (a) tools to help students find or consider information and begin to organize it, (b) drafts to help students continue to organize this information and begin to write about it, and (c) conferences to help students consider the provided feedback and continue working toward the goal of developing a research proposal paper. After completing the method component, students completed the proposal component in which they combined their three drafts into a semifinal draft and provided feedback on each other's drafts during a peer review session. They then met individually with me one final time before submitting their research proposal papers. All these assessments were formative-based, such that students received points for completing them regardless of the quality, as well as received feedback on each of them. This is because both the assessments and the feedback provided were intended to help students in their completion of the research proposal paper assignment, a summative-based assessment that was evaluated based on quality.

Before completing the current study, I taught this revised ARMP for four semesters, including one semester with approximately twice the number of students (i.e., from 12-15 to 27-30). This increased enrollment would have made delivering the revised ARMP more difficult given providing feedback on students' assessments throughout the semester required much time and energy from me as the instructor. Based on my literature review, I adapted the revised ARMP such that I provided feedback on students' tools, but students provided feedback on each other's drafts during the peer-based conferences (i.e., rather than discussing my feedback on their drafts during the individual-based conferences). This increased enrollment continued to occur when I began to complete the current study, and I was teaching the adapted ARMP for a second time during the semester in which an emergency shift to remote learning was necessary given the COVID-19 global pandemic. After this, I taught the adapted ARMP for two semesters in a synchronous-online learning environment, meaning there were designated days/times for class meetings that occurred online using videoconferencing technology (i.e., Zoom). Because I made changes to the initial ARMP to create both the revised and adapted versions of the ARMP based on a literature review that was limited, I considered whether these changes, and specifically the feedback provided to students as part of those changes, were effective regarding student learning and their completion of the research proposal paper assignment. To know this,

however, I needed to better understand my students' feedback processes associated with developing a research proposal paper throughout the semester.

Conceptual Framework

Because I was interested in better understanding my own students' feedback processes associated with developing their research proposal papers and knowing the importance (if not necessity) of feedback as part of the evaluation of student learning, I considered the alignment among these and noted how integrated the concept of feedback is with the process of evaluating student learning. Table 1 provides this alignment among Walvoord's (2004; specifically, and others' more generally) process of evaluating student learning and others' conceptions of feedback as part of the evaluation process.

Table 1

Alignment among the Process of Evaluating Student Learning and Conceptions of Feedback

Walvoord's (2004) Evaluation of student learning	Black & Wiliam's (1998) Components of feedback	Sadler's (1989) Criteria for feedback	Hattie & Timperley's (2007) Three feedback dimensions/questions they answer
Define student learning goals	Desired/standard level of performance	Students understand standard	Feed Up What are the goals? Where am I going?
Gather information regarding student performance Consider performance in relation to learning goals	Current/student level of performance Mechanism for knowing differences and how to improve/Comparison between levels of performance	Students compare performance to standard	Feed Back What progress is being made? How am I going?
Incorporate information for improvement of future performance	Process for decreasing differences/Action to move student closer to standard	Students take action to move performance closer to standard	Feed Forward What needs to be done to make better progress? Where to next?

As demonstrated in this table, the student learning goals indicate the desired levels of performance by providing standards that must be understood by students and thus, provide a direction for student learning. Information regarding the current levels of student performance is gathered to determine what progress is being made toward achieving the goals or meeting the standards. This gathered information then is considered in relation to the learning goals or standards as a mechanism for knowing the differences between the desired

and current levels of student performance and what actions need to occur to improve performance. All this information is incorporated through an improvement process that decreases the differences between the current and desired levels of performance while also moving future performance closer to the learning goals or standards.

Given I wanted to better understand my own students' feedback processes associated with developing their research proposal papers and noted the alignment among the evaluation of student learning and the various conceptions of feedback, I collected course-based data to examine students' feedback processes both directly (e.g., through the actual feedback provided) and indirectly (e.g., through students' perceptions of the feedback provided). Among the various conceptions of feedback, Hattie and Timperley's (2007) model has been used as a framework in several previous studies. Because their model provides the three dimensions of feedback and the four levels at which feedback can be directed, both have been used to better understand the role of feedback in the evaluation of student learning. Thus, Hattie and Timperley's model was incorporated such that the three dimensions of feedback guided the data recording procedures and the four levels at which feedback can be directed guided the data analysis procedures. The three dimensions of feedback indicated: (a) data such as course materials, class activities, and students' assessments were aligned with the Feed Up dimension; (b) data such as the assessment-based and scoring rubric-based feedback provided to students regarding those assessments were aligned with the Feed Back dimension; and (c) data such as the differences between students' drafts and their research proposal papers were aligned with the Feed Forward dimension. The four levels of feedback were used as part of the coding processes to determine: (a) the levels at which the feedback provided to students by both me and other students was directed, (b) the levels on which students' questions and concerns before and after the individual- or peer-based conferences were focused, and (c) the levels on which students' responses to questionnaire items regarding both the assignment and the feedback provided were focused.

Research Questions

The purpose of the current study was to examine undergraduate psychology students' feedback processes associated with developing a research proposal paper. To address both the deficiencies in previous research and the highly contextualized nature of student learning, the case study research design was selected

for the current study. More specifically, a descriptive case study was conducted to provide a complete picture of student learning within the contexts of my revised and adapted versions of the ARMP (Yin, 2003). In addition, I revised the ARMP from the initial course I taught by incorporating multiple assessments and feedback on them and then adapted this revised ARMP due to the larger student enrollment by incorporating more peer-based feedback on several of those assessments. Although the adapted ARMP first was taught prior to the emergency shift to remote learning due to the COVID-19 global pandemic, additional changes regarding the learning environment were necessary as part of conducting the current study during this time (i.e., the adapted ARMP was taught in a synchronous-online learning environment rather than in a face-to-face learning environment like the revised ARMP). Thus, I also conducted a comparative case study to examine students' feedback processes as associated with these differences and to address student learning within the contexts of my revised and adapted versions of the ARMP (Merriam, 2001). One class section of the revised ARMP had less students, which allowed me to provide more feedback, and was taught in a face-to-face learning environment during a fall semester and thus, represented one case (i.e., Case I). One class section of the adapted ARMP had more students, which limited the feedback I provided, and was taught in a synchronous-online learning environment during a spring semester and thus, represented a second case (i.e., Case II).

There were two central questions (Creswell & Creswell, 2018) that guided the current study:

1A. What are undergraduate psychology students' feedback processes associated with developing a research proposal paper?

2A. How are undergraduate psychology students' feedback processes associated with developing a research proposal paper different when feedback is 'Instructor $\rightarrow$ Student' compared to 'Instructor $\rightarrow$ Student $\leftarrow$ Student?

Both are appropriate given the case study research design selected. The first question more directly targeted the descriptive component and was mostly answered through the within-case analyses, whereas the second question more directly targeted the comparative component and was mostly answered through the cross-case analyses. The first question also addressed the deficiency of previous research regarding the lack of multiple assessments and the feedback provided on them, whereas the second question also addressed the deficiency of previous research regarding the lack of peer-based feedback students provided on multiple assessments.

Because the conceptual framework of the current study addressed the third deficiency of previous research regarding the lack of application of Hattie and Timperley's (2007) model of feedback at the postsecondary education level, both central questions addressed this deficiency through six subquestions (Creswell & Creswell, 2018) that also guided the current study:

1B. How did the data sources inform students of the type and level of performance to be attained?

2B. How did these help students to progress and attain the type and level of performance?

3B. How was information associated with performance provided to students?

4B. How did this information convey students' progress and how they should proceed?

5B. How did information associated with performance impact student learning?

6B. How did this information lead to greater possibilities for learning?

These subquestions were based on Hattie and Timperley's three dimensions of feedback and thus, were aligned with the conceptual framework of the current study. These also provided an organizational scheme for both the within-case and cross-case analyses, as well as the reporting of the findings organized by subquestion in chapter IV (Yin, 2014). Table 2 expands on Table 1 that provided the conceptual framework for the current study by indicating the alignment among this and the six subquestions for the current study.

Table 2

Alignment between the Conceptual Framework and Six Subquestions of the Current Study

Walvoord's (2004) Evaluation of student learning	Black & Wiliam's (1998) Components of feedback	Sadler's (1989) Criteria for feedback	Hattie & Timperley's (2007) Three feedback dimensions/questions they answer	Six subquestions of the current study (based on Hattie & Timperley [2007])
Define student learning goals	Desired/standard level of performance	Students understand standard	Feed Up What are the goals? Where am I going?	How did the data sources inform students of the type and level of performance to be attained? How did these help students to progress and attain the type and level of performance?

(Table Continues)

Table 2, Continued

Walvoord's (2004) Evaluation of student learning	Black & Wiliam's (1998) Components of feedback	Sadler's (1989) Criteria for feedback	Hattie & Timperley's (2007) Three feedback dimensions/questions they answer	Six subquestions of the current study (based on Hattie & Timperley [2007])
Gather information regarding student performance Consider performance in relation to learning goals	Current/student level of performance Mechanism for knowing differences and how to improve/Comparison between levels of performance	Students compare performance to standard	Feed Back What progress is being made? How am I going?	How was information associated with performance provided to students? How did this information convey students' progress and how they should proceed?
Incorporate information for improvement of future performance	Process for decreasing differences/Action to move student closer to standard	Students take action to move performance closer to standard	Feed Forward What needs to be done to make better progress? Where to next?	How did information associated with performance impact student learning? How did this information lead to greater possibilities for learning?

CHAPTER III: METHODOLOGY

This chapter is divided into six sections. The first section provides background information and the rationale for the research design selected for the current study, and the second section provides information on the researcher's role and reflexivity regarding the current study. The third section provides information on the data collection procedures (i.e., context and settings, participants and recruitment) of the current study, and the fourth section provides information on the data recording procedures of the current study. The fifth section provides information on data analysis procedures of the current study (i.e., numerical- and document-based coding, textual-based coding, and within-case and cross-case analyses), and the sixth section provides information on research integrity of the current study (i.e., reliability and validity; consequential validity; and dependability, credibility, and generalizability) and concludes this third chapter.

Research Design

Given the purpose, conceptual framework, and research questions, the case study research design was selected for the current study. Merriam (2001) stated the most defining characteristic of this research design is the determination of the object of study (i.e., the case) that occurs by specifying the boundaries of the case as an integrated system. Miles and Huberman (1994) illustrated this with a heart inside of a circle, such that the heart represents the focus of the case study and the circle represents the boundary including the settings, participants, and concepts of the case. Defining the boundaries of the case allows for both understanding it and experiencing its activities within the specific contexts and situations of the case (Stake, 2006). Merriam (2001) further explained the nature of the case study research design as particularistic by focusing on a specific phenomenon, descriptive by providing a holistic account of the phenomenon, and heuristic by increasing others' understandings of the phenomenon. As such, the case study research design aligns well with the characteristics of qualitative research methodologies, including experiential understanding (i.e., searching for processes rather than causes), method of interpretation (i.e., from the researcher rather than statistics), and holistic examination of phenomena (i.e., studying the case within its context; Stake, 1995). Because such characteristics may be considered less empirical by some, Yin (2014) noted the case study research design should include the collection of multiple types and forms of data that need to converge in some way and

should rely on the use of propositions from theoretical and/or conceptual frameworks to guide the data collection and analysis processes.

The case study research design can be differentiated based on purpose, such as intrinsic case study when learning more regarding the specific case is of interest to the researcher, instrumental case study when the specific case is used to learn more regarding a broader phenomenon, and collective case study when learning more regarding the broader phenomenon expands to multiple cases (Stake, 1995). Several types of the case study research design have been developed, and the current study incorporated two of them. Descriptive case studies are conducted to provide a complete perspective on a phenomenon within its contexts and should detail both the scope and depth of the phenomenon (Yin, 2003). As such, descriptive case studies often are used to present information regarding an area that either has not been investigated or has had minimal investigation through previous research (Merriam, 2001). Exploratory case studies are conducted either to provide recommendations for the research questions, and potentially hypotheses, of future studies or to determine how appropriate different procedures would be for future studies (Yin, 2003). As such, exploratory case studies may or may not lead to additional case studies being conducted to advance the recommended research questions, hypotheses, and/or procedures. Explanatory case studies are conducted to examine causal relationships among phenomena and because of this, they are more likely to incorporate theory, as well as hypotheses based on theory. Such theories may be factor theories to examine relations among independent and dependent variables or more likely, explanatory theories to examine associations among complex and multivariate phenomena (Yin, 2003).

Each of these three types of case study research design can be a single case study to focus on only one, bounded object of study as an integrated system that then is described, explored, or explained (Yin, 2003). The three types also can be a multiple case study to focus on two or more bounded objects of study as integrated systems that then are described, explored, or explained. The rationale for conducting multiple case studies is based on either a literal replication if similar findings are expected between/among the individual cases or a theoretical replication if different findings are expected between/among the individual cases (Yin, 2003). Both indicate replication logic should be used when determining or selecting the cases based on whether the phenomenon is similar or different between/among them (Yin, 2014). This is different from using sampling

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logic often incorporated with the survey research design to ensure (through statistical analyses) the smaller sample is representative of the larger population, and thus, to better ensure the generalizability of the study results. Given the focus on bounded objects of study as integrated systems, such assurance of a high degree of similarity between samples/populations or cases is unnecessary and often contrary to the rationale for incorporating the case study research design (Yin, 2014). Merriam (2001) noted multiple case studies are labeled differently and include collective case studies, cross-case studies, multisite studies, and comparative case studies. Regardless of label, the individual cases within a multiple case study are important because they are part of the collection of cases based on a shared condition or characteristic and thus, are bound together to study the quintain, or the phenomenon across cases (Stake, 2006). Although there is some generalization across cases to better understand the quintain within a multiple case study (i.e., the instrumental and collective purposes of case study research design), both single and multiple case studies are more focused on particularization than generalization given the boundaries of the cases as integrated systems.

All these characteristics of the case study research design indicate education is one field in which its use can be very beneficial (Merriam, 2001), whether the purpose is more intrinsic (e.g., identify and explain the learning needs of an individual student) or more instrumental (e.g., identify and explain students' learning needs compared to instructional practices; Stake, 1995). These characteristics also indicate the appropriateness of the case study research design for any evaluation study, especially when the objective is to better understand the holistic dynamics of a phenomenon within its context (Merriam, 2001; Patton, 2002). Furthermore, multiple case studies can be incorporated with an evaluation to consider how the particularization of the individual cases (e.g., effectiveness of various activity sites) contributes to the generalization of the broader quintain (e.g., effectiveness of an overall program; Stake, 2006). As such, multiple case studies have been used in previous research to better understand issues or practices regarding educational evaluation. Monte-Sano (2008) used observations, interviews, and documents (e.g., students' assignments, instructor feedback) from two teachers' classrooms over seven months to examine how their instructional practices impacted their students' performance when writing evidence-based historical essays. Kraatz et al. (2020) recorded students' classroom-based, small-group discussions regarding social issues and then compared the processes of one high-performing group and one low-performing group to examine how a collaboration-based intervention

impacted students' social competencies and reasoning. Harris et al. (2012) examined how three teachers' instructional strategies helped to develop and elicit students' ideas and questions during their classroom interactions based on several observations of these interactions and two interviews with teachers across 12 weeks. In all of these, the case study research design allowed for both holistic investigations of the phenomena of interest within their contexts and comparisons of the quintains between/among the individual cases.

Given all of this, the case study research design was selected for the current study to examine my students' feedback processes when developing their research proposal papers. These students were enrolled in either the revised ARMP or the adapted ARMP that were taught as separate and distinct class sections during different semesters and in different learning environments. The class section of the revised ARMP had less students, which allowed me to provide more feedback, and was taught in a face-to-face learning environment during a fall semester and thus, represented one case (i.e., Case I). The class section of the adapted ARMP had more students, which limited the feedback I provided, and was taught in a synchronous-online learning environment during a spring semester and thus, represented a second case (i.e., Case II). These characteristics provided the boundaries of the two cases and indicated how each was an integrated system, which allowed for a better understanding of my students' experiences within the contexts and situations of their respective class sections. The current study focused on the phenomenon of students' feedback processes when developing a research paper (i.e., particularistic) by providing a holistic account of those feedback processes (i.e., descriptive) to help me better understand those feedback processes (i.e., heuristic). Multiple types and forms of data were collected, including my course materials, my and students' feedback on course assessments, and students' numerical- and textual-based responses to questionnaire items. Hattie and Timperley's (2007) model of feedback (among others) provided the conceptual framework of the current study and through this, provided propositions to guide both the data collection and analysis processes. The intrinsic, instrumental, and collective purposes for incorporating the case study research design were addressed through my development as an education professional, my desire to better understand students' feedback processes, and my comparison of this phenomenon between the two cases (i.e., the quintain), respectively.

The current study integrated the descriptive case study type to provide a complete perspective on students' feedback processes within the contexts of their class sections, and this was appropriate given the lack

of previous research regarding this phenomenon at the postsecondary education level. In addition, the current study integrated the multiple case study type to compare that complete perspective on students' feedback processes between the contexts of the two class sections. The rationale for using this type is based on the logic of theoretical replication because I expected there to be some differences in students' feedback processes, although I was uncertain exactly what those would be. Given the lack of previous research that addresses such a phenomenon, no specific differences were expected, but the differences between the two cases regarding the individuals providing feedback (i.e., me or other students) suggested this is important to consider when comparing them to better understand students' feedback processes. Both cases were necessary individually to understand the feedback processes within each case given one factor, the provider of feedback, was a primary difference between the cases. Because they were based on the shared characteristic of experiencing the ARMP with me as the instructor, the cases were bound together so I could better understand the quintain of students' feedback processes between the two cases. Unlike the current study, however, many examples of the multiple case study type include more than two cases, with as few as 3 or 8 cases and as many as 14 or 20 cases (Stake, 2006; Yin, 2003). Because the analysis of data is much less complex when only two cases are examined, 'comparative case study,' rather than 'multiple case study,' will be used hereafter when referring to the current study to emphasize the comparisons made between only two cases.

As associated with the feedback processes, a primary difference between the two cases was the individual who provided feedback on students' assessments regarding the research proposal paper assignment throughout the semester. When I revised the ARMP from the initial course I taught (i.e., as in Case I), I divided this assignment into five components, and three of these (i.e., literature review, introduction, and method) each consisted of three assessments (i.e., tools, drafts, and conferences). Prior to beginning the literature review component, students completed a references list assessment, and I provided feedback on it as they began to complete the tool for the literature review component. I provided feedback on each of the students' three tools and drafts and then met individually with students during each of the three conferences. After completing the method conference, students integrated their three drafts as a semifinal, proposal draft that was peer-reviewed with feedback provided by other students and then met individually with me during the proposal conference prior to submitting their research proposal papers. When I adapted the ARMP to account

for the increased enrollment (i.e., as in Case II), I retained the same components and most assessments but altered the drafts and conferences such that students provided feedback on other students' drafts during the peer-based conferences, as well as during the peer review session of their proposal drafts. In both the revised and adapted versions of the ARMP, students responded to pre- and post-conference questions to help guide the individual-based (i.e., in the revised ARMP) and peer-based (i.e., in the adapted ARMP) conferences. Thus, I provided feedback on students' tools and drafts and met with students during the individual-based conferences in Case I. During Case II, however, I provided feedback on students' tools, but students provided feedback on other students' drafts during the peer-based conferences. Completing the references list assessment and the proposal draft, as well as attending the peer review session and proposal conference, occurred during both cases, and I also met individually with students twice during Case II (i.e., midterm and proposal conference). Table 3 provides this information across the two cases in the current study.

Table 3

Components, Assessments, and Providers of Feedback Between the Two Cases

Case	References component	Literature review component	Introduction component	Interim component	Method component	Proposal component
	References list	Literature review table, draft, and conference	Introduction outline, draft, and conference	Not applicable	IRB protocol submission form, method draft and conference	Proposal draft, peer review session, and proposal conference
I	Feedback from instructor	Feedback from instructor for all three	Feedback from instructor for all three	Not applicable	Feedback from instructor for all three	Feedback from instructor during conference
						Feedback from other students on draft during session
II	References list	Literature review table, draft, and conference	Introduction outline, draft, and conference	Midterm conference	Method outline, draft, and conference	Proposal draft, peer review session, and proposal conference

(Table Continues)

Table 3, Continued

Case	References component	Literature review component	Introduction component	Interim component	Method component	Proposal component
II	Feedback from instructor	Feedback from instructor on table and during conference	Feedback from instructor on outline and during conference	Feedback from instructor during conference	Feedback from instructor on outline and during conference	Feedback from instructor during conference
		Feedback from other students on draft and during conference	Feedback from other students on draft and during conference	--	Feedback from other students on draft and during conference	Feedback from other students on draft during session

Researcher's Role and Reflexivity

Creswell and Creswell (2018) indicated the importance of considering both the role of the researcher regarding the research study and how their positionality can influence different components of a research study. I taught the ARMP for several semesters prior to the completion of the current study and made changes to the course between the first and subsequent semesters I taught it (e.g., both the revised ARMP with individual-based conferences and the adapted ARMP with peer-based conferences). The research proposal paper assignment as presented in the current study was changed from the initial course I taught, in part based on my literature review regarding feedback on student learning and its application to research writing within postsecondary education of psychology.

The changes I made also were based on my own experiences as an undergraduate psychology student who completed the ARMP that helped me to consider it from a learning perspective (i.e., how students navigate the content and assessments). My experiences as a graduate teaching assistant who taught the lab/discussion sections of the prerequisite statistics and research methods courses helped me to consider the ARMP from curricular perspective (i.e., how this course aligns with the other courses in the undergraduate psychology program). And my experiences as an 'unofficial graduate teaching assistant' who helped with a pair of co-instructed, two-semester, masters-level classroom/action research courses that were similar to the ARMP helped me to consider it from an instructional perspective (i.e., how the revisions I planned could be

integrated with both student learning and the curriculum). In addition, I considered my experiences as an educational researcher and evaluator, especially one who incorporates quantitative, qualitative, and mixed methods approaches to research and both traditional and performance-based approaches to evaluation. In the current study, however, qualitative research methodologies and performance-based assessments were the primary approaches incorporated. Thus, both previous research and my personal experiences guided the teaching- and scholarly-based components of the current study to better understand my students' feedback processes when developing a research proposal paper in the revised and adapted versions of the ARMP.

My experiences with the participants in the current study were varied, and this variation mostly centered on whether the participants were students in Case I or in Case II. As would be expected, I had more and deeper interactions with students in Case I given the smaller class size (compared to Case II), the face-to-face learning environment (rather than synchronous-online), and the changes to the research proposal paper assignment made based on these two factors (e.g., from individual-based conferences to peer-based conferences). Because of these differences, I felt and still feel a stronger connection to the students in Case I because I know more about them due to the interactions we had. There were a few students in Case II with whom I interacted more frequently than others (either through email or videoconferencing), but all the interpersonal interactions I had with students in Case II, whether individually or the entire class, occurred only through videoconferencing. I do not think, however, these differences negatively impacted the current study or influenced the power dynamic between me as both the instructor/researcher and the students as the research participants.

Similarly to the course and instructor evaluation process completed every semester in the psychology department, I was unaware of both students' responses to the course evaluation questionnaire I administered and whether they consented to participate in the current study until after the semester had finished and the final grades had been submitted. In addition, I am unaware whether my students knew of my intentions for conducting the current study when they completed our course, but I have no reason to think they either knew or this knowledge impacted their experiences in the ARMP. I did note, however, a smaller proportion of students in Case II agreed to participate compared to the proportion of students in Case I. This could be because in Case I, students were in a computer classroom to complete the course evaluation questionnaire and

then were in that same location when they were consented by my faculty advisor. I also noted every student who attended that class meeting both completed the questionnaire and agreed to participate in the current research study. In Case II, however, students were in a Zoom classroom to complete the course evaluation questionnaire and then were in that same location when they were consented by my faculty advisor. Because I did not require students to have their cameras on during class meetings, it is very possible (and given the timing at the end of the spring semester, even very likely) some students who were 'there' may not have really 'been there.' Although 16 students in Case II agreed to participate, only 12 completed the questionnaire despite the consent process following the questionnaire completion during the same (synchronous-online) class meeting. Furthermore, I noted the questionnaire responses from students in Case I generally were longer and more detailed than those from students in Case II. In addition to the different classroom settings when students completed the questionnaire, this also could be due to the different numbers and depths of interactions with me between the two classes that may, among other contextual and situational factors, have motivated students in Case I to be more engaged and provide more detailed responses than students in Case II.

Regarding the contexts of the current study, I have been both an undergraduate and master's student in the psychology department that offered the ARMP and thus, am a two-time alumnus. I had been a non-tenure track/adjunct instructor for several years when I conducted the current study and during that time, I also completed the required internship for my doctoral program in this department. Many of my course instructors and/or graduate assistant supervisors still are employed by the institution and of the four instructors whom I asked to provide reliability and validity evidence, three were my course instructors, one of those three also was a graduate assistant supervisor, and two of those three were part of my master's thesis committee. Although the fourth individual was neither an instructor nor a supervisor of mine, I asked them to participate given they taught the same ARMP I did (i.e., with a focus on developmental research methods). I also had spoken with this instructor a few times regarding the ARMP and how we teach it both similarly and differently. Because I wanted to complete the current study using the department's students as the participants and the department's course as the context, I spoke with the department chairperson regarding my thoughts and any issues or concerns they might have had. They supported and encouraged my completion of the current study and only asked me to discuss it with the current chairperson of the department research committee to ensure there was

nothing regarding classroom research policies of which either of us were unaware. I then met with this instructor (who was one of the four who provided reliability and validity evidence), and they also were both supportive and encouraging of my completion of the current study. In addition, they stated that although they had used peer reviews in their own courses, including a differently focused ARMP than I taught, they were unsure how helpful the peer review was for students and so also were interested to learn about students' feedback processes, especially when peer-based feedback is incorporated.

Patton (2002) noted the importance of a researcher's reflexivity in considering how their experiences impact their perspectives regarding a research study, such that self-questioning should lead to self-understanding. Given this, it is appropriate for me to address the biases associated with my educational philosophy, especially regarding the teaching- and scholarly-based components of the current study. In addition to Kliebard (2004) and Ornstein (2011), Schiro's (2008) four educational ideologies of scholar academic, social efficiency, learner centered, and social reconstruction provided the framework for my understanding of how these ideologies reflect different perspectives on knowledge, students, learning, teaching, and evaluation. As part of this, Schiro indicated how educators can adhere to multiple ideologies, with one way being contextually (i.e., all four are valuable and should be used as appropriate) that is most similar to my application of them. For example, both cognitive/behavioral approaches (e.g., Dick et al., 2009; Gagné & Driscoll, 1988; Gagné et al., 2005) and constructivist/interpretivist approaches (e.g., Gergen, 1995; Shotter, 1995; von Glasersfeld, 1995) have influenced my teaching by providing two different, but I believe complimentary, models for integrating learning and instruction.

Within the current study, my perspective on knowledge was integrated such that I expected students to interact with both the content-based and writing-based knowledge they learned (or re-learned) throughout the course when completing the research proposal paper assignment. My perspective on students was integrated such that I considered my students to be novices and tried to honor their individual views (e.g., through the conference questions) as we worked together in their completion of the research proposal paper assignment. My perspective on learning was integrated such that I expected students to actively participate in the learning process through interacting with the content and creating meaning from it (e.g., students could select their research topics based on their own interests). My perspective on teaching was integrated such that I facilitated

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students' learning based on my general understanding of where most former students have been in their academic development (e.g., dividing the assignment into different components and assessments). And my perspective on evaluation was integrated such that I sought evidence students learned the content through the research proposal paper assignment (e.g., changes in the scoring rubric ratings between drafts and final papers) and slightly revised the method component tool during the current study (i.e., the IRB protocol submission form changed to the method outline) to better align with the evaluative criteria of the scoring rubric.

For the scholarly-based components of the current study, I integrated my perspectives on research such that, similarly to contextually adhering to the four educational ideologies (i.e., all are valuable and should be used as appropriate), both quantitative and qualitative research methodologies were used. Although most of the current study was more qualitative in nature (e.g., descriptive and comparative case study types, more coding of textual-based data than numerical-based data), several aspects were more quantitative in nature, such as the scoring rubric, the rating scales for the closed-ended response items on the course evaluation questionnaire, and the reliability and validity processes. Prior to completing the current study, I was much more familiar and comfortable with quantitative research methodologies, especially given my pre-doctoral academic training within a psychology department whose instructors integrated more quantitative than qualitative research methodologies with their scholarly agendas. As part of my doctoral program, I completed several courses regarding qualitative research methodologies and have incorporated such strategies with my professional work in educational research and evaluation. Completing the current study, however, has greatly increased both my familiarity and comfortability with qualitative research and evaluation methodologies. Thus, both the teaching- and scholarly-based components of the current study have been impacted by my 'eclectically pragmatic' perspective that considers many different conceptions regarding teaching and scholarship and incorporates those based on which would be most appropriate in the specific context.

Data Collection Procedures

The ARMP was an advanced research methods in psychology course required of all students as part of completing the bachelor's degree program in psychology at my institution. The program's curriculum was based on the current learning goals and outcomes recommended through the *APA Guidelines for the Undergraduate Psychology Major, Version 2.0* (APA, 2013), as well as the recommendations provided in

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McMinn & Dunn (2015). The core curriculum/required courses for the undergraduate program included: (a) an introductory psychology course; (b) a careers in psychology course; (c) two statistics courses; (d) two research methods courses, of which the ARMP was the second; and (e) one course in each of the primary subfields of the discipline (i.e., cognitive and behavioral psychology, developmental psychology, personality psychology, physiological psychology, and social psychology [Illinois State University, 2019]). In addition to elective courses, the program required completion of one of four culminating experiences: (a) a seminar course focused on the instructor's choice of topics, often in the areas of their scholarly interests; (b) a two-semester research apprenticeship with the same instructor; (c) a two-semester teaching apprenticeship with the same instructor; or (d) a semester-long professional practice/internship while also attending an associated seminar course in which students consider and discuss their field-based learning experiences. Students who were part of the institution's undergraduate honors program could select a fifth option of completing an honors thesis and then presenting their research study at the psychology department honors colloquium.

Based on the online course directory, the ARMP (i.e., PSY 331a01) was an "Advanced research course focusing on particular content areas." (Illinois State University, n.d.). These content areas have included developmental psychology (i.e., the topic of the ARMP I taught), cognitive processes, operant behavior, perception, personality psychology, physiological psychology, and social psychology. Given the ARMP was an advanced level course, there were two prerequisite courses (i.e., introductory statistics and introductory research methods) all students should have completed prior to enrolling in the ARMP. I used both convenience sampling (i.e., based on their enrollment in the revised or adapted ARMP I taught) and purposeful sampling (i.e., based on helping me to understand the central phenomenon) to recruit undergraduate students at my institution whose majors were psychology and who completed the ARMP. These students were enrolled either during the fall 2019 semester when the revised ARMP was taught in a face-to-face learning environment (i.e., Case I; $n = 12$) or during the spring 2021 semester when the adapted ARMP was taught in a synchronous-online learning environment (i.e., Case II; $n = 26$). Although I also taught the adapted ARMP during the spring 2020 and fall 2020 semesters between Case I and Case II, those were not included in the current study. The spring 2020 semester required an emergency shift to remote learning during the middle of the semester, and the fall 2020 semester was the first time I ever taught an online course. Given the adjustments made as part of

teaching the ARMP during those semesters, as well as students' adjustments in completing my and their other courses online, neither semester would have been ideal for conducting the current study. Similar studies, however, were conducted during this time, such as Barra et al.'s (2020) case study regarding the use and evaluation of automated assessment in an online course and Dewitt et al.'s (2021) use of Hattie and Timperley's (2007) model of feedback when applying comparative judgment to feedback statements.

The 12 students enrolled in the revised ARMP were recruited to participate and at the beginning of the semester, 11 students were classified by my institution as 'seniors' (i.e., they had accumulated more than 90 credit hours) and the remaining student was classified as a 'junior' (i.e., they had accumulated between 60 and 90 credit hours). The 26 undergraduate students who completed the adapted ARMP were recruited to participate and at the beginning of the semester, 22 students were classified as 'seniors,' and 4 students were classified as 'juniors.' During one of the final class meetings during each semester, I provided time for students to complete the online course evaluation questionnaire I developed but explained this was different from the department's course and instructor evaluation that already had been distributed. When it seemed most had finished, I explained to my students I would like to use their course-based information (e.g., assessments and feedback, evaluation questionnaire responses) for the current study. I then exited the computer classroom in the revised ARMP or the Zoom classroom in the adapted ARMP so my faculty advisor could distribute the informed consent document or link and answer any questions or concerns students had regarding their participation. My advisor notified me after that process finished, and the class meetings then continued.

Of the 12 students who were recruited from the revised ARMP, 10 (83.3%) agreed to participate and were included in Case I. Students responded to several items on the course evaluation questionnaire to provide both information regarding their previous course-based writing experiences and context for interpreting their experiences in the ARMP. Students indicated the non-psychology, college/university-level courses that included writing as a significant component mostly were offered through English and philosophy, although some of their communication, history, and sociology courses also included writing as a significant component. These writing assignments consisted of research papers, response papers, and various speeches, all of which were focused either on the course content or the application of that content to students' lives. Students indicated some of their course instructors or teaching assistants provided more guidance for (e.g., scoring

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rubrics) or feedback on (e.g., through meetings, throughout the semester) these writing assignments. Others, however, provided little guidance or direction such as being provided with a prompt and told to write or students having to ask for help rather than having scheduled opportunities for assistance. Students indicated they wrote research papers when they completed the prerequisite (i.e., to the ARMP) research methods in psychology course, and these were written either individually or in small groups. The papers were based on small-group research projects or class-wide research studies, and they indicated most of the guidance they received from graduate assistants and teaching assistants was helpful, although clearer guidelines for and more discussion about the papers were desired by some students.

As would be expected, the papers students completed for the prerequisite course were noted as being less intense than the research proposal papers they completed for the ARMP. Students indicated that in addition to the prerequisite course and the ARMP, other psychology courses that included writing as a significant component were the required advanced level statistics course, several advanced level elective courses, and the research apprenticeship capstone/culminating experience option. These writing assignments included research papers, statistics papers (i.e., an APA-style results section), literature review papers, and application papers (e.g., watch a movie and apply course content to it). Similarly to the non-psychology courses, students indicated some of their course instructors or teaching assistants provided more guidance than others, such as dividing the assignment into parts, using clear scoring rubrics, or giving frequent feedback.

Of the 26 students who were recruited from the adapted ARMP, 16 (61.5%) agreed to participate and were included in Case II. These students also responded to several items on the course evaluation questionnaire to provide both information regarding their previous course-based writing experiences and context for interpreting their experiences in the ARMP. Students indicated the non-psychology, college/university-level courses that included writing as a significant component mostly were offered through English, philosophy, and communication, although some of their sociology, history, and political science courses also included writing as a significant component. These writing assignments consisted of argumentative or persuasive papers, philosophical essays, and research papers, all of which analyzed information from theories and/or research to support hypotheses or defend claims. Students indicated most of their course instructors or teaching assistants provided guidance for (e.g., questions to answer, outlines to follow) or feedback on (e.g., always could ask for

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help) these writing assignments, the latter of which sometimes also included feedback from other students. Similarly to students in Case I, these students indicated they wrote research papers when they completed the prerequisite (i.e., to the ARMP) research methods in psychology course, and these were written either individually or in small groups.

These papers were based on small-group research projects or class-wide research studies, and students indicated the guidance they received from the course instructors, graduate assistants, and teaching assistants was helpful, including being available to answer questions and providing feedback on their papers. Students noted the papers they completed for the prerequisite course were easier than the research proposal papers they completed for the ARMP because they did not have to complete the former alone (i.e., the ARMP did not include a group-based project or paper). Students indicated that in addition to the prerequisite course and the ARMP, other psychology courses that included writing as a significant component were several advanced level elective courses and both the teaching and the research apprenticeship capstone/culminating experience options. These writing assignments included weekly response papers (e.g., regarding readings and other media) and literature review papers, and students indicated that although they always could ask for help and received answers to their questions, there was little guidance provided by their course instructors or teaching assistants.

Data Recording Procedures

The conceptual framework for the current study indicated the integration of the process of evaluating student learning with different conceptions of feedback, including Hattie and Timperley's (2007) model. The two central questions that guided the current study addressed one of the deficiencies of the previous research by applying Hattie and Timperley's model at the postsecondary education level through the six subquestions that also guided the current study. The three dimensions of feedback from Hattie and Timperley's model (i.e., Feed Up, Feed Back, and Feed Forward) guided the data recording procedures by indicating the course-based data that could be used to answer the six subquestions. The data aligned with the Feed Up dimension included: (a) course materials, (b) class activities, (c) the research proposal paper scoring rubric, (d) the research proposal paper assessments, and (e) students' responses to the relevant course evaluation questionnaire items. All these data were used to determine how they informed students of the type and level of performance they

should attain through completing their research proposal papers and how these helped students to progress and attain the type and level of performance.

The data aligned with the Feed Back dimension included: (a) the assessment-based feedback provided by both me and students, (b) the scoring rubric-based feedback provided by both me and students, (c) students' responses to the relevant conference questions, and (d) students' responses to the relevant course evaluation questionnaire items. All these data were used to determine how they provided students with information associated with their performance and how these conveyed students' progress and how they should proceed. The data aligned with the Feed Forward dimension included: (a) the scoring rubric ratings of students' research proposal papers, (b) the differences in scoring rubric ratings between students' drafts and papers, (c) students' responses to the relevant conference questions, and (d) students' responses to the relevant course evaluation questionnaire items. All these data were used to determine how they impacted student learning and how they lead to greater possibilities for learning. The alignment among the conceptual framework, the six subquestions, and these course-based data are provided in Table 4.

Table 4

Alignment among the Conceptual Framework, Six Subquestions, and Data Sources of the Current Study

Walvoord's (2004) Evaluation of student learning	Black & Wiliam's (1998) Components of feedback	Sadler's (1989) Criteria for feedback	Hattie & Timperley's (2007) Three feedback dimensions/questions they answer	Six subquestions of the current study (based on Hattie & Timperley [2007])	Course-based data sources in the current study
Define student learning goals	Desired/standard level of performance	Students understand standard	Feed Up What are the goals? Where am I going?	How did the data sources inform students of type and level of performance to be attained?	Course materials Class activities Research proposal paper scoring rubric

(Table Continues)

Table 4, Continued

Walvoord's (2004) Evaluation of student learning	Black & Wiliam's (1998) Components of feedback	Sadler's (1989) Criteria for feedback	Hattie & Timperley's (2007) Three feedback dimensions/questions they answer	Six subquestions of the current study (based on Hattie & Timperley [2007])	Course-based data sources in the current study
Define student learning goals	Desired/standard level of performance	Students understand standard	Feed Up What are the goals? Where am I going?	How did these help students to progress and attain the type and level of performance?	Research proposal paper assessments Students' responses to questionnaire items
Gather information regarding student performance Consider performance in relation to learning goals	Current/student level of performance Mechanism for knowing differences and how to improve/Comparison between levels of performance	Students compare performance to standard	Feed Back What progress is being made? How am I going?	How was information associated with performance provided to students? How did this information convey students' progress and how they should proceed?	Assessment-based feedback provided by instructor and students Scoring rubric-based feedback provided by instructor and students Students' responses to conference questions Students' responses to questionnaire items
Incorporate information for improvement of future performance	Process for decreasing differences/Action to move student closer to standard	Students take action to move performance closer to standard	Feed Forward What needs to be done to make better progress? Where to next?	How did information associated with performance impact student learning?	Scoring rubric ratings of students' research proposal papers

(Table Continues)

Table 4, Continued

Walvoord's (2004) Evaluation of student learning	Black & Wiliam's (1998) Components of feedback	Sadler's (1989) Criteria for feedback	Hattie & Timperley's (2007) Three feedback dimensions/questions they answer	Six subquestions of the current study (based on Hattie & Timperley [2007])	Course-based data sources in the current study
Incorporate information for improvement of future performance	Process for decreasing differences/Action to move student closer to standard	Students take action to move performance closer to standard	Feed Forward What needs to be done to make better progress? Where to next?	How did this information lead to greater possibilities for learning?	Differences in scoring rubric ratings between students' drafts and papers Students' responses to conference questions Students' responses to questionnaire items

More information regarding all these data sources is provided in chapter IV but given the research proposal paper scoring rubric and the course evaluation questionnaire were unpublished instruments that were used, more information regarding both of those is provided below.

I developed the initial version of the research proposal paper and its accompanying scoring rubric as an assignment in my faculty advisor's assessment/evaluation course I completed during the semester prior to when I taught the initial ARMP. Because I was not teaching when I completed the assessment/evaluation course, I developed this assignment for a future research methodology course I hoped to teach. I intended for this future course to be focused on quantitative research designs and data collection and analysis methods and to be completed by graduate students in education and as such, this assignment would have evaluated students' abilities to develop a quantitative-focused research proposal paper. Using Creswell (2005), I developed the scoring rubric with 10 evaluative criteria that consisted of the content components of an APA-style research paper, each with three descriptions of performance levels. I used this assignment and scoring rubric when I taught the initial ARMP but was disappointed that my students' performance did not indicate they knew or

could do as much as I had expected. I then worked with my faculty advisor to alter the scoring rubric and reviewed several sources regarding research writing in psychology (i.e., Landrum, 2012; Miller, 2014; Pasek, 2012.; Sternberg & Sternberg, 2010) to determine other components important to include as part of the scoring rubric. I used the *Publication Manual of the American Psychological Association* (APA, 2010) to develop three writing-focused criteria (i.e., Writing style, Grammar and usage, and Mechanics of style) in addition reorganizing some of the existing content-focused criteria. Prior to implementing the scoring rubric during the revised ARMP, I also changed some of the words and phrases to be more consistent with APA style rather than educational research (e.g., changed 'Sample and site' to 'Participants in the study'), increased the number of descriptive levels from three to four, and added a fifth level for 'Not Present.' The scoring rubric used in the current study consisted of nine content-focused evaluative criteria and three writing-focused evaluative criteria, all with five descriptions of performance levels (see Appendix A).

I developed the course evaluation questionnaire to assist in providing specific information regarding how effective students perceived the revised ARMP, and especially the research proposal paper assignment and the feedback provided on it, to be regarding their learning of research writing (see Appendix B). The first section consisted of six open-ended/text-based response items focused on students' prior writing experiences at the postsecondary education level. These items targeted: (a) the courses (both general and psychology) that included writing as a significant component; (b) the types, topics, and guidance received when writing papers in those courses; and (c) students' knowledge, skills, and attitudes regarding research writing at the beginning of the semester. The second section of the questionnaire focused on the formal writing experiences within the ARMP and consisted of five subsections based on the five components of the research proposal paper assignment (i.e., references, literature review, introduction, method, and proposal). Each of these five subsections include closed-ended/rating scale response items regarding the effectiveness of both completing the assessments within each component (e.g., tools, drafts, conferences) and the written and/or verbal feedback provided on each assessment using a 5-point Likert-type scale that ranged from 'Not at all effective' to 'Extremely effective.' In addition, open-ended/text-based response items were included and to which students indicated why the assessments and the feedback provided on them were or were not effective. The third section of the questionnaire focused on the informal writing experiences within the ARMP and included five open-

ended/text-based response items to which students indicated how effective the reviews of example research proposal papers, any additional feedback provided by me, and any additional meetings with me were regarding their learning of research writing.

The fourth section focused on other, non-writing specific experiences within the ARMP and included four open-ended/text-based response items to which students indicated how effective the course content units and the course and supplemental readings (i.e., empirical journal articles) were regarding their learning of research writing. The final section of the questionnaire focused on concluding thoughts and included two open-ended/text-based response items to which students indicated how my approaches to instruction assisted in their learning of research writing and then reflected on their knowledge, skills, and attitudes regarding research writing at the end of the semester. Because of the differences between the two class sections regarding the providers of feedback, some of the questionnaire items were altered prior to being administered to students in Case II to reflect whether other students or I provided feedback on specific assessments (see Appendix C). Other changes I made to the ARMP between the two cases (e.g., reorganization of course content and units in Case II, one less sample paper in Case II) also were reflected in the changes I made to the open-ended/text-based items in the third and fourth sections of the questionnaire. In addition, a sixth response option of 'Not applicable' was added to all the close-ended/rating scale items, but no students selected this option when completing the questionnaire.

Data Analysis Procedures

Because of the large amounts and multiple types and forms of data recorded for both cases in the current study, information is provided below regarding the numerical-based coding, document-based coding, and textual-based coding, as well as both the within-case and cross-case analyses.

Numerical- and Document-based Coding

The research proposal paper scoring rubric included five performance levels (Not Present, Developing, Established, Advancing, and Exemplary) and for all 12 of the evaluative criteria, 'Not Present' was rated as 0 points. Each of the eight content-focused evaluative criteria could be rated between one and eight points, and each performance level except 'Not Present' could be rated with one or two points based on how well students' performance matched the descriptions of the performance level. As examples, performance

at the 'Developing' level could be rated as 1 or 2 points, whereas performance at the 'Exemplary' level could be rated as 7 or 8 points. The remaining four evaluative criteria targeted the references and the writing-focused content of the paper, and each could be rated between one and four points based on how well students' performance matched the descriptions of the performance levels. Because of the smaller range of ratings for these four criteria, each performance level only could be rated with one point. As examples, performance at the 'Developing' level only could be rated as 1 point, whereas performance at the 'Exemplary' level only could be rated as 4 points. These criteria ratings were coded numerically, with the lowest possible score on the research proposal paper being 0 points and the highest possible score being 80 points. The course evaluation questionnaire included several closed-ended/rating scale response items on a 5-point Likert-type scale regarding the effectiveness of both completing the assessments within each component and the feedback provided on each of those assessments. These five response options were coded numerically such that 'Not at all effective' was coded as '1,' 'Slightly effective' was coded as '2,' 'Somewhat effective' was coded as '3,' 'Very effective' was coded as '4,' and 'Extremely effective' was coded as '5.' The response option of 'Not applicable' was added to these closed-ended/rating scale response items for the adapted ARMP, but no student selected this option in response to any items.

The course materials, class activities, and assessments of the research proposal paper assignment were the documents analyzed, and Merriam (2001) indicated document-based content analysis is used to both provide descriptions and understand meanings of the documents as they relate to the concepts and data of the research study. Within case study research designs specifically, content analysis is used to base the investigation within the context of the research study. To code the documents, both the purposes of and directions for each of them were considered in response to the first two subquestions to which these data were aligned. Thus, the extent to which these documents informed students of the type and level of performance to be attained (i.e., subquestion 1) and helped them to progress and attain the type and level of performance (i.e., subquestion 2) were considered when analyzing the documents.

Textual-based Coding

The text-based data consisted of the feedback provided on students' assessments, students' responses to the conference questions, and students' responses to the course evaluation questionnaire items that were

open-ended. Because the conference questions and the questionnaire items for both cases, as well as the scoring rubric-based feedback for Case II only, were administered online, all these data were exported as Microsoft Excel files. The assessment-based feedback data for both cases, as well as the scoring rubric-based feedback data for Case I only, first were copied from the Microsoft Word documents in which they were provided and then were pasted into Microsoft Excel files. To assist with organizing and managing the data and their associated codes within these files, separate sheets were used for each assessment, conference question, and questionnaire item, as well as separate sheets for the scoring rubric ratings and comments. Similarly to Harris et al. (2015), all data were separated into individual statements of meaning prior to being coded if more than idea was expressed. Because of this, a single feedback statement or conference question/questionnaire item response could have several codes given more than one statement of meaning was provided. For example, the feedback statement, "The potential connections between early language development and school environments is [*sic*] interesting and provides another context for development (and measuring outcomes)." was divided into two individual statements of meaning before being coded: "The potential connections between early language development and school environments is [*sic*] interesting" was one statement of meaning because it expressed a single idea, whereas "and provides another context for development (and measuring outcomes)." was a second statement of meaning because it expressed another, separate idea. Similarly, one students' conference question response, "I'm unsure where to add reliability in the methods section and what my reliability would be." was divided into two individual statements of meaning before being coded: "I'm unsure where to add reliability in the methods section" and "and what my reliability would be."

Another students' conference question response, "I feel pretty good about it, I still believe there is improvement especially with citations, materials, and bettering the flow and transition of my introduction." was divided into four individual statements of meaning before being coded: "I feel pretty good about it," was one statement of meaning because it expressed a single idea; "I still believe there is improvement especially with citations," was a second statement of meaning because it expressed another, separate idea; "(*I still believe there is improvement especially with*) materials," was a third statement of meaning because it expressed another, separate idea; and "(*I still believe there is improvement especially with*) and bettering the flow and transition of my introduction." was a fourth statement of meaning because it expressed another, separate idea.

In addition, a students' questionnaire item response, "I think that writing the literature review table was effective for me because I was able to use the table when writing the research paper. It helped me when I needed to go back to the literature that I could just look at the review table and get what I needed." was divided into four individual statements of meaning before being coded: "I think that writing the literature review table was effective for me" was the first statement of meaning, "because I was able to use the table when writing the research paper." was the second statement of meaning, "It helped me when I needed to go back to the literature" was the third statement of meaning, and "that I could just look at the review table and get what I needed." was the fourth statement of meaning.

Both inductive and deductive approaches were used to code the text-based data in the current study. An inductive approach was used to create codes that emerged from the data (Patton, 2002), specifically students' questionnaire item responses, using an in vivo process of coding in the participants' own words (Creswell & Creswell, 2018). These consisted of both descriptive codes (i.e., assignment of category to text) and interpretive codes (i.e., assignment of meaning to text) applied to the data during the first-level coding process within each case (Miles & Huberman, 1994). In the context of the current study, the descriptive codes answered the questions, 'Who?' 'What?' 'Where?' or 'When?', whereas the interpretive codes answered the questions, 'Why?' or 'How?' Using the previous example of how students' questionnaire item responses were divided into individual statements of meaning, "I think that writing the literature review table was effective for me" was coded as EFFECTIVE, "because I was able to use the table when writing the research paper." was coded as USE TABLE WHEN WRITING, "It helped me when I needed to go back to the literature" was coded as HELPFUL, and "that I could just look at the review table and get what I needed." was coded as USE TABLE FOR INFORMATION. Thus, the descriptive codes (i.e., EFFECTIVE and HELPFUL) addressed 'What?' and the interpretive codes (USE TABLE WHEN WRITING and USE TABLE FOR INFORMATION) addressed 'Why?'/'How?'

A deductive approach, however, was used to create codes that aligned with existing models (Patton, 2002) and consisted of pattern codes (i.e., assignment of theme to text) applied to the data during the second-level, third-level, and final coding processes (Miles & Huberman, 1994), the last of which was used to organize the data regarding the six subquestions. For students' questionnaire item responses, the second-level

coding process included applying pattern codes to the previously applied (i.e., during the first-level coding process) descriptive and interpretive codes based on the targets of the coded individual statements of meaning. With students' questionnaire item responses regarding the research proposal paper assignment, the pattern codes were based on whether the responses targeted an assessment (with the codes of LIST [for references], TOOL, DRAFT, CONFERENCE, and PEER [for peer review session]) or the feedback provided on those assessments (with the code of FEEDBACK). If specified, then the pattern codes were based on whether the responses targeted the type of feedback (with the codes of WRITTEN, VERBAL, or RUBRIC) or the provider of feedback (with the codes of DEREK or PEER).

With students' questionnaire item responses regarding their previous writing experiences, the pattern codes were based on whether the responses targeted the disciplines of the mentioned courses (with codes such as ENG for English or PHI for Philosophy); the mentioned psychology courses beyond the prerequisite research methods course (with codes of the course numbers for required courses, ELECTIVE, and CAPSTONE); or the types of papers, the topics of those papers, and the guidance received when writing those papers (with the codes of TYPE, TOPIC, and GUIDANCE, respectively). With students' questionnaire item responses regarding themselves at both the beginning and end of their respective semesters, the pattern codes were based on whether the responses targeted their knowledge of, skills in, or attitudes towards research writing (with the codes of KNOWLEDGE, SKILLS, and ATTITUDES, respectively). And with students' questionnaire item responses regarding the effectiveness of the course materials, the pattern codes were based on the tones of the responses (with the codes of POSITIVE, NEGATIVE, and NEUTRAL). Using the previous example of how students' questionnaire item responses were coded during the first-level coding process, the descriptive (i.e., EFFECTIVE and HELPFUL) and interpretive (i.e., USE TABLE WHEN WRITING and USE TABLE FOR INFORMATION) codes all had the second-level code of TOOL applied to them given this student's response only addressed the literature review table and not the feedback provided on the literature review table. Additional examples of how both the first-level and second-level codes were assigned to students' questionnaire item responses are provided in Table 5.

During the third-level coding process, additional pattern codes were applied to students' questionnaire item responses if those addressed the feedback provided on their assessments. The feedback provided on

Table 5

Examples from the First- and Second-Level Coding Processes of Students' Responses to the Questionnaire

Items

Student response	First-level code (i.e., descriptive or interpretive)	Second-level code (i.e., pattern)
Writing the reference list was effective for me…	EFFECTIVE	LIST
because it helped refresh me on the APA style.	REFRESH APA	LIST
also the introduction draft helped me…	HELPFUL	DRAFT
a lot later when i had to write my final paper	WHEN WRITING PAPER	DRAFT
The method conference allowed for me to ask questions that I was struggling on.	ASK QUESTIONS	CONFERENCE
I cannot remember the questions, but it was clarified a lot.	CLARIFIED A LOT	CONFERENCE
The peer review session was pointless…	POINTLESS	PEER
and talking to other students in the class, they would agree as well.	OTHER STUDENTS AGREE	PEER
Some peers did give people great feedback,	SOME GOOD FEEDBACK	PEER
others (like mine) didn't provide me with the feedback that I needed to make my paper better.	NOT FEEDBACK NEEDED TO IMPROVE	PEER
some things i already knew i had to change…	ALREADY KNEW TO CHANGE	FEEDBACK
but it helped…	HELPFUL	FEEDBACK
in reassuring me that i was on the right track	REASSURING PROGRESS	FEEDBACK
It was effective…	EFFECTIVE	WRITTEN
because I got to see what I did well…	SEE DID WELL	WRITTEN
and what I didn't do so well on the literature review	SEE NOT AS WELL	WRITTEN
I thought that it was effective…	EFFECTIVE	VERBAL
because I had the opportunity to ask questions that I was not sure about…	ASK QUESTIONS	VERBAL

(Table Continues)

Table 5, Continued

Student response	First-level code (i.e., descriptive or interpretive)	Second-level code (i.e., pattern)
and I was able to figure out exactly what was needed	DETERMINE WHAT NEEDED	VERBAL
The rubric feedback was not helpful,	NOT HELPFUL	RUBRIC
in my opinion, because it was broad.	BROAD FEEDBACK	RUBRIC
It was effective…	EFFECTIVE	DEREK
because the instructor explained things very well…	WELL EXPLAINED	DEREK
and helped me…	HELPFUL	DEREK
come up with new ways to express how I wanted the method section to look like.	DETERMINE SECTION STRUCTURE	DEREK
I barely had any written feedback…	LITTLE FEEDBACK	PEER
and no one talked.	NO ONE TALKED	PEER

students' assessments and students' conference question responses also were coded similarly (although this was the only coding process applied to these data) because the third-level coding process applied codes based on Hattie and Timperley's (2007) model of feedback and specifically, the four levels at which feedback can be directed (i.e., Task, Process, Regulation, and Self). Because Hattie and Timperley discussed providing feedback within the context of goals to be achieved, it was determined the goal was to develop a research proposal paper with the purpose of demonstrating students' abilities to do so. In achieving this goal, students would meet four objectives, three of which aligned with components of this assignment: (a) determine what previous knowledge has been gained and how it was gained (i.e., through the literature review component), (b) determine what new knowledge can be gained and why it is needed (i.e., through the introduction component), (c) determine how this new knowledge could be gained and what impact it could have (i.e., through the method component), and (d) write about all of these in an APA-style research paper.

Given the progressive format of the research proposal paper throughout the semester, I applied pattern codes for Hattie and Timperley's (2007) four levels of feedback such that: (a) TASK was the code applied if

the data addressed either students' performance on the task (i.e., the relevant objective or component) being assessed, or how they performed on that task and why; (b) PROCESS was the code applied if the data addressed either the strategies underlying students' performance on the task being assessed, or what they did when performing that task and why; (c) REGULATION was the code applied if the data addressed either strategies beyond students' performance of the task (i.e., the relevant objective or component) that lead toward developing the research proposal paper (i.e., the goal), or what they should do next; and (d) SELF (praise directed at task) was the code applied if the data addressed reinforcement-based feedback that most often was directed toward how students performed the task. I used these basic descriptions associated with Hattie and Timperley's four levels of feedback as I coded the data, but these descriptions alone were sometimes insufficient to differentiate among the levels. To assist with coding these data, I consulted other research studies that similarly incorporated Hattie and Timperley's four levels of feedback, and I used their descriptions of these levels and/or the codes used with their data to further clarify the differences among the four levels and codes. Table 6 provides these descriptions of feedback levels and codes used in the current study.

Table 6

Descriptions of Feedback Levels and Associated Codes from the Current and Previous Studies

Source	TASK	PROCESS	REGULATION	SELF
Current study	Focused on performance of task being assessed How they did and why	Focused on strategies underlying performance of the task What they did and why	Focused on strategies beyond performance of the task that lead toward writing a research proposal paper What to do next	Focused on reinforcement-based feedback that most often was directed toward how students performed the task
Hattie & Timperley (2007)	Whether task or product is correct or incorrect Direction to add more, different, or correct information	Process used to create product or complete task Focused on processing of information or learning processes required to understand or complete task	Greater skill in self-evaluation or confidence to continue with task Can influence self-efficacy, self-regulation, beliefs as learners	Personal and directed to self Unrelated to performance on task

(Table Continues)

Table 6, Continued

Source	TASK	PROCESS	REGULATION	SELF
Hattie & Timperley (2007)			Encouraged or informed how to better or more easily continue	
Brown et al. (2012)	Focused on intended learning and specific requirements Used to gain more information/knowledge about task	Focused on skills or strategies needed to complete task Used to compare and extend tasks	Focused on comparing and revising work in relation to goal Used to redirect actions to reflect and monitor	Associated with praise
Brooks et al. (2019)	Focused on correct or incorrect Specific and tells what to change	Focused on processes or strategies of task Give chance to respond to feedback	Focused on strategies to improve Help evaluate own work	Non-specific praise or comments Comments on effort put into work
Dewit et al. (2021)	Focused on specific requirements and how well understood and performed	Focused on processes, skills, strategies to understand and perform	Focused on comparing, directing, regulating, adjusting work in relation to goal	Focused on personal, mostly positive, evaluation

As examples of how the feedback provided to students was coded, one student's feedback provided by me on their references list assessment was: "Entries 1 and 2 are doctoral dissertations" coded as TASK; "and, for this research proposal paper assignment, are less appropriate than peer-reviewed journal articles." also coded as TASK; "Locate two peer-reviewed academic journal articles to use" coded as PROCESS; and "and please let me know if I can help." coded as REGULATION. Similarly, another students' feedback provided by me on their literature review table assessment was: "This is another research study whose results challenge the beliefs that social media has a negative influence." coded as TASK; "Have you noted anything in these two studies that could be responsible for these results?" coded as PROCESS; and "Consider how this information can be used as you develop your proposed research study." coded as REGULATION.

One student's feedback provided by another student on their literature review draft was: "Overall the paragraph was really good" coded as TASK; and "and I think you would benefit from following the model of

this one on future ones!!" coded as PROCESS. For this second individual statement of meaning, the writer provided only one summary paragraph from one of their sources. Thus, this second statement was coded as PROCESS because the feedback was targeted at a strategy underlying this student's performance on the task being assessed (i.e., to determine what previous knowledge has been gained and how it was gained), or what they did when performing this task. This code was applied rather than being coded as REGULATION which would be more appropriate for feedback targeted at strategies beyond this student's performance of the task that would lead toward developing the research proposal paper, or what they should do next. The student who provided the previous feedback also received the following feedback provided by a third student on their literature review draft: "Good job!" coded as SELF (praise directed to task); and "Although I didn't get a chance to read all of it, the parts that I did, you did a great job reviewing your sources!" coded as TASK. Because this feedback was divided into two individual statements of meaning, the first statement was coded as SELF given this consisted only of reinforcement-based feedback whereas the second statement was coded as TASK given this consisted of reinforcement-based feedback that also was directed at how the student performed the task.

As examples of how the students' conference question responses were coded, one student's response to the questions or concerns they had regarding the literature review component was "When referencing another study, I do not need to state the title of the article," and "(*When referencing another study, I do not need to state*)…just the author(s) [*sic*] name and the year correct?" both coded as TASK; "Also, I have read over and selected various articles that look at different aspects or study different affects [*sic*] on children who are raised in one-parent homes," coded as PROCESS; and "but I am not sure what specifically I want my study to look at" and "and hope tomorrow you could help me pin point [*sic*] a specific [*sic*]." both coded as REGULATION. One student's response to the questions or concerns they had regarding the introduction component was "How to differentiate between studies that are informational and supportive." coded as PROCESS and "And how to make my research study more clearer [*sic*]." coded as TASK. And one student's response to the questions or concerns they had regarding the method component was "I feel I am lacking detail," coded as TASK; and "but do not know where to begin." coded as PROCESS. One student's response to the questions or concerns they had regarding the feedback provided on their literature review draft (i.e., only

in Case I) was "For the feedback, I see that the purpose of the Study [*sic*] I did not receive a score," coded as TASK; "how can I integrate this into my literature review" coded as REGULATION; and "or what exactly in this section of the rubric am I missing in my review." coded as TASK. Similarly, one student's response to this same conference question was "How do I go about examining each source." coded as PROCESS.

Some of the conference questions targeted the current component (e.g., the literature review conference questions that targeted the literature review component), whereas others targeted the next component (e.g., the literature review conference question that targeted the introduction component). All responses to this latter set of questions were coded as REGULATION in addition to TASK or PROCESS based on the target of the response. As examples of how students' responses to these specific conference questions were coded using these two codes, one student's literature review conference response for questions or concerns they had regarding the introduction component was "What is all of the information I need to provide?" coded as REGULATION-TASK; and "How can I be sure to include everything that the reader needs to know?" coded as REGULATION-PROCESS. One student's introduction conference response for questions or concerns they had regarding the method component was "Basically, how do we create a believable 'fake' method?" coded as REGULATION-PROCESS. One student's method conference response for questions or concerns they had regarding the significance component of their research proposal paper was "Do i [*sic*] need a separate paragraph for the significance part?" coded as REGULATION-TASK. Because students' relevant (i.e., regarding the feedback provided) questionnaire item responses also were coded using the four levels of feedback, examples of how these third-level codes were applied to students' responses, as well as their corresponding first-level and second-level codes, are provided in Table 7 with more examples provided in chapter IV.

Within-case and Cross-case Analyses

Given the descriptive and comparative case study types of the current study, both within-case and cross-case analyses were conducted with the data. Merriam (2001) indicated the within-case analyses should focus on each individual case so those case-specific data then can be understood during the cross-case analyses that focus on developing broad conclusions across the different cases. Similarly, Stake (2006) indicated single case study research tends to focus on the particular, whereas multiple case study research tends to focus on the

Table 7

Examples from the First-, Second-, and Third-Level Coding Processes of Students' Responses to the

Questionnaire Items

Student response	First-level code (i.e., descriptive or interpretive)	Second-level code (i.e., pattern)	Third-level code (i.e., pattern)
So, by having feedback you are able to recognize what your paper is missing,	KNOW MISSING	FEEDBACK	TASK
what to delete,	KNOW DELETE	FEEDBACK	TASK
and how to communicate to your audience effectively.	KNOW COMMUNICATE	FEEDBACK	PROCESS
I found it helpful…	HELPFUL	FEEDBACK	TASK
to see exactly what I did incorrect [*sic*]…	SEE WHAT INCORRECT	FEEDBACK	TASK
so that I could fix it for the final paper.	FIX FOR FINAL PAPER	FEEDBACK	REGULATION

general (although both focus on particularization more than generalization overall). As such, both the

similarities and the differences of individual cases are used within a multiple case study to understand the

quintain (i.e., the phenomenon across cases). In the current study, the two class sections represented the two

particular cases used to understand the general quintain of students' feedback processes and specifically, based

on the provider of feedback. Thus, within-case analyses were used to describe the findings of the two cases to

better understand my students' feedback processes when developing a research proposal paper, which

answered the first central question (i.e., What are undergraduate psychology students' feedback processes

associated with developing a research proposal paper?). Cross-case analyses then were used to compare the

findings between the two cases to better understand my students' feedback processes when the feedback was

provided by me or by other students, which answered the second central question (i.e., How are undergraduate

psychology students' feedback processes associated with developing a research proposal paper different when

feedback is 'Instructor → Student' compared to 'Instructor → Student ← Student?').

During the final coding process, additional patterns codes based on the six subquestions of the current study were applied to students' questionnaire item responses. These pattern codes were used such that: (a) INFORM was applied if students' responses addressed how the aligned data sources informed them of the type or level of performance to be attained, (b) PROGRESS was applied if students' responses addressed how the aligned data sources helped them to progress and attain the type or level of performance, (c) PROVIDE was applied if students' responses addressed how the aligned information associated with their performance was provided to them, (d) PROCEED was applied if students' responses addressed how this aligned information conveyed students' progress and how they should proceed, (e) IMPACT was applied if students' responses addressed how the aligned information associated with their performance impacted their learning, and (f) LEAD was applied if students' responses addressed how the aligned information leads to greater possibilities for learning.

These pattern codes only were applied to students' questionnaire item responses because all the documents were aligned with the first and second subquestions (i.e., would have been coded as INFORM or PROGRESS, respectively) and the extent to which those documents addressed these subquestions was considered when I analyzed them. Both the assessment-based and scoring rubric-based feedback were aligned with the third and fourth subquestions (i.e., would have been coded as PROVIDE or PROCEED, respectively). The in-text feedback from the assessments and comments-based feedback from both the assessments and the scoring rubrics were coded using Hattie and Timperley's (2007) four levels of feedback as part of answering the fourth subquestion specifically. Students' responses to most of the conference questions also were aligned with the third and fourth subquestions and were coded using the four levels of feedback as part of answering the fourth subquestion specifically. In addition, students' responses to one of the post-conference questions regarding what they learned were aligned with fifth and sixth subquestions (i.e., would have been coded as IMPACT or LEAD, respectively) and were coded using the four levels of feedback as part of answering the fifth subquestion specifically.

After the final coding process, students' questionnaire item responses and all their associated codes were copied and pasted into separate Microsoft Excel files for analysis. Similarly to the data coding files, separate sheets were used for each of Hattie and Timperley's (2007) three dimensions of feedback to assist

with organizing and managing the data and their associated codes to answer the six subquestions based on those three dimensions. Although the feedback provided on students' assessments and students' conference questions responses were components of the second and third dimensions, these data were not incorporated with students' questionnaire item responses in the data analysis files but remained separated in their own files until they were used to answer the subquestions to which these data were aligned.

In the current study, three of four general strategies for analyzing case study data were incorporated (Yin, 2014). Relying on propositions from theoretical and/or conceptual frameworks was one strategy used given Hattie and Timperley's (2007) model of feedback was a primary component of the conceptual framework in the current study. Propositions from their model were incorporated through their three dimensions of feedback on which the six subquestions of the current study were based and their four levels of feedback used in the deductive-based data coding approach to apply pattern codes. Working with data from the 'ground up' was a second strategy used given the inductive-based data coding approach to apply descriptive and interpretive codes using an in vivo process of coding in the participants' own words. Developing case descriptions (or case records) was a third strategy used given the descriptive case study type of the current study. The coded data of students' questionnaire item responses (i.e., from the data analysis files) were used to write case descriptions/records that bring the large amount of case study data together in a comprehensive format (Patton, 2002). Similarly to the Microsoft Excel files used for the coding and analysis of these data, separate case descriptions/records were written for each case, and these then were integrated with all other data for each case to respond to the six subquestions.

In addition to the four general strategies for analyzing case study data, Yin (2014) provided five analytic techniques to be used with case study data and of those, two were incorporated with the current study. Pattern matching was one technique used and refers to a type of logic in which similarities or differences between study findings and theoretical and/or conceptual propositions are examined. This technique was incorporated when I developed the case descriptions/records in response to the six subquestions for each case (i.e., the within-case analyses) and in doing so, answered the first central question. Cross-case synthesis was the second technique used and can be completed through different means (Yin, 2014), such as the multiple types of data displays to describe, explore, and/or explain phenomena (Miles & Huberman, 1994). This

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technique was incorporated when I developed tables of the summarized findings as responses to each of the six subquestions that then allowed for comparisons of the findings between the two cases (i.e., the cross-case analyses) and in doing so, answered the second central question. This cross-case synthesis is similar to the analytic track Stake (2006) indicated as preferred for analyzing multiple case study data because it maintains the particular nature of the individual cases in the course of understanding the general nature of the broader quintain. This analytic track emphasizes case findings, whereas the other analytic tracks either merge case findings during cross-case analysis (such as when more than two cases are studied) or focus on specific factors or variables rather than findings across the multiple cases.

Research Integrity

The integrity of the current study concerned: (a) the reliability and validity of inferences from using the scoring rubric to assess student performance on the research proposal paper; (b) the consequential validity of inferences from the research proposal paper assignment as a performance assessment; and (c) the dependability, credibility, and generalizability of inferences from the methodology and findings of the current study. The evidence associated with each of these is provided and explained below.

Intra-rater Reliability, Inter-rater Reliability, and Content Validity

Moskal and Leydens (2000) indicated how traditional indicators of reliability and validity are appropriate for examining the inferences made based on scoring rubric ratings for performance assessments. Although test-retest, equivalent-forms, and split-half methods of determining reliability are used with traditional assessments, the reliability of inferences made from scoring rubrics should include evidence associated with the raters. Intra-rater reliability evidence can be provided through consistent scoring over time from the same rater, whereas inter-rater reliability evidence can be provided through consistent scoring between at least two raters. Content validity evidence can be provided through determining the extent to which the scoring rubric includes the appropriate information of the domain, whereas criterion-related validity evidence can be provided through determining the extent to which scoring rubric ratings are associated with ratings from other, similar performance assessments. And construct validity evidence can be provided through determining the extent to which the scoring rubric specifies the targeted products or processes. In addition to

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these forms of evidence, the consequential validity, or the outcomes associated with scoring rubric ratings, should be considered (Moskal & Leydens, 2000).

At the end of their respective semesters, I reviewed students' research proposal papers and used the scoring rubric to assess their performance regarding the twelve evaluative criteria (i.e., I completed an initial scoring at time 1). As part the data coding processes for each case, I again reviewed each participating student's research proposal paper and used the scoring rubric to assess their performance (i.e., I completed a subsequent scoring at time 2). Comparing my ratings across these two times provided an examination of how consistently I used the scoring rubric to evaluate the same set of students' performance and served to estimate the intra-rater reliability of the inferences from my ratings. All median and mean scores for the criterion ratings between my initial (i.e., time 1) and subsequent (i.e., time 2) scorings were within one performance level, if not at the same performance level or the same numerical rating. The minimum scores, maximum scores, and ranges of scores for the criterion ratings between time 1 and time 2 were identical with the exceptions of criteria 1 (Explanation of the topic), 4 (Participants in the study), and 5 (Design of the study). Similarly, the standard deviation scores for the criterion ratings between time 1 and time 2 were within 0.5 points of each other with the exceptions of criteria 4 ($SD_{T1} = 1.5$, $SD_{T2} = 2.2$) and 5 ($SD_{T1} = 1.2$, $SD_{T2} = 2.4$), both of which are consistent with the minimum scores, maximum scores, and ranges of scores for those two criteria. The median and mean scores for the sums of the criterion ratings (i.e., total points from the scoring rubric) between time 1 and time 2 were within three points of each other ($Mdn_{T1} = 65.5$, $Mdn_{T2} = 62.5$; $M_{T1} = 63.7$, $M_{T2} = 60.6$). The range of scores was smaller during time 2 (41) compared to time 1 (43), but the standard deviation score was higher during time 2 ($SD = 13.1$) compared to time 1 ($SD = 11.3$).

For 11 of the 12 criterion ratings between time 1 and time 2, the Pearson correlation coefficients (r) ranged from 0.51 to 0.93, and the Spearman correlation coefficients (ρ) ranged from 0.54 to 0.92. Each of these 22 coefficients was statistically significant ($p \leq .007$), all of which represented moderate to strong positive associations between my initial and subsequent scorings of students' research proposal papers. The only exception to these patterns was criterion 2 (Review of the previous literature), $r = 0.31$, $p = .13$; $\rho = 0.37$, $p = .06$. For the sums of the criterion ratings (i.e., total points from the scoring rubric) between time 1 and time

2, $r = 0.86$, $p < .001$; $\rho = 0.90$, $p < .001$; and both further indicated strong positive associations between my initial and subsequent scorings of students' research proposal papers.

Obtaining similar, if not identical, criterion ratings and sums of the criterion ratings between my initial and subsequent scorings and noting the moderate-to-strong, positive, and significant correlation coefficients for 11 of the 12 criterion ratings and the sums of the criterion ratings between the two scorings indicated I consistently used the scoring rubric to evaluate students' performance regarding most of the criteria. Although criterion 2 had the lowest correlation coefficients and indicated weak, but still positive, associations, the marginal significance levels of both coefficients suggested stronger (and still positive) associations may exist and given other instructors' comments regarding the scoring rubric (see below), the descriptions of performance levels could be a primary factor in these lower and nonsignificant correlation coefficients.

To examine the inter-rater reliability and content validity of inferences from the scoring rubric ratings, I contacted four tenured psychology instructors at my institution whom I selected because they were my master's-level instructors for research methods and statistics courses and/or they taught the same ARMP I did. When contacting them, I provided background for the current study and context for the research proposal paper assignment, including the purpose and objectives of this performance assessment. I also asked if they would review my scoring rubric, use it to evaluate three students' research proposal papers as a measure of inter-rater reliability, and respond to questions regarding the reliability and validity of the inferences from the scoring rubric ratings. All four were willing to help but given the personal circumstances of one instructor, only three were able to complete these reviews and respond to the questions. Thus, nine students' research proposal papers across both cases were reviewed both by me and another psychology instructor, and this represented 34.6% of the 26 students who participated in the current study.

The median and mean scores for five of the eight content-focused criterion ratings were one or two performance levels lower among the three instructors' ratings compared to my ratings. The ranges of scores were larger among the three instructors for four of these five criteria ratings, and the standard deviation scores were higher among the three instructors for three of these five criteria ratings. Of the other three content-focused criterion ratings, criterion 6 (Materials of the study) had a median score within the same performance level, but the mean score was one performance level lower among the three instructors compared to my

ratings. The range of scores was larger and the standard deviation score was higher among the three instructors' ratings compared to mine for this criterion. Both criteria 3 (Purpose of the study) and 7 (Procedure of the study) had mean scores within the same performance level, but the median scores were one performance level lower among the three instructors compared to my ratings. For both criterion ratings, the ranges of scores were smaller and the standard deviation scores were lower among the three instructors' ratings compared to mine.

The median and mean scores for the remaining four criterion ratings (i.e., References and the three writing-focused criteria) were within one performance level, if not the same performance level, among the three instructors' ratings compared to my ratings. The ranges of scores were higher for criterion 9 (References), lower for criterion 11 (Grammar and usage), and identical for the other two criteria among the three instructors compared to my ratings. The standard deviation scores were higher among the three instructors' ratings compared to mine for criteria 9 and 12 (Mechanics of style) but lower among the three instructors compared to my ratings for criteria 10 (Writing style) and 11. These four criteria, however, had more restricted ranges (i.e., only five ratings were possible) than the eight content-focused criteria (i.e., nine ratings were possible). The median and mean scores for the sums of the criterion ratings (i.e., total points from the scoring rubric) were lower among the three instructors ($Mdn = 45.0$; $M = 47.2$) compared to mine ($Mdn = 63.0$; $M = 61.7$). The range of scores among the three instructors was larger (44) compared to my range of scores (35), but the standard deviation score among the three instructors ($SD = 12.8$) was almost identical to my standard deviation score ($SD = 12.9$).

For the criterion ratings among the three instructors compared to mine, Pearson's r coefficients ranged from 0.00 to 0.67, Spearman's ρ coefficients ranged from 0.12 to 0.68, and only two were statistically significant. These indicated there were weak, if any, associations among the three instructors' ratings compared to mine. Pearson's r coefficient was significant for criterion 5 (Design of the study; $r = 0.67$, $p = .05$), and Spearman's ρ coefficient was significant for criterion 2 (Review of the previous literature; $ρ = 0.68$, $p = .05$). For the sums of the criterion ratings among the three instructors compared to mine (i.e., total points from the scoring rubric), $r = 0.65$, $p = .06$ and $ρ = 0.53$, $p = .14$. Although neither coefficient was significant, they suggested moderate positive associations may exist, especially when the formal responses provided by

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these three instructors is considered with these statistics (see below). One instructor indicated completing these evaluations was difficult and thought reviewing more than three papers may have helped them be more comfortable with the scoring rubric (A. Professor, personal communication, December 16, 2022). They also indicated, "I just felt like I had to get inside the head of another instructor which is hard—I'm used to my way of thinking about things!" (A. Professor, personal communication, December 19, 2022). Both factors also may explain the lower inter-rater reliability coefficients among the three instructors' ratings compared to my ratings.

In addition to reviewing the scoring rubric and assessing students' research proposal papers, I asked the three instructors to respond to seven questions regarding the reliability and validity of the inferences from the scoring rubric ratings. Moskal and Leydens (2000) provided questions to consider when determining whether the use of a scoring rubric would be appropriate given the purpose of the assessment, and these questions were organized based on the type of reliability and validity evidence sought. Because content validity was the primary focus for the current study, the three questions based on this type were not altered from those provided by Moskal and Leydens. The two questions based on construct validity were somewhat redundant of the content validity questions, so neither of those questions was included in the current study. Of the four questions based on criterion-related validity, two were somewhat redundant of the content validity questions and were not included in the current study, but the other two questions were included. Three questions were based on reliability, but only two questions were included in the current study because the third question targets whether two raters would assign the same score if assessing the same assignment using the scoring rubric (i.e., inter-rater reliability hypothetically in the same way the instructors' reviews of students' papers did). Thus, I developed seven open-ended/text-based response items for an online questionnaire each of the three instructors completed (see Appendix D), and some of the comments from individual scoring rubrics and from email communications with these instructors supplemented their responses to the questionnaire items.

Regarding the content validity and construct validity of the inferences from the scoring rubric ratings, the three instructors indicated the evaluative criteria and descriptions of performance levels comprehensively addressed aspects of students' abilities to develop a research proposal paper. Three specific notes were

provided regarding criteria 5 (Design of the study), 6 (Materials of the study), and 7 (Procedure of the study), and one general note was a research proposal paper's topic and/or research questions being within a particular subfield within psychology (e.g., developmental psychology) was not addressed. Although one instructor stated the standards were high and they would probably consider performance at the 'Advancing' level to be a strong 'A' paper, they also stated they may not hold students to a high enough standard. All three instructors indicated the evaluative criteria and descriptions of performance levels did not address information extraneous to students' abilities to develop a research proposal paper. They also indicated there was no information addressed through developing a research proposal paper that should be evaluated but was not present in the evaluative criteria or descriptions of performance levels, other than content organization and elements of APA style beyond what was included in criterion 9 (References; e.g., subheadings, in-text citations).

Regarding the reliability of the inferences from the scoring rubric ratings, the three instructors indicated the descriptions of performance levels were well defined but also provided some considerations. They noted the differences between 'identified' and 'described' (both of which are found within several descriptions of proximal performance levels) could be difficult for students to determine, and the definition of 'required sources' from criterion 9 (References) was unclear (the latter refers to the assignment requirement of having at least nine primary sources and at least one secondary source). The three instructors indicated none of the descriptions of performance levels addressed inconsistencies across the research proposal paper (e.g., if the research question stated in the introduction section did not align with the research question stated in the method section). When assessing their three research proposal papers, one instructor noted they interpreted such inconsistent statements as inadequately addressing the evaluative criteria, and any incorrect attempts at addressing the evaluative criteria (e.g., incorrect information regarding independent and dependent variables for criterion 5, Design of the study) were rated as 0 points or 'Not Present.'

One instructor indicated the descriptions of performance levels included some information that may be partially addressed but the scoring rubric did not allow for rating a criterion when only part of the description is addressed. This latter statement suggested this instructor did not understand the two point values provided for each performance level and that odd-numbered ratings should be used to indicate that every component within the description was not addressed. Another instructor specifically noted the flexibility of the

descriptions of performance levels (e.g., the 'Developing' level allows a rating of '1' or '2') as helpful, which further supported a lack of understanding from the previously noted instructor. The three instructors indicated the differences between the descriptions of performance levels were mostly clear but again, they also provided some considerations. Criteria 10, 11, and 12 (i.e., the three writing-focused criteria) included poorly operationalized differences within the descriptions of performance levels (e.g., between 'slight' and 'somewhat'). Similarly, the differences between descriptions of some performance levels for criteria 5 (Design of the study) and 7 (Procedure of the study) were noted, and specifically regarding criterion 7 were the words 'identified' and 'described' as explained above.

Regarding the criterion-related validity of the inferences from the scoring rubric ratings, the three instructors indicated the evaluative criteria and descriptions of performance levels reflected competencies that would suggest success on future or related research papers. They specifically noted the evaluative criteria were extensive and consistent with the expected competencies for writing such papers. The instructors also indicated there were some aspects of future or related research papers not reflected in the evaluative criteria or descriptions of performance levels. A future paper could focus on a complete research study and include additional information (e.g., regarding data analysis) but because such information is not common within research proposal papers, this omission from the scoring rubric was appropriate. In addition, the scoring rubric did not accurately address developing a qualitative research proposal given the more quantitatively focused words and phrases used throughout the scoring rubric.

Consequential Validity

Linn et al. (1991) explained how the use of traditional assessments (e.g., standardized examinations) may not provide the most authentic assessment of student learning and thus, may provide inappropriate indicators for measuring student progress toward learning goals. Yet, performance assessments (e.g., portfolios) have been criticized for being less objective than traditional assessments, if not criticized for being 'too subjective,' due to greater variability that can result from multiple raters' evaluations of the same student's performance (Linn, 1993). As part of determining the validity of inferences from performance assessments, Linn et al. stated traditional indicators of reliability and validity are appropriate, but additional criteria also should be considered. One such criterion targets the consequences of assessment regarding intended and

unintended impacts as they are associated with what content instructors teach and how they teach that content, student motivation toward and behavior in completing the assessment, and how the assessment findings are used. Regarding the content and how it is taught, I made several major changes to the initial ARMP primarily due to students' performance on the research proposal paper assignment being lower than I expected. Because I wanted to ensure students had the necessary knowledge and skills to complete this assignment, I reorganized the course curriculum to include a more thorough review of the prerequisite content (i.e., general research methods) rather than focusing primarily on developmental research methods as with the initial ARMP. Rather than having some, less-interactive activities for the research proposal paper assignment, I divided this into five components (i.e., references, literature review, introduction, method, and proposal) completed throughout the semester, and the middle three components each included three assessments (i.e., tools, drafts, and conferences). These changes altered the nature of the assignment, and I incorporated different class activities and homework assessments more similar to the assignment and its evaluative criteria. These changes also altered the amounts of time during class meetings focused on the research methods content (more emphasis during the initial ARMP) and both the research writing content and research proposal paper assignment (more emphasis during the revised and adapted versions of the ARMP).

Regarding student motivation and behavior, both informal and formal communications with students have indicated these changes, especially regarding the research proposal paper assignment, helped them not only to understand and apply the research methods content but also to understand and apply the research writing content. Compared to the initial course, students in the revised and adapted versions of the ARMP seem to have increased the effort they put into completing this assignment, which in part is due to the increased number of assessments between the different course versions. Students also have not indicated they feel overwhelmed by the assignment, and many students have indicated the smaller assessments throughout the semester helped to keep them focused on the current components without feeling overwhelmed by the entire assignment. Because the current study was conducted to better understand students' feedback processes associated with developing a research proposal paper, more information regarding student behavior and motivation is provided in chapter IV.

Regarding the use of the assessment findings, the research proposal paper was 17.1% of students' final grades in the initial ARMP, the eight activities students completed to help them was 22.9% of their final grades, and a presentation of their research proposal papers was 8.6% of their final grades. Thus, 48.6% of students' final grades in the initial ARMP was based on the research proposal paper assignment, but the activities, paper, and presentation received much less attention regarding the curriculum, instruction, and assessment of the course compared to the research methods content. In the revised and adapted versions of the ARMP, however, the research proposal paper was 26.7% of the final grade, and the various assessments students completed to help them were 23.3% of the final grade. Thus, 50.0% of students' final grades in the revised and adapted versions of the ARMP was based on the research proposal assignment. Although these percentages changed little among the different versions of the ARMP, the number of assessments completed prior to the research proposal paper (i.e., 8 in the initial ARMP, 13 in the revised ARMP, and 14 in the adapted ARMP [14th was the midterm conference in Case II]) and thus, the feedback provided to students, increased greatly between the initial ARMP and the revised and adapted versions of the ARMP. In all three, students' performance on the research proposal paper assignment impacted their final grades similarly, but I believe the changes in the revised and adapted versions of the ARMP helped provide me with a better assessment of student learning regarding the research proposal paper, in part because of the greater amount of feedback provided to students. Again, given the purpose of the current study, more information regarding the use of the assessment findings is provided in chapter IV.

Similarly, Messick (1995a, 1995b) recommended various forms of validity evidence be integrated within a more holistic perspective of the construct validity of the inferences from performance assessments. In further considering the consequences of assessments and their impacts, Messick indicated such consequences can be positive, such as improvements in how time is used for both instruction and assessment. I made changes to the initial ARMP associated with the course curriculum (e.g., more equal division between research methods and research writing), instruction (e.g., more attention during class meetings to developing the research proposal papers), and assessment (e.g., multiple assessments to help students progress throughout the semester). Messick also indicated the consequences of assessment can be negative, but such consequences should not be due to construct underrepresentation within the assessment or to irrelevance to the construct of

information within the assessment. These two issues were examined as part of the three instructors' reviews of the scoring rubric and the information they provided regarding the reliability and validity evidence. Content organization, elements of APA style beyond the 'References' criterion, and qualitative research-focused language were the only information addressed through developing a research proposal paper that should be evaluated but were not present in the evaluative criteria or descriptions of performance levels. Similarly, the instructors indicated the evaluative criteria and descriptions of performance levels did not address information extraneous to a student's ability to develop a research proposal paper.

Dependability, Credibility, and Generalizability

Merriam (2001) indicated the integrity of qualitative research methodologies targets three components similar to those considered when examining the integrity of quantitative research methodologies. Reliability within quantitative research methodologies targets the extent to which results can be replicated across different participants, measurements, and procedures. Within qualitative research methodologies, however, such a concept is not as relevant because it is assumed the findings (especially case study findings) cannot be replicated due to the different participants and their experiences with the different contexts. Instead, this concept often is called dependability within qualitative research methodologies and considers the extent to which the findings presented are consistent with the data collected. Internal validity within quantitative research methodologies targets the extent to which the results match reality. Qualitative research methodologies, however, often challenge the assumption that a single, fixed, and even objective reality exists and rather, focus on participants' constructions of reality and how they interpret their experiences. Thus, this concept often is called credibility within qualitative research methodologies and considers the extent to which participants' perspectives are understood within the contexts of the research study and whether the researchers provide a holistic interpretation of the findings. External validity within quantitative research methodologies targets the extent to which the results from one research study can be applied to other research studies. This concept is important within qualitative research methodologies but similarly to the concept of reliability/dependability, it is considered in different ways such as through working hypotheses, concrete universals, naturalistic generalization, and reader or user generalizability. One assumption across all these ways is that the general lies within the particular and what is learned in one context can transfer to other,

similar contexts (even if that transfer is not identical between contexts). Thus, this concept often is called

generalizability within qualitative research methodologies and considers the extent to which findings from one

research study would be similar or different to other research studies conducted in similar contexts.

Merriam (2001) provided three techniques to help ensure dependable (i.e., reliable) findings through

qualitative research methodologies, and all three were incorporated with the current study. The first technique

was explaining the researcher's position regarding the study, the participants, and the contexts. This was

addressed as I considered my role as the researcher and how my positionality influenced different components

of the current study (see above). The second technique Merriam provided was triangulation, or the use of

multiple methods for data collection and analysis within a single research study. Patton (2002) indicated there

are four kinds of triangulation, and two of these were incorporated with the current study: Methods

triangulation (i.e., the integration of qualitative and quantitative data) and sources triangulation (i.e., the

integration of different types of qualitative data). The course evaluation questionnaire included both closed-

ended/rating scale response items coded numerically and open-ended/text-based response items coded

textually. Both types of items were used to collect data regarding the same concepts, such that participants

rated both the effectiveness of completing different assessments and receiving feedback on those assessments,

as well as wrote why both were or were not effective. As indicated in chapter IV, students' numerical-based

ratings and textual-based responses converged, such that if students provided lower ratings regarding specific

assessments or feedback, then these were supported by their written responses (and the same for higher

ratings). In addition to the open-ended/text-based response items on the questionnaire, the feedback provided

to students and their conference question responses also were textually coded using Hattie and Timperley's

(2007) four levels of feedback (with the pattern codes of TASK, PROCESS, REGULATION, AND SELF

[praise directed at task]). The Task and Regulation levels were frequently addressed across the different data

types, whether through the feedback provided or students' responses to the conference questions and the

questionnaire items. Patton (2002) indicated that in general, convergence across methods and across sources

(both of which were noted in the current study) increases confidence regarding dependability of the findings.

The third technique Merriam provided was an audit trail, in which a researcher describes the ways they

obtained the findings so individuals who were not involved in the research study are able to better understand

how those findings were obtained. Memoing, or the researcher's process of completing notes to themselves while conducting a study, is one way to assist with an audit trail by providing the researcher's thoughts and reflections throughout a study (Miles & Huberman, 1994). I made several notes during the coding processes to help ensure the dependability of my coding the large amount of data, and the coding protocol regarding Hattie and Timperley's four levels of feedback (see Table 6) represented a formalized version of one component of my memoing. I have explained, and will continue in chapter IV, how the various data were recorded; how the descriptive, interpretive, and pattern codes for the textual-based data were applied; and how I made decisions as I conducted the current study, all of which represented components of my memoing.

Merriam (2001) provided six techniques to help ensure credible (i.e., internally valid) findings through qualitative research methodologies, and three were incorporated with the current study. One technique was triangulation and given this also was used to address dependability (i.e., reliability), the ways in which both methods and source triangulation were used in the current study were explained above. The second technique was long-term observation, or collecting data over a period of time through repeated observations of the same phenomenon. Because the current study was classroom-based, the data were provided by both me and students throughout the 16-week semesters in which the two class sections occurred. Although I had more frequent and more direct interactions with students in Case I compared to Case II, I interacted with every student several times during their respective semesters, whether in the face-to-face or synchronous-online learning environments. Furthermore, I taught the revised and adapted versions of the ARMP for several semesters prior to completing the current study and although those semesters included different students, the course curriculum, instruction, and assessments were very similar, if not identical, to the two cases in the current study. Thus, I have had multiple exposures to the contexts, with much of this being consistent across the semesters. The third technique Merriam provided was addressing the researcher's biases, including their assumptions, worldviews, and theoretical orientations. Similarly to my position regarding the study, the participants, and the contexts, this was explained as I considered my reflexivity and how my experiences impacted my perspectives regarding the current study (see above).

Merriam (2001) provided three techniques to help ensure generalizable (i.e., externally valid) findings through qualitative research methodologies, and all three were incorporated with the current study. The first

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technique was providing rich, thick descriptions so others can better understand the extent to which the research participants, sites, and settings are similar or different and thus, how well the findings may transfer to other participants, sites, and settings. Similarly to providing an audit trail (i.e., to address the dependability/reliability), I have described, and will continue in chapter IV, the participants/students and their perspectives regarding both the research proposal paper assignment and the feedback provided on their assessments. I also have described the ARMP and how it aligned with the undergraduate psychology program offered at my institution. The second technique was describing the typicality of research participants, sites, and/or settings and to some extent, I also have done this regarding the ARMP and how it aligned with the undergraduate psychology program. Although the psychology program at my institution followed the recommended structure (McMinn & Dunn, 2015), my institution was different given two statistics courses and two research methods courses were required for psychology students (rather than one course for each or even one course for both). Thus, I am unsure of the extent to which my students would have been more prepared to complete the research proposal paper assignment, regarding both the research methods and writing content, compared to students who were completing an undergraduate psychology program at another institution. I would estimate, however, students at my institution would be more prepared than students who only completed one or two research methods and statistics courses given the former group completed four of these courses by the time they graduated from my institution. Students in both cases described similar writing experiences within both their non-psychology and psychology courses, including the types of papers they wrote and the guidance they received when writing those papers, which indicated the previous writing experiences of students in the two cases were similar. The third technique was incorporating multisite designs, especially through different cases to amplify the differences between them and thus, better apply the findings to more contexts. Because the comparative case study type was incorporated with the current study and because a primary difference between the two cases was the feedback providers, this technique can broaden the extent to which other researchers could use this methodology and/or these findings in their own scholarship.

CHAPTER IV: FINDINGS

This chapter is divided into six sections based on the six subquestions that guided the current study. Each section includes information for both cases as well as summaries and comparisons across the two cases. The first section provides information on how the data sources informed students of the type and level of performance to be attained, and the second section provides information on how these data sources helped students to progress and attain the type and level of performance. The third section provides information on how the data sources associated with performance were provided to students, and the fourth section provides information on how these data sources conveyed students' progress and how they should proceed. The fifth section provides information on how the data sources associated with performance impacted student learning, and the sixth section provides information on how these data sources lead to greater possibilities for learning and concludes this fourth chapter.

How did the data sources inform students of the type and level of performance to be attained?

This first subquestion was based on the Feed Up dimension of Hattie and Timperley's (2007) model of feedback. The aligned data included: (a) course materials, (b) class activities, (c) the research proposal paper scoring rubric, (d) the research proposal paper assessments, and (e) students' responses to course evaluation questionnaire items regarding the effectiveness of these data sources in their learning of research writing.

Case I/Instructor Feedback → Student

The course materials data included: (a) the goals and objectives for the course, (b) the assigned course and supplemental readings, and (c) example research proposal papers, and the class activities data included: (a) discussions of those readings and (b) reviews of those papers. Table 8 includes the course goals and objectives for the semester during which Case I occurred. These indicated both knowledge through defining, summarizing, and explaining content and the application of that knowledge through using the content were important. Their knowledge and application of it were used as students completed the course and specifically, as they completed the research proposal paper assignment. Given students' experiences through prerequisite and elective courses, these goals addressed students' various depths of understanding regarding the content (i.e., advanced understandings for goals 1 and 2, established understandings for goal 4, and developing understandings for goal 3).

Table 8

ARMP Course Goals and Objectives in Case I

Goals	Objectives
1 Advanced understanding of general research methods	Defining, summarizing, and explaining content
2 Advanced understanding of research design and data measurement/collection/analysis/interpretation	Using content when reviewing research by identifying components, making judgments, reflecting on alternative ways
3 Developing understanding of developmental research methods	Using content when developing research by identifying and integrating components, making and justifying judgments, reflecting on and generating alternative ways
4 Established critical thinking and information literacy skills	Seeking clarity/accuracy, distinguishing facts from opinions, being skeptical
	Recognizing need and identifying information, finding information and evaluating critically, using information legally and ethically

Students' responses to the course evaluation questionnaire items indicated the three units of course content (i.e., goals 1-3) were helpful with informing them of the type and level of performance to be attained. Nine students (90.0% of the 10 students who responded to the questionnaire items) indicated the 'general research methods' content provided a good review of this information before they began writing their drafts, with the most frequently cited content being APA style. As one student noted, "I feel that I learned more about writing a research proposal paper and APA style than I have in previous courses." Seven students (70.0%) indicated the 'research design and data collection/analysis' content provided information, as one student noted, "This allowed for a better methods section, due to the multitude of options available for running the proposal research study." Another student noted, "The paper helped with learning about data measurement because it helped with understand [*sic*] how it was applied and how it could be useful." Although two students (20.0%) indicated this content was confusing and not as interesting, they also stated they learned more about these topics despite their difficulty. In addition, eight students (80.0%) indicated the 'developmental research methods' content was interesting because it was more relevant either to their own lives (e.g., studying infant development as related to a young nephew) or to their research proposal paper topics (e.g., studying transitions

during and outcomes of adolescent development). Regarding the latter, one student noted, "This allowed for almost everyone's topics to be discussed. It not only engaged my peers, but also gave them information on the topic they were already researching."

In addition to the course textbook, several empirical journal articles were included as either course or supplemental readings (the latter accompanied items on the midterm examination). The two course readings detailed psychological research studies students reviewed and for which they completed 'guided reading questions' identical to the literature review table questions that were discussed with the journal articles during class meetings. The first journal article was selected because it included several threats to the validity of the research study, some of which the authors addressed in a subsequent research study used as one of the supplemental readings. The second journal article was selected because it included a sequential design to address some of the threats to the validity of previous developmental research studies the authors conducted, one of which was used as the other supplemental reading. All four provided examples of research studies and how they are structured and formatted as empirical journal articles (i.e., in APA style).

Eight students (80.0%) indicated the course and supplemental readings also were helpful in providing information regarding the research proposal paper assignment. As one student noted, "I think that reading the journals was effective for me because they also provided me with more knowledge of what a research paper looks like and its structue [*sic*]." Similarly, another student noted, "The course readings/examination supplements gave examples of how methodologies and measurements were used." Two students (20.0%), however, did not think the course readings were effective, because either they did not read them or they thought the in-class discussions alone were sufficient rather than responding to the 'guided reading questions' prior to those discussions.

Throughout the semester, reviews of three research proposal papers occurred during class meetings to provide examples for students as they developed their own research proposed papers. The first paper was written by A. Student, a former student who completed the ARMP and the research proposal paper assignment in a similar way as students in Case I did. Their paper was selected as an example because it included most information from the scoring rubric and was written well but also included common errors and omissions. The second paper was written by Method Student, also a former student who completed the ARMP and research

proposal paper assignment in a similar way as students in Case I did. Their paper was selected as an example because it included very detailed information from the scoring rubric and was written very well with few errors or omissions. The third paper was the one I completed as a student in the ARMP, but there were no assignments prior to submitting this final paper other than a 10-minute meeting with the course instructor to generally discuss the paper before it was due. This paper was selected as an example because it included most information from the scoring rubric, was written well, and I could both explain the rationale for the proposed research study and indicate errors and omissions.

All 10 students' responses indicated the reviews of these three research proposal papers were helpful in providing information regarding the research proposal paper assignment. Having a better sense of the assignment expectations and seeing how those expectations could be addressed through different examples were the most frequently cited reasons for why these reviews were effective. As one student noted,

> This was extremely helpful because by doing so we saw a paper that is well written and can see more of how the structure should be. That has been the most challenging part for me personally, so by seeing an example really helped a lot.

Part of better understanding the assignment expectations through examples included knowing how much information should be provided, as one student noted, "It was effective due to the amount of detail the student used. It is not like we 'needed' that much detail, but it would be nice to be that detailed." In addition, the post-review discussions of the examples were helpful, as one student noted in response to the review of my research proposal paper, "very helpful as to what was completed and when you went through it saying what you would change to show how things have changed or what more was needed."

On the research proposal paper scoring rubric, there were three evaluative criteria for the introduction section (i.e., Explanation of the topic, Review of the previous literature, and Purpose of the study), four evaluative criteria for the method section (i.e., Participants in the study, Design of the study, Materials for the study, and Procedure of the study), one evaluative criterion each for the significance component and for the references list, and three writing-based evaluative criteria (i.e., Writing style, Grammar and usage, and Mechanics of style). All the evaluative criteria consisted of five performance levels (labeled Not Present, Developing, Established, Advancing, and Exemplary) and regardless of evaluative criterion, the performance

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level of 'Not Present' was rated as 0 points. For the introduction and method sections and the significance component, the other four performance levels could be rated as one or two points based on how well students' performance matched the descriptions at each level (e.g., students could receive 1 or 2 points at the 'Developing' performance level based on whether all information was included). For the references list and the three writing-focused evaluative criteria, the other four performance levels could be rated as only one point based on the descriptions at each level (e.g., students only could receive 1 point at the 'Developing' performance level, 2 points at the 'Established' performance level).

Table 9 provides information regarding the purposes of and directions for the various assessments students completed throughout the semester to develop their research proposal papers.

Table 9

Purposes of and Directions for the Research Proposal Paper Assessments in Case I

Assessment	Purpose	Directions
References list	Compile potential sources that could be reviewed and cited	Find at least one secondary source and at least nine primary sources Use APA style guidelines to create tentative list
Literature review table	Find and organize relevant information extracted when reviewing sources	Outline secondary source using structure/format of the source as guide; write summaries of each section Respond to questions regarding purpose, method, results/conclusions, implications, and recommendations for each primary source
Literature review draft	Write information from table	Formalize table entries into paragraphs (one or two for each source)
Literature review conference	Review and discuss draft, instructor feedback, forthcoming section	Answer pre-conference questions before and post-conference questions after
Introduction outline	Determine and organize information regarding purpose and importance of proposed research study	Respond to questions to help explain topic; review previous research; discuss inconsistencies or unknowns; define research questions, knowledge gain, and influence of proposed research study
Introduction draft	Write information from outline	Formalize outline responses into paragraphs Integrate literature review draft
Introduction conference	Review and discuss draft, instructor feedback, forthcoming section	Answer pre-conference questions before and post-conference questions after

(Table Continues)

Table 9, Continued

Assessment	Purpose	Directions
IRB protocol submission form	Determine and organize information regarding alignment of topic, research questions, and methods of proposed research study	Respond to questions regarding subject selection/recruitment, informed consent/permission/assent, compensation, research location, procedure, instruments/apparatus, data, risks, and benefits of proposed research study
Method draft	Write information from protocol submission form	Formalize responses into four method subsections (i.e., participants, design, materials, and procedure)
Method conference	Review and discuss draft, feedback, forthcoming section	Answer pre-conference questions before and post-conference questions after
Proposal draft	Develop semi-final draft	Determine significance of proposed research study Integrate information with previous drafts
Peer review	Work with a final sample paper	Review and provide feedback on a peer's proposal draft
Proposal conference	Review and discuss draft, peer feedback, submitting final paper	Answer pre-conference questions before

Two students (20.0%) indicated completing the references list assessment was effective for reviewing APA style, as one student noted, "It was effect [*sic*] as it showed me the proper was [*sic*] to cite my sources as well as the difference in primary and secondary sources." Only four students (40.0%) indicated completing the tools and drafts for the three components was helpful in providing information regarding the research proposal paper assignment. Generally, these students placed less emphasis on how the tools and drafts informed them of the type and level of performance and instead emphasized how these helped them to progress and attain the type and level of performance (see below). Five students (50.0%), however, indicated the conferences were informative, as one student noted, "i [*sic*] was confused about the components to the introduction section so i [*sic*] was relieved to attend the conference." Similarly, another student noted, "I was very confused about my methods section when I first turned it in, but thought [*sic*] the conference, any questions I had were answered and made clear." These students indicated the conferences were more informative than the tools or drafts because students had several opportunities to ask their questions, clarify their thoughts, and share their frustrations (as well as receive feedback) through discussions with me. In addition, none of the students indicated how the peer review session (i.e., of their proposal drafts) informed them regarding the research

proposal paper assignment but rather stated how it helped them (or not) to progress and attain the type and level of performance (see below).

Case II/Instructor Feedback → Student ← Student Feedback

Table 10 includes the course goals and objectives that indicated both knowledge through defining, summarizing, and explaining content and the application of that knowledge through using content were important and used as students completed the course and specifically, as they completed the research proposal paper assignment. Given students' previous course experiences (i.e., the prerequisite and elective courses), the goals addressed students' advanced understandings regarding goal 1, their established understandings regarding goal 2, and their developing understandings regarding goal 3. These goals and objectives were very similar to Case I, with its goals 1 and 2 combined under Case II's 'understanding of general research methods' goal and a third objective added to the 'critical thinking and information literacy skills' goal to better connect these with the process of writing in APA style.

Table 10

ARMP Course Goals and Objectives in Case II

Goals	Objectives
1 Advanced understanding of general research methods	Defining, summarizing, and explaining content
	Using content when reviewing research by identifying components, making judgments, reflecting on alternative ways
3 Developing understanding of developmental research methods	
	Using content when developing research by identifying and integrating components, making and justifying judgments, reflecting on and generating alternative ways
2 Established critical thinking and information literacy skills	Seeking clarity/accuracy, distinguishing facts from opinions, being skeptical
	Recognizing need and identifying information, finding information and evaluating critically, using information legally and ethically
	Defining, summarizing, and explaining APA style and using to write research paper

Students' responses to the course evaluation questionnaire items indicated the two units of course content (i.e., course goals 1 and 3) were helpful with informing them of the type and level of performance to be attained. Eight students (66.7% of the 12 students who responded to the questionnaire items) indicated the

'general research methods' content (including the 'research design and data collection/analysis' content specified in Case I) provided a helpful review of this information learned in previous courses, as one student noted, "This course helped me further learn about all of these things [topics] listed here. I know I have had some experience in the past with working with these components, however I think this course really solidified them for me." In addition, nine students (75.0%) indicated the 'developmental research methods' content was helpful because this was more relevant either to their own lives (e.g., working with people of different ages as part of being an occupational therapist) or to their research proposal paper topics (e.g., studying adolescent development).

In addition to the course textbook, empirical journal articles were included as either course readings or supplemental readings (the latter accompanied items on the midterm examination). The four described for Case I, as well as the 'guided reading questions' for the two course readings, also were used for Case II, and all provided examples of research studies and how they are structured and formatted as empirical journal articles. Ten students (83.3%) indicated the course and supplemental readings were helpful in providing information regarding the research proposal paper assignment, with the most frequently cited reason being the journal articles provided good examples. One student noted this generally, "These course readings were good examples of articles to look for when doing research on my topic." whereas another student specifically noted the writing style,

> These were helpful for me to see examples of professional writing … I write like how I talk, if that
> makes sense. It is hard for me to write any other way, so having these examples to look at for help are
> nice.

Several reviews of two research proposal papers also were used throughout the semester to provide examples for students as they developed their own research proposal papers. Students had the opportunity at the very beginning of the semester to review and discuss the research proposal paper scoring rubric and my research proposal paper in general. Students also reviewed and discussed the literature review components and the method sections of both documents during two different class meetings later during the semester. In addition, students reviewed the method section of A. Student's paper as another example of a different student's paper and discussed it and their scoring rubric ratings for it during a class meeting. Eight students

(66.7%) indicated the reviews of these research proposal papers were helpful in providing information regarding the research proposal paper assignment. Similarly to the course and supplemental readings, they indicated reviewing these provided good examples of how research proposal papers should be written and what was expected for this assignment, as one student noted, "It was helpful to see examples of what the paper looked like." Only one student (8.3%) indicated reviewing my research proposal paper was "Not as effective because you feel as if you have to live up to the potential of your professors [*sic*] paper." This same student, however, also indicated, "This [A. Student's] paper was way more helpful because it felt like i [*sic*] could obtain a good paper like them."

The research proposal paper scoring rubric was not different between Case I and Case II but given the different class sizes, some of the assessments used for the research proposal paper assignment were different. Table 11 provides information regarding the purposes of and directions for the various assessments students completed throughout the semester to develop their research proposal papers.

Table 11

Purposes of and Directions for the Research Proposal Paper Assessments in Case II

Assessment	Purpose	Directions
References list	Compile potential sources that could be reviewed and cited	Find at least one secondary source and at least nine primary sources Use APA style guidelines to create tentative list
Literature review table	Find and organize relevant information extracted when reviewing sources	Outline secondary source using structure/format of the source as guide; write summaries of each section Respond to questions regarding purpose, method, results/conclusions, implications, and recommendations for each primary source
Literature review draft	Write information from table	Formalize table entries into paragraphs (one or two for each source)
Literature review conference	Review and discuss draft, peer feedback, and forthcoming section	Answer pre-conference questions before Review and provide feedback on peer's draft Answer post-conference questions after
Introduction outline	Determine and organize information regarding purpose and importance of proposed research study	Respond to questions to help explain topic; review previous research; discuss inconsistencies or unknowns; define research questions, knowledge gain, and influence of proposed research study

(Table Continues)

Table 11, Continued

Assessment	Purpose	Directions
Introduction draft	Write information from outline	Formalize outline responses into paragraphs Integrate literature review draft
Introduction conference	Review and discuss draft, peer feedback, forthcoming section	Answer pre-conference questions before Review and provide feedback on peer's draft Answer post-conference questions after
Midterm conference	Review and discuss drafts, feedback, and assignment progress	Answer pre-conference questions before
Method outline	Determine and organize information regarding alignment of topic, research questions, and methods of proposed research study	Respond to questions to help consider participants, sampling, and recruitment; research design, variables, and operationalization; manipulation/selection and measurement of variables, reliability and validity information; ethical concerns, researcher control, and threats to validity of study
Method draft	Write information from outline	Formalize responses into four method subsections (i.e., participants, design, materials, and procedure)
Method conference	Review and discuss draft, peer feedback, and forthcoming section	Answer pre-conference questions before Review and provide feedback on peer's draft Answer post-conference questions after
Proposal draft	Develop semi-final draft	Determine significance of proposed research study Integrate information with previous drafts
Peer review	Work with a final sample paper	Review and provide feedback on a peer's proposal draft
Proposal conference	Review and discuss drafts, feedback, and assignment submission	Answer pre-conference questions before

One difference between the two cases is the literature review, introduction, and method conferences occurred during class meetings and involved students reviewing and providing feedback on each other's drafts in small groups based on their paper topics. Students indicated the questions and concerns they had at the beginning of the conferences through the pre-conference questions (similarly to Case I), and then I responded to those that were more general or were applicable to all students. At the end of the conferences, students indicated what they learned and any remaining questions or concerns they had through the post-conference questions (also similarly to Case I). Another difference between the two cases is prior to beginning the method component,

each student in Case II met individually with me for the midterm conference. During this, students' progress, the feedback provided by their peers, and any questions or concerns they had regarding the research proposal paper assignment and course were discussed. This change was made to provide students with an opportunity when they were about midway through the assignment to talk about their paper and the writing of it given I was not meeting with them individually during each of the component (i.e., literature review, introduction, and method) conferences.

The tool for the method component also was different in each case. The IRB protocol submission form was replaced with a method outline students used to determine and organize information regarding the alignment of the topics, research questions, and methods of their proposed research studies. Like the introduction outline, the method outline was better aligned with the evaluative criteria of the scoring rubric and consisted of questions to which students responded to help them consider the participants, design, materials, and procedure of their proposed research studies. This change was made in part due to previous students' feedback (including from Case I, see below) the IRB protocol submission form was not as helpful in, and sometimes hindered, the development of their method sections.

Five students (41.7%) indicated completing the references list assessment was effective for reviewing APA style, as one student noted, "I grew in my understanding of how to write a proper reference list, especially according to the new guidelines." Only three students (25.0%) indicated completing the tools and drafts for the three components was helpful in providing information regarding the research proposal paper assignment, specifically what information should be included in the different components. One student noted, "I did complete the [literature] review draft and learned a lot about what components should be involved." whereas another student noted, "The method outline was effective because I could see what all I needed to put in my draft." None of the students indicated the three, peer-based component conferences were helpful in providing information regarding the research proposal paper assignment, although one student (8.3%) noted, "It was nice to see how other students were doing and if we were all on the same page for how we felt about our draft." Similarly, none of the students indicated the peer review session (i.e., of their proposal drafts) was helpful in providing information regarding the research proposal paper assignment. Ten students (83.3%), however, indicated meeting with me during the midterm conference and/or proposal conference (i.e., before

submitting their research proposal papers) was helpful in providing information regarding the research proposal paper assignment. Regarding the midterm conference, one student noted, "This conference was so helpful because at this point I had a lot of questions." and another student noted, "It was effective because it was nice getting to ask Derek any questions I had one-on-one." Similarly for the proposal conference, one student noted, "I was able to learn a lot and ask a lot of questions, so it was very effective." All these students indicated these two conferences provided opportunities for them to ask their questions, clarify their thoughts, and reassure their ideas (as well as receive feedback) through discussions with me.

Summary and Comparison

The data that addressed the first subquestion indicated how these informed students of the type and level of performance to be attained. Both Case I and Case II included course goals and objectives that indicated students needed both to know the content and to apply that content when developing their research proposal papers. Four empirical journal articles were used as course and supplemental readings, and two (in Case II) or three (in Case I) research proposal papers were used as examples of former students' performance on the research proposal paper assignment. The two course readings and the two or three papers were reviewed and discussed during several class meetings, with the latter accompanied by reviews and discussions of the research proposal paper scoring rubric. The scoring rubric included the 12 evaluative criteria of the assignment and five performance levels for each criterion, four of which could be rated as one or two points for eight of the evaluative criteria. The multiple assessments were divided among the five components of the research proposal paper assignment, and students in both cases completed these assessments throughout the semester. Although the components and most assessments were identical between the two cases, I provided feedback on most assessments in Case I whereas both students and I provided feedback on the assessments in Case II.

Most (70-90%) students in Case I indicated the course content was helpful, specifically the 'general research methods' content that was focused on APA style and the 'developmental research methods' content that was relevant to their lives or their paper topics. Although a few (20%) students indicated the 'research design and data collection/analysis' content was not helpful, they did indicate they learned more regarding these topics. Many (67-75%) students in Case II also indicated the course content was helpful, specifically the 'general research methods' content that was a review from previous courses and the 'developmental research

methods' content that was relevant to their lives or their paper topics. Most (80%) students in Case I indicated the course and supplemental readings were helpful because they provided examples of both the structure for research papers and the methods that could be used, but a few (20%) students indicated they were not helpful because either they did not read them or the discussions during class meetings were sufficient. Most (83%) students in Case II also indicated the course and supplemental readings were helpful because they provided examples of both professional writing and the information for which they should search when reviewing journal articles.

All students in Case I indicated the reviews of research proposal papers were helpful because they provided examples of the assignment expectations and how students could address them. Many (67%) students in Case II also indicated the reviews of research proposal papers were helpful because they provided examples of the assignment expectations and how the papers were written. One student in Case II, however, indicated my research proposal paper was not as helpful as A. Student's paper because the latter seemed more obtainable to them. Several (20-50%) students in Case I indicated the multiple assessments were helpful, with the references list being effective for their learning of APA style and the conferences being effective due to the discussions with me. Several (25-42%) students in Case II also indicated the multiple assessments were helpful, with the references list being effective for their learning of APA style and the tools and drafts being effective for knowing what information should be included. Most (83%) students in Case II indicated the midterm and proposal conferences were effective due to the discussions with me, but only one student indicated the peer-based component conferences were effective because of the opportunity for peer comparison. None of the students in either case indicated the peer review session was helpful with informing them of the type and level of performance to be attained, but students in Case I indicated the tools, drafts, and peer review session were more helpful with their progress rather than informing them (see below).

How did the data sources help students to progress and attain the type and level of performance?

This second subquestion also was based on the Feed Up dimension of Hattie and Timperley's (2007) model of feedback. Thus, the aligned data also included: (a) course materials, (b) class activities, (c) the research proposal paper scoring rubric, (d) the research proposal paper assessments, and (e) students'

responses to course evaluation questionnaire items regarding the effectiveness of these data sources in their learning of research writing.

Case I/Instructor Feedback → Student

The process of learning and applying the course content was made explicit within the course goals and objectives. For the first three goals (understandings of general research methods, research design and data collection/analysis, and developmental research methods), the objectives indicated students first must have knowledge of the content (demonstrated through defining, summarizing, and explaining it) and then apply that knowledge. This application first occurred when they reviewed previous research studies (demonstrated through identifying components, making judgments, and reflecting on alternative ways to conduct the research study) but then also when they developed their own proposed research studies (demonstrated through identifying and integrating components, making and justifying judgments, and reflecting on and generating alternative ways to conduct the research study). Similarly for the fourth goal (critical thinking and information literacy skills), the objectives indicated students would apply these skills both when they reviewed previous research studies (demonstrated through seeking clarity/accuracy, distinguishing facts from opinions, and being skeptical) and also when they developed their own proposed research studies (demonstrated through recognizing need and identifying information, finding information and evaluating critically, and using information legally and ethically).

The order and timing of the discussions of the two course readings (i.e., empirical journal articles) that occurred during class meetings were purposeful in providing examples to help students through the process of developing their research proposal papers. The first article discussion occurred when students' references list assessments were due and 12 days before their literature review tables were due. This review included discussing the article and both my and students' responses to the 'guided reading questions' that were identical to the literature review table questions. I then provided my responses as a sample literature review table entry for both the amount and depth of information students should include when extracting information from their primary sources. The second article discussion occurred when students' literature review drafts were due and one week before the literature review conference. Like the first, this review included discussing both my and

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students' responses to the 'guided reading questions' but because students already had submitted their literature review tables, I did not provide my responses to those questions as a sample table entry.

Four students (40.0%) indicated that among the three units of course content, 'general research methods' was the most helpful in progressing toward the type and level of performance to be attained, as one student noted, "I liked this portion of the class because I believe it helped me the most when it came to writing my paper." Specifically, another student noted, "I think writing the paper was effective when it comes to these topics because we learned about specifics about writing in APA style in class and applied that to the paper." Two students (20.0%) indicated the course and supplemental readings also were helpful in progressing through the research proposal paper assignment. As one student noted, "These course reading [*sic*] aligned well with what we were discussing in class and even provided insight as to how we can frame our own research study." Given the two supplemental readings were follow-up research studies to the two course readings, the second student noted, "It was interesting to see the improvements made to their studies, which shows that even they found fault in their first article. By reading their mistakes, it allowed for me to try and avoid those same mistakes."

The order and timing of the reviews of three research proposal papers during class meetings also were purposeful in providing examples to help students through the process of developing their research proposal papers. The review of A. Student's paper occurred five days before students' literature review drafts were due and included responding to questions that should be answered when reading a research proposal and then discussing students' responses and where those were found within the paper. The review of Method Student's paper occurred a week before students' method drafts were due and included using the method section of the research proposal paper scoring rubric and then discussing students' ratings and where they found evidence for those within the method section. The review of my research proposal paper occurred a week before students' proposal drafts were due/the peer review session occurred and included using the research proposal paper rubric and then discussing students' ratings and where they found evidence for those within the paper.

Six students (60.0%) indicated the reviews of these research proposal papers were helpful in progressing through the research proposal paper assignment. One benefit was using these papers to compare with their own work, as one student noted, "[it was] helpful to see what other people were doing right or wrong

and to look for it in your own paper." Another student noted in addition to the paper content, "Being able to see a previous layout of other students [*sic*] papers gave me a good idea of how I could structure my paper." Similarly, another student noted reviewing one of the papers was "Extremely effective. I used it as a guideline for my research proposal paper." As stated previously, the post-review discussions of the examples were helpful, as one student noted when I discussed my research proposal paper, "It was effective because he even admitted to mistakes he made. By pointing out his mistakes, it allowed for me to avoid those mistakes."

The research proposal paper scoring rubric specified differences among performance levels by indicating both the content that should be included and how that content should be used at the various levels as demonstration of performance differences. For example, *identifying a topic and related problem* was considered 'Developing,' whereas *describing a topic and related problem via the previous literature* was considered 'Established.' Given the numerical point values provided in addition to the category labels, further differences among performance levels could be indicated based on whether all evidence listed in the descriptions of performance was included and used as specified. For example, although both are within the 'Established' performance level, *describing a topic and related problem* was rated as '3,' whereas *describing a topic and related problem via the previous literature* was rated as '4. In revising the research proposal paper assignment used in the initial ARMP, I decided my undergraduate psychology students, as novice research writers, could be aided in their understanding and demonstration of it by dividing this assignment into five components, three of which aligned with three tasks: (a) literature review component to determine what previous knowledge has been gained and how it was gained, (b) introduction component to determine what new knowledge can be gained and why it is needed, and (c) method component to determine how this new knowledge could be gained and what impact it could have. Each of these three components/tasks consisted of three assessments on which feedback was provided to students: (a) tools to help students find or consider information and organize it, (b) drafts to help students continue to organize this information and write about it, and (c) conferences to help students consider the provided feedback and continue working toward the goal of developing a research proposal paper. Each component/task mostly should have been completed by the time students began to work on the next component if students adhered to the course schedule.

After using their references list to compile potential sources, students completed the literature review table to find and organize the relevant information they extracted while reviewing those sources. They used the table and my feedback on it to write the literature review draft and then met with me individually during the literature review conference to discuss their draft, my feedback on it, and the introduction component. After completing their literature review conference, students completed the introduction outline to determine and organize information regarding the purpose and importance of their proposed research studies. They used the outline and my feedback on it to write the introduction draft and then met with me individually during the introduction conference to discuss their draft, my feedback on it, and the method component. After completing the introduction conference, students completed the IRB protocol submission form to determine and organize information regarding the alignment of the topics, research questions, and methods of their proposed research studies. They used the form and my feedback on it to write the method draft and then met with me individually during the method conference to discuss their draft, my feedback on it, and the significance component of their research proposal paper. After completing the method conference, students determined the significance of their proposed research studies and integrated this information with their previous drafts to write the proposal draft. They reviewed and provided feedback on another student's proposal draft during the peer review session and then met with me individually during the proposal conference to discuss their drafts, the feedback from the peer review session, and how they felt about submitting their research proposal papers.

Prior to providing comments on the course evaluation questionnaire regarding the different assessments of the research proposal paper assignment, students rated the effectiveness of them in their learning of research writing. Descriptive statistics from students' ratings are provided in Table 12.

Table 12

Descriptive Statistics for the Effectiveness of the Research Proposal Paper Assessments in Case I

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Completing your references list	4.0	5.0	1.0	4.0	4.0	0.5
Completing your literature review table	3.0	5.0	2.0	5.0	4.5	0.9

(Table Continues)

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Table 12, Continued

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Writing your literature review draft	2.0	5.0	3.0	4.5	4.0	1.2
Attending the literature review conference	2.0	5.0	3.0	4.5	4.3	1.0
Completing your introduction outline	3.0	5.0	2.0	4.0	4.3	0.7
Writing your introduction draft	3.0	5.0	2.0	4.0	4.2	0.6
Attending the introduction conference	3.0	5.0	2.0	4.5	4.4	0.7
Completing your IRB protocol submission form	1.0	5.0	4.0	3.5	3.6	1.4
Writing your method draft	4.0	5.0	1.0	5.0	4.6	0.5
Attending the method conference	4.0	5.0	1.0	5.0	4.6	0.5
Writing your proposal draft	3.0	5.0	2.0	4.5	4.4	0.7
Attending the proposal conference	4.0	5.0	1.0	5.0	4.6	0.5

Note. n = 10. The rating scale was 1 = Not at all effective, 2 = Slightly effective, 3 = Somewhat effective, 4 = Very effective, 5 = Extremely effective.

These indicated students perceived the different assessments as 'Very effective' or 'Extremely effective' regarding their learning of research writing. The only exception was completing the IRB protocol submission form, as indicated through this item's range of scores and standard deviation score (both the highest among all items) and its median and mean scores (both the lowest among all items).

Three students (30.0%) indicated dividing the research proposal paper into separate components and assessments was helpful in progressing through the assignment, as one student noted, "Having the paper broken down helped to complete it rather than trying to tackle it all at once." Three students (30.0%) also indicated completing the references list helped in determining the topics and problems on which their proposed research studies would focus. One student noted, "It also helped me to understand the literature that was out there on my chosen topic." and another student noted, "By completing the reference list, I was able to narrow down my topic further." Across the three tools, four students (40.0%) indicated these were helpful because

they prompted students to determine the details regarding their proposed research studies. As one student noted,

> Completing the IRB protocol submission form was effective for me because it allowed me to think about exactly how I wanted to set up the design of the study, the participants I wanted, how I wanted to recruit them, and all the details of how I wanted the study to proceed.

Another student noted, "Similar as the literature review [table], I thought that completing the introduction outline was effective in figuring out exactly what was needed for my introduction draft." Two students (20.0%) indicated the drafts then were helpful in compiling the different components of the research proposal paper together. As one student noted, "also the introduction draft helped me a lot later when i [*sic*] had to write my final paper." and as the other student noted, "I think that this was the most effective because we are providing the draft to our introduction component that we're going to use in our papers." The conferences previously were noted as being informative, and one student (10.0%) also noted why the conferences helped them to progress,

> The conferences really help and I don't think I would feel as confident in my writing if it weren't for the conferences that allowed me to ask questions specifically about my writing. … I am a visual learner and actually being able to go through my paper in person was a major benefit to me.

In addition, three students (30.0%) indicated the peer review session helped them be aware of things they may not have been, as one student noted, "[Student's name], who did my peer review was very helpful as well as reviewing hers helped me understand what I needed to add or some ideas for my paper."

Although students generally provided positive perspectives on these components, some also provided negative perspectives on them. One student (10.0%) indicated they still must consult resources when compiling a references list and all four conferences with me may not be necessary for everyone. This and another student (20.0%) indicated the literature review table did not help them progress, and one of these and a third student (20.0%) indicated the IRB protocol submission form did not help them progress. As one student noted,

I thought completing the literature review table was very tedious and quite frustrating because you had

to find 10 sources and I ended up not using all of them so I feel as if I wasted my time. If we had less

sources maybe it would've been less tedious but effective.

Similarly, another student noted, "The IRB protocol submission was not relevant because we were just doing a

proposal research paper [*sic*], so it was hard to fill it out." In addition, four students (40.0%) indicated the peer

review session was not effective due to other students' inabilities to provide helpful feedback, if much

feedback was provided at all. As one student noted, "I initially liked the idea of the peer review session, but I

did not think it was as effective in developing my scholarly writing skills."

Case II/Instructor Feedback → Student ← Student Feedback

Similarly to Case I, the process of learning and applying the course content was made explicit within

the course goals and objectives. Case I's goals 1 (general research methods) and 2 (research design and data

collection/analysis) were combined under Case II's goal 1 (understanding of general research methods).

Despite this change, the objectives for Case II's goals 1 and 3 (the latter being understanding of developmental

research methods) indicated students first must have knowledge of the content (demonstrated through defining,

summarizing, and explaining it) and then apply that knowledge. This first occurred when they reviewed

previous research studies (demonstrated through identifying components, making judgments, and reflecting on

alternative ways to conduct the research study) and then also when they developed their own proposed

research studies (demonstrated through identifying and integrating components, making and justifying

judgments, and reflecting on and generating alternative ways to conduct the research study). Similarly for Case

II's goal 2 (critical thinking and information literacy skills), the objectives indicated students would apply

these skills first when they reviewed previous research studies (demonstrated through seeking clarity/accuracy,

distinguishing facts from opinions, and being skeptical). They then also would apply these skills when they

both developed their own proposed research studies (demonstrated through recognizing need and identifying

information, finding this information and evaluating it critically, and using this information legally and

ethically) and then wrote about them (demonstrated through defining, summarizing, and explaining APA style

and using that to write a research paper).

Also similarly to Case I, the order and timing of the discussions of the two course readings that occurred during class meetings were purposeful in providing examples to help students through the process of developing their proposed research studies. The first article discussion occurred five days before students' references list assessments were due and three weeks before their literature review tables were due. As with Case I, this review included discussing both my and students' responses to the 'guided reading questions' that were identical to the literature review table questions. I then provided my responses as a sample literature review table entry for both the amount and depth of information students should include when extracting information from their primary sources. The second article discussion occurred two days after students' introduction outlines were due and 12 days before the introduction drafts were due/the introduction conference occurred. Like the first, this review included discussing both my and students' responses to the 'guided reading questions' but because students already had completed the literature review component, I did not provide my responses to those questions as a sample table entry.

Three students (25.0%) indicated the 'general research methods' content was helpful in progressing toward the type and level of performance to be attained. One student noted, "I felt all these things [content topics] were very helpful when writing my research proposal paper." and another student noted, "These components were effective in learning how research proposals are supposed to be performed." Regarding the 'developmental research methods' content, only one student (8.3%) indicated "This content helped me because my paper was on adolescents." None of the students, however, indicated the course and supplemental readings were helpful in progressing through the research proposal paper assignment beyond providing examples.

Similarly to Case I, the order and timing of the reviews of two research proposal papers conducted during class meetings were purposeful in providing examples to help students through the process of developing their proposed research studies. The first review of the scoring rubric and my research proposal paper occurred during the second class meeting of the semester and included noting the evaluative criteria and descriptions of performance levels on the scoring rubric, becoming familiar with how those were evidenced through my paper, and discussing any questions or concerns students had at that early time in the semester. The second review of the scoring rubric and my research proposal paper occurred five days before students' literature review drafts were due and included using the literature review component of the scoring rubric and

then discussing students' ratings and where they found evidence for those within the literature review component of my paper. The third review of the scoring rubric and my research proposal paper occurred when students would begin to use their method outlines to write their method drafts and included using the method section of the scoring rubric and then discussing students' ratings and where they found evidence for those within the method section of my paper. The review of A. Student's paper occurred two days before students' method drafts were due and like the previous review, included using the method section of the scoring rubric and then discussing students' ratings and where they found evidence for those within the method section of A. Student's paper. Four students (33.3%) indicated these reviews of research proposal papers not only provided examples that were informative but also were helpful in their progress. Their responses included the papers being used while students worked on their own assessments, as one student noted, "Very helpful to have such a great example to refer back to[.] I used this many times." Students' responses also included the papers being used for comparisons to their own assessments, as another student noted, "helped to compare what's different in mine compared to theirs."

Because the research proposal paper scoring rubric was not different between Case I and Case II, its structure and point values provided the same guidance to students as they used the scoring rubric throughout the semester to review and provide feedback on other students' drafts. Because the research proposal paper assignment was similar between Case I and Case II, dividing the research proposal paper into components aligned with specific tasks and assessments provided the same guidance to students as they developed their research proposal papers. After using their references list to compile potential sources, students completed the literature review table to find and organize the relevant information they extracted while reviewing those sources. They used the table and feedback on it from me to write the literature review draft and then both reviewed and provided feedback on another student's draft during the peer-based literature review conference. After completing the literature review conference, students completed the introduction outline to determine and organize information regarding the purpose and importance of their proposed research studies. They used the outline and feedback on it from me to write the introduction draft and then both reviewed and provided feedback on another student's draft during the peer-based introduction conference. After completing the introduction conference, students met with me individually during the midterm conference to discuss their

progress and any questions or concerns they had regarding the research proposal paper assignment and course. After completing the midterm conference, students completed the method outline to determine and organize information regarding the alignment of the topics, research questions, and methods of their proposed research studies. They used the outline and feedback on it from me to write the method draft and then both reviewed and provided feedback on another student's draft during the peer-based method conference. After completing the method conference, students determined the significance of their proposed research studies and integrated this information with their previous drafts to write the proposal draft. They reviewed and provided feedback on another student's proposal draft during the peer review session and then met with me individually during the proposal conference to discuss their drafts, the feedback from the peer review session, and how they felt about submitting their research proposal papers.

Prior to providing comments on the course evaluation questionnaire regarding the different assessments of the research proposal paper assignment, students rated the effectiveness of them in their learning of research writing. Descriptive statistics from students' ratings are provided in Table 13.

Table 13

Descriptive Statistics for the Effectiveness of the Research Proposal Paper Assessments in Case II

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Completing your references list	2.0	5.0	3.0	4.0	4.2	0.8
Completing your literature review table	2.0	5.0	3.0	5.0	4.4	0.9
Writing your literature review draft	3.0	5.0	2.0	5.0	4.3	0.9
Reviewing/providing feedback on another student's draft during the literature review conference	2.0	5.0	3.0	4.0	3.8	1.3
Completing your introduction outline	2.0	5.0	3.0	4.0	4.3	0.9
Writing your introduction draft	3.0	5.0	2.0	4.5	4.4	0.7
Reviewing/providing feedback on another student's draft during the introduction conference	2.0	5.0	3.0	4.0	3.7	1.1

(Table Continues)

Table 13, Continued

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Completing your method outline	3.0	5.0	2.0	4.0	4.3	0.7
Writing your method draft	3.0	5.0	2.0	4.5	4.3	0.9
Reviewing/providing feedback on another student's draft during the method conference	3.0	5.0	2.0	4.0	4.0	0.8
Writing your proposal draft	2.0	5.0	3.0	4.0	4.2	0.9
Reviewing/providing feedback on other students' drafts during the peer review session	2.0	5.0	3.0	3.5	3.7	1.2

Note. *n* = 12. The rating scale was 1 = Not at all effective, 2 = Slightly effective, 3 = Somewhat effective, 4 = Very effective, 5 = Extremely effective.

These indicated students perceived most of the different assessments to be 'Very effective' or 'Extremely effective' regarding their learning of research writing. In examining the three assessments (i.e., tool, draft, and conference) for the literature review, introduction, and method components, the conferences had the lower or lowest median and mean scores and the highest standard deviation scores across all three components. This same pattern occurred for the proposal draft and peer review session, all of which indicated students perceived reviewing and providing feedback on another student's draft during the conferences to be less effective than completing the tools and drafts. The component conferences and peer review session, however, were not perceived to be ineffective by all students.

Eight students (66.7%) indicated dividing the research proposal paper into separate components/assessments was helpful in progressing through the assignment, as one student noted, "I believe all these steps were effective because it made it more organized, [*sic*] and easier to complete the paper in steps instead of one big thing at a time." Similarly, another student noted, "Completing, writing and receiving feedback from Derek was very effective in helping me develop my research writing skills because I could continually improve on that component over time." Only one student (8.3%) indicated, "It was nice to get the reference list done before hand [*sic*]." suggesting that completing the references list assessment early was helpful in progressing through the assignment.

Across the three tools, four students (33.3%) indicated they were helpful because the tools prompted them to determine the details for their proposed research studies. As one student noted regarding the literature review table, "This was extremely effective in getting us comfortable extracting the important information from sources." and another student noted, "I think completing the [introduction] outline was effective because I could organize my thoughts." Three students (25.0%) also indicated the tools connected to writing the drafts, as one student noted, "Completing the lit [*sic*] review table helped me write my paper because I could take things from it and put them right into my other drafts." Similarly, another student noted that, "These things helped me because by the time I was ready to write my methods draft, I had everything organized and edited the way I wanted." Six students (50.0%) indicated the three drafts then were helpful in developing the different sections of the research proposal paper, as one student noted, "… and the draft was a great starting point to actually writing the introduction portion of the paper." In addition, five students (41.7%) indicated completing the proposal draft (i.e., prior to the peer review session) was helpful as one student noted, "Writing the proposal draft was effective because I would [*sic*] see all sections come together." Similarly, another student noted, "Writing the proposal draft was less overwhelming and more putting all the pieces together."

Only two students (16.7%) indicated the three component conferences (i.e., literature review, introduction, and method) were effective, as one student noted, "I thought reviewing someone else's [draft] was helpful because I could catch things they did that I didn't, but should have." When reporting on the effectiveness of the peer review session (i.e., of their proposal drafts), four students (33.3%) provided similar responses. As one student noted, "it was [effective] because seeing other students [*sic*] papers helped me know what to change on mine." and as another student noted, "Seeing other proposal drafts helped me to know that I was doing mine correctly." Four students (33.3%) also indicated meeting with me during the midterm and/or proposal conferences helped them progress on the research proposal paper assignment. One student who had "a lot of questions" at the time of the midterm conference responded, "it really put me at ease with the whole paper." Another student noted how this conference "helped me figure out how to track screen time [the dependent variable in this proposed research study]." Similarly, a student noted, "Attending [the] Proposal conference was effective because you were able to talk to me one on one about my paper and assist me in

improving my paper." In addition, another student noted, "This [proposal] conference gave me the confidence before turning in my paper."

Although some students generally provided positive perspectives on these components, others provided negative perspectives on them. Two students (16.7%) indicated the literature review table was "too much" because as one student noted, "Some of these article [*sic*] were very extensive and to have to read them all and provide a detail [*sic*] list on [*sic*] information was a lot." Two students (16.7%) indicated the three component conferences were not helpful, as one student noted, "I felt like reviewing someone else's draft was effective, but I did not learn a lot from reading their draft." Another student, however, provided more detail for why they did not think these peer-based conferences were effective:

> I did not find the peer review/feedback to be particularly effective. I recognize the purpose of it and how it can be helpful, however a lot of times the student who's [*sic*] paper I reviewed did not have much to go off of. The same goes for my papers too. And sometimes, it is hard for me to trust the opinion of others, simply because I find myself trying to be nice when reviewing other people's papers, so I kind of assume others might be doing the same? I have never personally found peer reviewing in college to be effective (take this with a grain of salt because I know a lot of people like it and find it effective) because I believe that people don't really care about helping your paper, they just care about getting the review done because they are getting points for it.

Summary and Comparison

The data that addressed the second subquestion indicated how these helped students to progress and attain the type and level of performance. Both Case I and Case II included course goals and objectives that indicated students needed to know and apply the content both when they reviewed previous research studies and as they developed their proposed research studies. The reviews and discussions of both the empirical journal articles as course readings and the two (in Case II) or three (in Case I) research proposal papers as examples occurred during several class meetings throughout the semester to help students as they developed their research proposal papers. The reviews and discussions of the two or three research proposal papers were accompanied by reviews and discussions of the research proposal paper scoring rubric that included the 12 evaluative criteria of the assignment and five performance levels for each criterion. The multiple assessments

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of the five components were completed by students throughout the semester, and it was intended for students to have completed the previous assessment or component prior to completing the next assessment or component.

Some (40%) students in Case I indicated the course content helped them to progress, specifically the 'general research methods' content that was most relevant for writing the paper and APA style. Some (8-25%) students in Case II also indicated the course content was helpful, specifically the 'general research methods' content that reviewed how research is conducted and the 'developmental research methods' content that aligned with their paper topics. A few (20%) students in Case I indicated the course and supplemental readings were helpful because they were aligned with the course topics, provided examples of how students could frame their proposed research studies, and demonstrated improvements in the research studies so students could avoid similar errors. None of the students in Case II, however, indicated the course and supplemental readings helped them to progress. Several (60%) students in Case I indicated the reviews of research proposal papers were helpful because they compared these with their own papers and used them as examples for how their papers should be structured. Some (33%) students in Case II also indicated the reviews of research proposal papers were helpful because they both compared these with their own papers and used them while working on their own papers.

Students in Case I rated all the research proposal paper assessments as effective, but the least effective was the IRB protocol submission form. Students in Case II also rated all these assessments as effective, but the three peer-based conferences were the least effective among the tools, drafts, and conferences and the peer review session was less effective than the proposal draft. Some (30%) students in Case I indicated the multiple assessments and different components of the research proposal paper assignment were helpful rather than completing it all at once, and many (67%) students in Case II indicated these multiple assessments and different components were helpful because the assignment was more organized, easier to complete in parts, and allowed for continuously improving over time. Some (30%) students in Case I indicated the references list assessment was helpful with determining their topics and problems, although one student indicated they still must consult resources when doing this. Only one student in Case II indicated the references list assessment was helpful because it was completed early in the semester. Some (40%) students in Case I indicated the tools

were helpful with determining the details and knowing the information to be included, and a few (20%) students indicated the drafts were helpful because they were used in their papers. A few (20%) students, however, indicated the literature review table and the IRB protocol submission form were not helpful because they were too much work for too little gain. Some (33%) students in Case II indicated the tools were helpful with extracting important information and organizing their thoughts, but a few (17%) students also indicated the literature review table was not helpful because it was too much work for too little gain. Some (25%) students in Case II indicated the tools and drafts were helpful because they could transfer information across them while organizing and editing their drafts, and several (50%) students indicated the drafts were helpful as a starting point for writing their papers.

Some (10%) students in Case I indicated the component conferences were helpful because they could ask questions of and discuss concerns with me, but one student indicated not all conferences may be necessary for every student. A few (17%) students in Case II indicated the component conferences were helpful because other students could note errors they did not, but a few (17%) students also indicated these conferences were not helpful because they did not learn anything from them. Some (30%) students in Case I indicated the peer review session was helpful because other students could note errors they did not, but some (40%) students also indicated the peer review session was not helpful because the feedback provided (if any) was not effective. Several (42%) students in Case II indicated the proposal draft was helpful because it was less overwhelming to bring the other drafts together, and some (33%) students indicated the peer review session was helpful because they knew what to change in their proposal drafts and better knew if they were completing the assignment correctly. Some (33%) students in Case II also indicated the midterm and proposal conferences were helpful because they asked questions, determined details, discussed how to improve, and increased their confidence through meeting with me.

How was information associated with performance provided to students?

This third subquestion was based on the Feed Back dimension of Hattie and Timperley's (2007) model of feedback. The aligned data included: (a) the assessment-based feedback provided by me and by students, (b) the scoring rubric-based feedback provided by me and by students, (c) students' responses to the

conference questions, and (d) students' responses to course evaluation questionnaire items regarding the effectiveness of these data sources in their learning of research writing.

Case I/Instructor Feedback → Student

The assessment-based feedback provided on students' tools and drafts by me included: (a) comments in the margins mostly focused on an idea stated; (b) in-text edits such as additions to and deletions from the drafts mostly focused on errors regarding APA style, grammar, and mechanics; and (3) general feedback comments provided to all students. The first assessment was the references list, and the general feedback I provided to every student included: (a) a statement regarding whether they listed at least 10 sources and my estimates of their topics based on the sources' titles, (b) a statement regarding which source(s) I thought were secondary and a reminder of the source type requirements if necessary, (c) a statement regarding the APA style of the entries, and (d) a statement regarding the next component of the assignment. Table 14 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 14

Example of the General Feedback on the References List Assessment in Case I

You included the minimum of 10 sources for the research proposal paper, and based on the titles, it seems that your topic is associated with vocational development, specifically career change, during middle adulthood.
In reviewing the titles of your sources, it seems that Motulsky (2010) is a secondary source. If so, then it should provide an overview of the topic and its research to accompany your (at least) nine primary sources that will provide current research findings regarding the topic.
Review the entries marked with '*' because they are not in complete APA style. In addition, the entries should be alphabetized by first authors' last names.
Using the literature review table (or another tool that is more helpful for you), extract the important information from these sources. Doing this will help to refine your topic and select different sources if necessary or appropriate.
Please let me know if you have any questions or concerns.

After submitting their references list assessments, students began the literature review component by completing their literature review tables. The feedback comments I provided on this tool included statements regarding the information they extracted from each of their sources and ended with 'Consider how this information can be used as you develop your proposed research study.' The general feedback I provided to

every student included: (a) a statement regarding how they extracted information from their sources and whether the references list entry for each source was in APA style, (b) a statement regarding the notes they made and how they would be used to write the literature review draft, and (c) a statement regarding how the table and draft would be discussed during the literature review conference. Table 15 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 15

Example of the General Feedback on the Literature Review Table in Case I

You extracted and summarized/paraphrased the information from your sources well, but check your citations because some are not in complete APA style.

Only nine sources were included, so let me know if you are having difficulty locating another source. The notes you made will help as you develop the research study for your research proposal paper.

As you format this information into paragraphs (one paragraph for each source is fine) for your literature review draft, consider the similarities among your sources regarding sampling/recruitment, variables and research design, and the measures and procedures used to study your topic. We then will discuss these, your literature review draft, and the remaining components of the introduction section during your literature review conference.

Please let me know if you have any questions or concerns.

For the literature review draft, I recommended students formalize the information from the literature review table into one or two paragraphs for each source. As I reviewed and provided in-text edits on these drafts, the general feedback for the primary source-based paragraphs summarized the purpose, method, and results/conclusions for each source (if information regarding each of these was provided). The general feedback for the secondary source-based paragraphs encouraged students to consider how that information could be integrated with the information from the primary sources. Additional feedback comments based on an idea stated also were provided. Prior to the literature review conference, students responded to the pre-conference questions regarding: a) the current component of the research proposal paper, (b) the feedback provided by me on their current draft, and (c) the next component of the research proposal paper. I then reviewed their responses before each individual-based conference and used them to guide the discussions and ensure students' questions and concerns were addressed. After the conference, students responded to the post-

conference questions regarding: (a) what students learned about the current component and (b) any remaining questions or concerns about the current component.

After completing the literature review conference, students began the introduction component by completing their introduction outlines. The feedback I provided included statements regarding students' responses to most of the questions within the outline. The general feedback I provided to every student included: (a) a statement regarding how they outlined this section of the paper and how their notes would be used and (b) a statement regarding what information students should consider for each part of the outline, including how to use their sources based on similarities to their topics and the limitations noted. Table 16 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 16

Example of the General Feedback on the Introduction Outline in Case I

You outlined your introduction section well and have provided notes that can inform your introduction draft.
Consider how the notes in section I above can be supported by your sources, especially those considered to be more 'informative' (i.e., not directly related to your proposed research study).
Consider your sources for section II above that can be more 'supportive' of your proposed research study by focusing on the variables you will examine and any other similarities (e.g., sample, design/procedure, measures) to your proposed research study.
Consider the specific sources you can cite to provide evidence for your limitations/inconsistencies/gaps in section III above, and for section IV elaborate on what the results of your proposed research study will show in addition to stating the research question(s) you have developed.
Please let me know if you have any questions or concerns.

For the introduction draft, I recommended students use the outline components as a structure for this section. As I reviewed and provided in-text edits on these drafts, additional feedback comments based on an idea stated also were provided. Prior to the introduction conference, students responded to the pre-conference questions regarding: a) the current component of the research proposal paper, (b) the feedback provided by me on their current draft, and (c) the next component of the research proposal paper. I then reviewed their responses before each individual-based conference and used them to guide the discussions and ensure students' questions and concerns were addressed. After the conference, students responded to the post-conference

questions regarding: (a) what students learned about the current component and (b) any remaining questions or concerns about the current component.

After completing the introduction conference, students began the method component by completing their IRB protocol submission form. The feedback I provided included statements and questions regarding students' responses to the form items but unlike the literature review table and introduction outline, I did not provide general feedback to all students. For the method drafts, I recommended students use the four subsections listed as the evaluative criteria on the scoring rubric (i.e., participants, design, materials, and procedure) as a structure for this section. As I reviewed and provided in-text edits on these drafts, additional feedback comments based on an idea stated also were provided. Prior to the method conference, students responded to the pre-conference questions regarding: a) the current component of the research proposal paper, (b) the feedback provided by me on their current draft, and (c) the next component of the research proposal paper. I then reviewed their responses before each individual-based conference and used them to guide the discussions and ensure students' questions and concerns were addressed. After the conference, students responded to the post-conference questions regarding: (a) what students learned about the current component and (b) any remaining questions or concerns about the current component.

After completing the method conference, students combined their previous drafts into their proposal drafts and then reviewed another student's proposal draft using the entire scoring rubric during the peer review session that occurred during a class meeting. After completing the peer review session, students met with me individually during the proposal conference. Prior to the proposal conference, students responded to questions regarding: (a) the research proposal paper, (b) the feedback provided on their proposal draft during the peer review session, and (c) how they felt about submitting their research proposal paper. I then reviewed their responses before each individual-based conference and used them to guide the discussions and ensure students' questions and concerns were addressed. In addition to this written and verbal feedback provided regarding the different assessments, I also responded to questions or concerns when students asked or emailed throughout the semester.

Prior to providing comments on the course evaluation questionnaire regarding the written and verbal feedback provided on the different assessments, students rated the effectiveness of this feedback in their learning of research writing. Descriptive statistics from students' ratings are provided in Table 17.

Table 17

Descriptive Statistics for the Effectiveness of the Feedback on the Research Proposal Paper Assessments in Case I

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Receiving written feedback on your references list	4.0	5.0	1.0	5.0	4.7	0.5
Receiving written feedback on your literature review table	3.0	5.0	2.0	4.5	4.2	0.9
Receiving written feedback on your literature review draft (within the document)	3.0	5.0	2.0	5.0	4.6	0.7
Receiving verbal feedback during the literature review conference	3.0	5.0	2.0	4.5	4.4	0.7
Receiving written feedback on your introduction outline	4.0	5.0	1.0	5.0	4.7	0.5
Receiving written feedback on your introduction draft (within the document)	4.0	5.0	1.0	5.0	4.7	0.5
Receiving verbal feedback during the introduction conference	4.0	5.0	1.0	5.0	4.6	0.5
Receiving written feedback on your IRB protocol submission form	1.0	5.0	4.0	4.0	3.7	1.3
Receiving written feedback on your method draft (within the document)	4.0	5.0	1.0	5.0	4.8	0.4
Receiving verbal feedback during the method conference	4.0	5.0	1.0	5.0	4.8	0.4
Attending and receiving written feedback during the peer review session (within the document)	1.0	5.0	4.0	3.5	3.5	1.6
Attending and receiving verbal feedback during the peer review session	1.0	5.0	4.0	3.5	3.7	1.3

(Table Continues)

Table 17, Continued

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Receiving verbal feedback during the proposal conference	4.0	5.0	1.0	5.0	4.7	0.5

Note. *n* = 10. The rating scale was 1 = Not at all effective, 2 = Slightly effective, 3 = Somewhat effective, 4 = Very effective, 5 = Extremely effective.

These indicated students perceived the feedback provided on most of the different assessments to be 'Very effective' or 'Extremely effective' regarding their learning of research writing. One exception was the written feedback provided on the IRB protocol submission form as indicated through this item's range of scores and standard deviation score (both among the highest across all items) and its median and mean scores (both among the lowest across all items). The other two exceptions were attending and receiving both written and verbal feedback during the peer review session, also indicated through these items' ranges of scores and standard deviation scores (both among the highest across all items) and their median and mean scores (both among the lowest across all items). All three exceptions are consistent with students' other ratings and comments regarding both the IRB protocol submission form and the peer review session.

Students' responses to the course evaluation questionnaire items indicated the information related to their performance on the assessments (i.e., feedback) was helpful across the different ways I provided it. Three students (30.0%) specifically indicated feedback was provided through emails with me. As one student noted, "He was very helpful whenever I asked him a question through email." and as another student noted, "He sent me an email of an important reference that I was using as an instrument in my study. Its instrumentation was mentioned in multiple of my literature review sources but never properly sourced." Two students (20.0%) specifically indicated they received written feedback from me, and these as well as three additional students (50.0%) specifically indicated they received verbal feedback from me. All five students who received verbal feedback from me indicated it was helpful, as one student noted, "it was effective because i [*sic*] got to ask any questions i [*sic*] had to the professor and i [*sic*] would get feedback right away so it would make things more clear and a lot faster." Two of those five students (20.0%) specifically indicated how the written and verbal feedback were helpful together, as one student noted,

the written feedback was important to be able to understand what was missing or wrong in the

literature review, to form questions so that we could meet at the conference and understand verbally

what more was needed for my paper.

In addition to the assessment-based feedback (both in-text and comments) I provided on students'

drafts, scoring rubric ratings and comments were provided for each draft. For the literature review draft,

students were expected to provide a draft only of the literature review component of the introduction section

(i.e., only criterion 2 on the scoring rubric), but I provided feedback if students' drafts also addressed the other

two components of the introduction section (i.e., criteria 1 and 3). Six students submitted literature review

drafts that only addressed criterion 2, one student's draft addressed both criteria 1 and 2, and another student's

draft addressed all three evaluative criteria. Table 18 provides descriptive statistics regarding these evaluative

criteria ratings among students' literature review drafts.

Table 18

Descriptive Statistics for the Literature Review Draft Scoring Rubric Ratings in Case I

Evaluative criterion	Minimum	Maximum	Range	Median	Mean	Standard deviation
1 Explanation of the topic	5.0	7.0	2.0	6.0	6.0	1.4
2 Review of the previous literature	2.0	6.0	4.0	4.0	3.8	1.7
3 Purpose of the study	1.0	1.0	0.0	1.0	1.0	N/A

Note. $n = 2$ for criterion 1, $n = 8$ for criterion 2, and $n = 1$ for criterion 3. These were coded as 0 for Not Present, 1 or 2 for Developing, 3 or 4 for Established, 5 or 6 for Advancing, and 7 or 8 for Exemplary.

The general feedback I provided to every student included: (a) a statement regarding my summary notes and

using those to identify patterns and organize sources based on those patterns, (b) a statement regarding their

consideration of the gain in knowledge their proposed research study will provide, and (c) a statement

regarding the other criteria for the introduction section (i.e., criteria 1 and 3) and integrating those with their

literature review draft. Table 19 includes one student's general feedback as an example and is very similar to

what I provided to every student.

Table 19

Example of the General Feedback from the Literature Review Draft Scoring Rubric in Case I

Good work on this draft! Review my summary notes and consider any patterns in the sources to assist in organizing them for the literature review component of your research proposal paper. This organization can be based on topics, variables studied, samples, measures, etc.

As you continue to work on this assignment, review the remaining information within the 'Review of the Literature' criterion and consider the limitations and inconsistencies/unknowns, as well the gain in knowledge regarding this topic that your research proposal paper can provide. All of these can (and should) be based in the implications and recommendations provided within the primary (and potentially, secondary) sources.

In addition, review the other two criteria for the Introduction section in the rubric above and begin to consider this information for the next steps.

Eight students submitted introduction drafts, and all but one addressed the three evaluative criteria for the introduction section (i.e., criteria 1, 2, and 3). Table 20 provides descriptive statistics regarding these evaluative criteria ratings among students' introduction drafts.

Table 20

Descriptive Statistics for the Introduction Draft Scoring Rubric Ratings in Case I

Evaluative criterion	Minimum	Maximum	Range	Median	Mean	Standard deviation
1 Explanation of the topic	3.0	7.0	4.0	5.0	4.9	1.5
2 Review of the previous literature	0.0	7.0	7.0	7.0	5.4	2.6
3 Purpose of the study	0.0	8.0	8.0	4.0	3.4	2.9

Note. $n = 8$. These were coded as 0 for Not Present, 1 or 2 for Developing, 3 or 4 for Established, 5 or 6 for Advancing, and 7 or 8 for Exemplary.

The general feedback I provided to every student included: (a) a statement regarding my summary notes and using those to identify patterns and organize sources based on those patterns, (b) a statement regarding how to categorize their sources and emphasize them differently based on relevance, (c) a statement regarding the evaluative criteria and information for the method section, and (d) statement to review and ensure the necessary source types are incorporated. Table 21 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 21

Example of the General Feedback from the Introduction Draft Scoring Rubric in Case I

Good work on this draft! Review my in-text notes and comments and consider any patterns among your sources to assist in continuing to organize them for the literature review component of your research proposal paper. This organization can be based on topics, variables studied, samples, measures, etc.

Although you have done this somewhat already, continue to consider how your sources can be classified either as 'informational' or 'supportive;' then, use the 'informational' sources to provide basic evidence for your proposed research study, and use the 'supportive' sources to provide deeper, more focused evidence for your research study. If there is a research study (or a few) that you can use as (a) model study(ies), then these sources would be considered 'supportive' and would be the most detailed.

In addition, review the criteria for the method section in the rubric and consider this information as you begin to work on this component of the research proposal paper. Also check to ensure that you have at least one secondary source and at least nine primary sources.

For the method draft, students were expected to format their writing into the four subsections listed as evaluative criteria 4-7 on the scoring rubric (i.e., participants, design, materials, and procedure). The method draft scoring rubric included a fifth criterion for the 'Significance of the study' because I wanted students to know it was expected in the research proposal paper although this is a different component than most research papers have (i.e., there was no 'discussion' or 'conclusions' section because there were no results to discuss/from which to conclude). I provided feedback if students' drafts addressed the significance component, and five students included this in their drafts. Eight students submitted method drafts, and Table 22 provides descriptive statistics regarding these evaluative criteria ratings among students' method drafts.

Table 22

Descriptive Statistics for the Method Draft Scoring Rubric Ratings in Case I

Evaluative criterion	Minimum	Maximum	Range	Median	Mean	Standard deviation
4 Participants in the study	3.0	5.0	2.0	3.0	3.5	0.9
5 Design of the study	1.0	6.0	5.0	4.0	3.5	2.3
6 Materials for the study	2.0	6.0	4.0	2.5	3.5	1.9
7 Procedure of the study	1.0	6.0	5.0	3.5	3.5	1.6
8 Significance of the study	1.0	6.0	5.0	5.0	4.2	2.2

Note. $n = 8$ for criteria 4-7, and $n = 5$ for criterion 8. These were coded as 0 for Not Present, 1 or 2 for Developing, 3 or 4 for Established, 5 or 6 for Advancing, and 7 or 8 for Exemplary.

The general feedback I provided to every student included: (a) a statement regarding the scoring rubric information that could be added given only the method section was reviewed, (b) a statement regarding the purpose of and threats to the validity of the study, and (c) a statement regarding students' revisions of their previous drafts as part of writing their proposal drafts. Table 23 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 23

Example of the General Feedback from the Method Draft Scoring Rubric in Case I

Good work on this draft! Consider what information from the rubric can be added, knowing that 'justified based on the literature reviewed' was unable to be marked given that a draft of only the method section was reviewed.
Also consider the purpose of your proposed research study as well as how you would address threats to the internal and external validity of the study as you revise your previous drafts and write your proposal draft.

For the peer review session that occurred during a class meeting, students used the entire scoring rubric (i.e., both the content-focused and writing-focused criteria) to provide feedback on another student's proposal draft. Some students provided numerical ratings, whereas others provided categorical ratings based on the performance levels (i.e., 'Developing' rather than '1' or '2'). Most students, however, also provided comments to accompany their ratings. Although nine students participated in the peer review session, one of them did not consent to participate in the current study. That student was part of a three-student group, but only the data from the two students who consented were analyzed (i.e., of the three scoring rubrics submitted from this group, only one was analyzed because both the writer and the reviewer provided their consent). In addition, one student did not provide any ratings but did provide a total score and comments. Descriptive statistics using the categorical ratings from six students' scoring rubrics are provided in Table 24.

Table 24

Descriptive Statistics for the Scoring Rubric Ratings from the Peer Review Session in Case I

Evaluative criterion	Minimum	Maximum	Median
1 Explanation of the topic	Advancing	Exemplary	Exemplary
2 Review of the previous literature	Advancing	Exemplary	Advancing

(Table Continues)

Table 24, Continued

Evaluative criterion	Minimum	Maximum	Median
3 Purpose of the study	Established	Exemplary	Advancing/Exemplary
4 Participants in the study	Advancing	Exemplary	Advancing/Exemplary
5 Design of the study	Established	Exemplary	Advancing
6 Materials for the study	Established	Exemplary	Advancing
7 Procedure of the study	Not present	Exemplary	Advancing
8 Significance of the study	Not present	Exemplary	Advancing/Exemplary
9 References	Not present	Exemplary	Developing/Established
10 Writing style	Established	Exemplary	Exemplary
11 Grammar and usage	Established	Exemplary	Exemplary
12 Mechanics of style	Established	Exemplary	Advancing

Note. $n = 6$ for criteria 1-9, and $n = 5$ for criteria 10-12. Order of performance levels was Not Present, Developing, Established, Advancing, and Exemplary.

Prior to providing comments on the course evaluation questionnaire regarding the scoring rubric-based feedback provided on their drafts, students rated the effectiveness of this feedback in their learning of research writing. Descriptive statistics from students' ratings are provided in Table 25.

Table 25

Descriptive Statistics for the Effectiveness of the Scoring Rubric Feedback on the Drafts in Case I

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Receiving written feedback on your literature review draft (through the rubric)	3.0	5.0	2.0	5.0	4.4	0.8
Receiving written feedback on your introduction draft (through the rubric)	4.0	5.0	1.0	5.0	4.6	0.5
Receiving written feedback on your method draft (through the rubric)	1.0	5.0	4.0	5.0	4.2	1.3
Attending and receiving written feedback during the peer review session (through the rubric)	1.0	5.0	4.0	3.5	3.5	1.6

Note. $n = 10$. The rating scale was 1 = Not at all effective, 2 = Slightly effective, 3 = Somewhat effective, 4 = Very effective, 5 = Extremely effective.

These indicated students perceived the feedback provided as 'Very effective' or 'Extremely effective.' The one exception was the peer review session, as indicated through this item's range of scores (one of the highest among all items), standard deviation score (the highest among all items), and median and mean scores (both the lowest among all items). This is consistent with students' other ratings and comments regarding the peer review session. Only one student (10.0%) specifically indicated scoring rubric feedback was provided (in addition to both written and verbal feedback), as they noted, "The rubric feedback was not helpful, in my opinion, because it was broad. I liked the verbal and written out feedback. It allowed for me to see clearly what I needed to add or think about further."

Case II/Instructor Feedback → Student ← Student Feedback

The assessment-based feedback provided on students' tools by me included: (a) comments in the margins mostly focused on an idea stated and (b) general feedback comments provided to all students. I reviewed guidelines for the general feedback students were expected to provide on other students' drafts during the peer-based component conferences, and this feedback will be specified below for each draft. Similarly to Case I, the first assessment was the references list, and the general feedback I provided to every student included: (a) a statement regarding whether they listed at least 10 sources and my estimates of their topics based on the sources' titles, (b) a statement regarding which source(s) I thought were secondary and a reminder of the source type requirements if necessary, (c) a statement regarding the APA style of the entries, and (d) a statement regarding the next component of the assignment. Table 26 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 26

Example of the General Feedback on the References List Assessment in Case II

You included the minimum of 10 sources for the research proposal paper and based on the titles, it seems that your topic is associated with social media and mental health during adolescent and early adult development.
Based on the titles, I am unsure which is a secondary source, so ensure that you have at least one secondary source and at least nine primary sources.
The entries marked with '*' are not in complete APA style, so review the APA style guidelines when formatting the entries for the References list of your research proposal paper.

(Table Continues)

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Table 26, Continued

Use the literature review table (or another tool that is more helpful for you) to extract the important information from these sources. Doing this will help to refine your topic and select different sources if necessary or appropriate.
Please let me know if you have any questions or concerns.

After submitting their references list assessments, students began the literature review component by completing their literature review tables. The feedback comments I provided on this tool included statements regarding the information they extracted from each of their sources and ended with 'Consider how this information can be used as you develop your proposed research study.' The general feedback I provided to every student included: (a) a statement regarding how they extracted information from their sources, (b) a statement regarding the notes they made and how they would be used to write the literature review draft, and (c) a statement regarding how the draft would be used during the literature review conference. Table 27 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 27

Example of the General Feedback on the Literature Review Table in Case II

You extracted and summarized/paraphrased the information from your sources well. The notes you made will help as you develop the research study for your research proposal paper.
As you format this information into paragraphs (one paragraph for each source is fine) for your literature review draft, consider the similarities among your sources regarding sampling/recruitment, variables and research design, and the measures and procedures used to your topic. Your peers will consider this, too, when they review and provide feedback on your draft during the literature review conference.
Please let me know if you have any questions or concerns.

For the literature review draft, I recommended students formalize the information from the literature review table into one or two paragraphs for each source. At the beginning of the literature review conference, students responded to the pre-conference questions regarding: (a) the current component of the research proposal paper and (b) the next component of the research proposal paper. I then reviewed the literature review draft scoring rubric and two previous students' literature review drafts with the feedback I provided as examples of the general feedback they were expected to provide. This feedback summarized the purpose and variables, the participants and materials, and the results/conclusions for each source. Some students also

included questions (e.g., "What was the sample?"), suggestions (e.g., "Maybe explain 'technoference' because most people are not familiar with this term"), and corrections [e.g., "affects (not effects)"] with the general feedback they provided. In addition, students received a link for the online literature review draft scoring rubric so they could complete it as well as they could while reviewing the drafts.

Students then were divided into small groups (i.e., between 2 and 4 students) based on their paper topics, placed into Zoom breakout rooms, and exchanged email addresses to send their literature review drafts to each other. After they reviewed and provided feedback on another student's draft, the reviewers emailed their non-scoring rubric feedback to the writers. The scoring rubric-based feedback automatically was emailed to the writers after the reviewers completed the online scoring rubric. Writers were supposed to ask reviewers any questions they had regarding the feedback provided and after the Zoom breakout rooms closed, I responded to any pre-conference questions that were more general or applicable to all students. I also reviewed the same general feedback I provided to students in Case I on the literature review draft scoring rubric (see Table 19) but added: (a) ensure that you have at least one secondary source and least nine primary sources; (b) if there is a research study (or a few) that you can use as (a) model(s) study(ies), then these sources would be considered 'supportive' and would be the most detailed in your paper; and (c) other sources would be considered 'informative' and would be less detailed in your paper. Before the conference ended, students responded to the post-conference questions regarding: (a) what they learned about the current component and (b) any remaining questions or concerns about the current component, as well as submitted their literature review drafts with the non-scoring rubric feedback provided during the conference.

After completing the literature review conference, students began the introduction component by completing their introduction outlines. The feedback I provided included statements regarding students' responses to most of the questions within the outline. The general feedback I provided to every student included: (a) a statement regarding the how they outlined this section of the paper and how their notes would be used and (b) a statement regarding what information students should consider for each part of the outline, including how to use their sources based on similarities to their topics and the limitations noted. Table 28 includes one student's general feedback as an example and is very similar to what I provided to every student.

Table 28

Example of the General Feedback on the Introduction Outline in Case II

You outlined your introduction section well and have provided good notes that can inform your introduction draft.

Consider how the notes in section I above can be supported by your sources, especially those considered to be more 'informative' (i.e., sources that are not directly related to your proposed research study). Consider your sources for section II above that can be more 'supportive' of your proposed research study by focusing on the variables you will examine and any other similarities (e.g., sample, design/procedure, measures) to your proposed research study.

Consider the specific sources you can cite to provide evidence for your limitations/inconsistencies/gaps in section III above, and for section IV elaborate on what the results of your proposed research study will show in addition to stating the research question(s) you have developed.

Please let me know if you have any questions or concerns.

For the introduction draft, I recommended students use the outline components as a structure for this section. At the beginning of the introduction conference, students responded to the pre-conference questions regarding: (a) the current component of the research proposal paper and (b) the next component of the research proposal paper. I then reviewed the introduction draft scoring rubric with the introduction section of my research proposal paper and two previous students' introduction drafts with the feedback I provided as examples of the feedback they were expected to provide. This feedback noted (i.e., through bolding or highlighting of the appropriate information) the participants and sampling/recruitment techniques, variables and methods of collecting data, and research designs and procedures (if information regarding each was provided) for each research study included in the draft. Students also noted the topic/problem of the writer's proposed research study and why it matters to indicate whether this information was provided in the draft. In addition, students received a link for the online introduction draft scoring rubric so they could complete it as well as they could while reviewing the drafts.

Students then were divided into the same small groups as during the literature review conference (i.e., based on their paper topics), placed into Zoom breakout rooms, and exchanged email addresses to send their introduction drafts to each other. After they reviewed and provided feedback on another student's draft, the reviewers emailed their non-scoring rubric feedback to the writers. The scoring rubric-based feedback automatically was emailed to the writers after the reviewers completed the online scoring rubric. Writers were

supposed to ask reviewers any questions they had regarding the feedback provided and after the Zoom

breakout rooms closed, I responded to any pre-conference questions that were more general or applicable to all

students. I also reviewed the same general feedback I provided to students in Case I on the introduction draft

scoring rubric (see Table 21) but included, 'Review the components that should be included in the introduction

section and the information within each of them (i.e., the first three rubric criteria): (a) Explanation of the

topic, (b) Review of the previous literature, and (c) Purpose of the study' rather than addressing the method

section evaluative criteria (as with the Case I feedback). Before the conference ended, students responded to

the post-conference questions regarding: (a) what they learned about the current component and (b) any

remaining questions or concerns about the current component, as well as submitted their introduction drafts

with the non-scoring rubric feedback provided during the conference.

After completing the introduction conference, students met with me individually during the midterm

conference. Prior to this meeting with me, students responded to the conference questions regarding: (a) the

literature review component, (b) the introduction section, (c) the method section, and (d) the course in general.

I then reviewed their responses before each individual-based conference and used them to guide the

discussions and ensure students' questions and concerns were addressed. After completing the midterm

conference, students began the method component by completing their method outlines. The feedback I

provided included statements regarding students' responses to most of the questions within the outline but

unlike the literature review table and introduction outline, I did not provide general feedback to all students.

For the method draft, I recommended students use the outline components as a structure for this section. At the

beginning of the method conference, students responded to the pre-conference questions regarding: (a) the

current component of the research proposal paper and (b) the next component of the research proposal paper. I

then reviewed the method draft scoring rubric with the method sections of both my and A. Student's research

proposal papers and showed two previous students' method drafts with the feedback I provided as examples of

the feedback they were expected to provide. This feedback noted potential limitations and threats to internal

and external validity, as well as any writing-based (e.g., grammar, mechanics) or style-based (i.e., APA) errors.

In addition, students received a link for the online method draft scoring rubric so they could complete it as well

as they could while reviewing the drafts.

Students then were divided into the same small groups as during the literature review and introduction conferences (i.e., based on their paper topics), placed into Zoom breakout rooms, and exchanged email addresses to send their method drafts to each other. After they reviewed and provided feedback on another student's draft, the reviewers emailed their non-scoring rubric feedback to the writers. The scoring rubric-based feedback automatically was emailed to the writers after the reviewers completed the online scoring rubric. Writers were supposed to ask reviewers any questions they had regarding the feedback provided and after the Zoom breakout rooms closed, I responded to any pre-conference questions that were more general or applicable to all students. I also reviewed the same general feedback I provided to students in Case I on the method draft scoring rubric (see Table 23). Before the conference ended, students responded to the post-conference questions regarding: (a) what they learned about the current component and (b) any remaining questions or concerns about the current component, as well as submitted their method drafts with the non-scoring rubric feedback provided during the conference.

After completing the method conference, students combined their previous drafts into their proposal drafts and then reviewed another student's proposal draft using the entire scoring rubric during the peer review session. At the beginning of this, I reviewed the research proposal paper scoring rubric and addressed any questions or concerns students had. Students then were divided randomly into small groups (i.e., not based on their paper topics), placed into Zoom breakout rooms, and exchanged email addresses to send their proposal drafts to each other. Students were asked to note writing-based (e.g., grammar, mechanics) and style-based (i.e., APA) errors, any other aspects they liked or about which they had questions, and to complete the online scoring rubric as well as they could. After they reviewed and provided feedback on another student's draft, the reviewers emailed their non-scoring rubric feedback to the writers. The scoring rubric-based feedback automatically was emailed to the writers after the reviewers completed the online scoring rubric. If they were able, then students also were supposed to review as much as they could of a second student's proposal draft. Writers were supposed to ask reviewers any questions they had regarding the feedback provided and after the Zoom breakout rooms closed, I verbally responded to any questions or concerns students had. After completing the peer review session, students met with me individually during the proposal conference. Prior to this meeting, students responded to questions regarding: (a) the feedback they received on their proposal drafts

during the peer review session, (b) the literature review component, (c) the introduction section, (d) the method section, (e) the significance component (i.e., of their research proposal papers), (f) the references list, and (g) how they felt about submitting their research proposal papers. Similarly to the midterm conferences, I then reviewed their responses before each conference and used them to guide the discussions and ensure students' questions and concerns were addressed.

Prior to providing comments on the course evaluation questionnaire regarding the feedback provided by both me and other students on the different assessments of the research proposal paper assignment, students rated the effectiveness of this feedback in their learning of research writing. Descriptive statistics from students' ratings are provided in Table 29.

Table 29

Descriptive Statistics for the Effectiveness of the Feedback on the Research Proposal Paper Assessments in

Case II

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Receiving written feedback on your references list	2.0	5.0	3.0	5.0	4.7	0.9
Receiving written feedback from Derek on your literature review table	3.0	5.0	2.0	5.0	4.5	0.7
Reviewing/providing feedback on another student's draft during the literature review conference	2.0	5.0	3.0	4.0	3.8	1.3
Receiving written feedback from peers on your literature review draft (within the document)	1.0	5.0	4.0	4.0	3.7	1.4
Receiving verbal feedback from peers during the literature review conference	1.0	5.0	4.0	4.0	3.6	1.5
Receiving written and/or verbal feedback from Derek regarding your pre/post-conference questions	3.0	5.0	2.0	5.0	4.4	0.8
Receiving written feedback from Derek on your introduction outline	4.0	5.0	1.0	4.5	4.5	0.5

(Table Continues)

Table 29, Continued

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Reviewing/providing feedback on another student's draft during the introduction conference	2.0	5.0	3.0	4.0	3.7	1.1
Receiving written feedback from peers on your introduction draft (within the document)	2.0	5.0	3.0	4.0	3.5	1.2
Receiving verbal feedback from peers during the introduction conference	1.0	5.0	4.0	3.5	3.2	1.5
Receiving written and/or verbal feedback from Derek regarding your pre/post-conference questions	2.0	5.0	3.0	4.5	4.3	0.9
Receiving written feedback from Derek on your method outline	3.0	5.0	2.0	5.0	4.3	0.9
Reviewing/providing feedback on another student's draft during the method conference	3.0	5.0	2.0	4.0	4.0	0.8
Receiving written feedback from peers on your method draft (within the document)	1.0	5.0	4.0	4.0	3.6	1.3
Receiving verbal feedback from peers during the method conference	1.0	5.0	4.0	4.0	3.5	1.5
Receiving written and/or verbal feedback from Derek regarding your pre/post-conference questions	3.0	5.0	2.0	5.0	4.3	0.9
Reviewing/providing feedback on other students' drafts during the peer review session	2.0	5.0	3.0	3.5	3.7	1.2
Receiving written feedback from peers during the peer review session (within the document)	1.0	5.0	4.0	4.0	3.5	1.3
Receiving verbal feedback from peers during the peer review session	1.0	5.0	4.0	3.5	3.2	1.6

Note. n = 12. The rating scale was 1 = Not at all effective, 2 = Slightly effective, 3 = Somewhat effective, 4 = Very effective, 5 = Extremely effective.

These indicated students perceived most of the feedback provided on these different assessments to be at least 'Somewhat effective' regarding their learning of research writing. In comparing the feedback provided by me with the feedback provided by other students, my feedback had higher median and mean scores and lower standard deviation scores than the peer-based feedback. There was not a pattern among the scores for the written feedback I provided on students' references list assessments and tools compared to the written and/or verbal feedback I provided through the conference questions. The mean (if not also median) scores were higher and the standard deviation scores were lower, however, for the written feedback other students provided compared to their verbal feedback. All this indicated students perceived the feedback provided by me to be more effective than the feedback provided by other students and other students' written feedback was more effective than their verbal feedback. Both are consistent with students' other ratings and comments regarding their perceptions of the feedback provided by me and the feedback provided by other students.

Students' responses to the course evaluation questionnaire items indicated the information related to their performance on the assessments (i.e., feedback) was provided to them in different ways. Seven students (58.3%) indicated helpful feedback was provided by me, whether through different assessments or additional meetings with me. As one student noted, "He was very available to answer questions which was helpful!" Two students (16.7%) also provided their thoughts regarding feedback provided by me compared to feedback provided by other students. As one student noted,

> I did find feedback from you, Derek, to be effective because I trust that you know what you are doing and looking for in reviewing and providing feedback. I will always trust the opinion of instructors over the opinion of fellow students. … Any written feedback from you was much more helpful than that of fellow students.

Similarly, another student noted, "I prefer getting writing feedback from professors as far as assignments go."

Five students (41.7%) indicated feedback was provided by other students, and two of these students (16.7%) indicated this feedback was helpful, as one noted, "It helped to know what other people in class thought of my writting [*sic*]. … It was effective because we could all talk about how we were doing on the paper and ask questions." Two of the other students (16.7%), however, indicated this feedback was not helpful. As one noted, "I think that it was semi-effective, peer reviews are kind of awkward over zoom [*sic*]." and the

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other student noted, "I did not receive much feedback so it was not very effective." In addition, one of the five students (8.3%) indicated the feedback provided by both me and other students was helpful specifically for the method component,

> The method was the part I struggled with the most so it was helpful to have multiple forms of feedback. … Having multiple forms of feedback made me feel like I had all of my bases covered for the method draft, because it was the part I was most confused about."

In addition to the assessment-based feedback students provided on each other's drafts, scoring rubric ratings and comments were provided for each draft. All the scoring rubrics were administered online and included spaces for comments regarding each criterion and the entire draft, but only the five performance levels (i.e., Not present, Developing, Established, Advancing, and Exemplary) were included without their corresponding numbers. For the literature review draft, students were expected to provide a draft only of the literature review component of the introduction section (i.e., only criterion 2 on the scoring rubric), but students provided feedback if the drafts also addressed the other two components of the introduction section (i.e., criteria 1 and 3). Although 18 students participated in the literature review conference, only 12 who consented to participate in the current study reviewed and provided feedback on a consented student's literature review draft. Descriptive statistics of these categorical scoring rubric ratings are provided in Table 30.

Table 30

Descriptive Statistics for the Literature Review Draft Scoring Rubric Ratings in Case II

Evaluative criterion	Minimum	Maximum	Median
1 Explanation of the topic	Established	Advancing	Established
2 Review of the previous literature	Developing	Advancing	Established
3 Purpose of the study	Developing	Advancing	Established

Note. $n = 11$ for criterion 1, $n = 12$ for criterion 2, and $n = 10$ for criterion 3. Order of performance levels was Not Present, Developing, Established, Advancing, and Exemplary.

Students were expected to address all three evaluative criteria for the introduction section (i.e., criteria 1-3) in their introduction drafts. Although 18 students participated in the introduction conference, only 14 who

consented to participate in the current study reviewed and provided feedback on a consented student's

introduction draft. Descriptive statistics of these categorical scoring rubric ratings are provided in Table 31.

Table 31

Descriptive Statistics for the Introduction Draft Scoring Rubric Ratings in Case II

Evaluative criterion	Minimum	Maximum	Median
1 Explanation of the topic	Developing	Exemplary	Advancing
2 Review of the previous literature	Developing	Exemplary	Established
3 Purpose of the study	Developing	Exemplary	Established

Note. $n = 14$. Order of performance levels was Not Present, Developing, Established, Advancing, and Exemplary.

For the method draft, students were expected to format their writing into the four subsections that

were listed as evaluative criteria 4-7 on the scoring rubric (i.e., participants, design, materials, and procedure).

The method draft scoring rubric included a fifth criterion for the 'Significance of the study' because I wanted

students to be aware it was expected in the research proposal paper although this is a different component than

most research papers have. Although 13 students participated in the method conference, only eight who

consented to participate in the current study reviewed and provided feedback on a consented student's method

draft. Descriptive statistics of these categorical scoring rubric ratings are provided in Table 32.

Table 32

Descriptive Statistics for the Method Draft Scoring Rubric Ratings in Case II

Evaluative criterion	Minimum	Maximum	Median
4 Participants in the study	Developing	Advancing	Established/Advancing
5 Design of the study	Established	Exemplary	Advancing
6 Materials for the study	Developing	Exemplary	Established
7 Procedure of the study	Developing	Exemplary	Established
8 Significance of the study	Developing	Exemplary	Established/Advancing

Note. $n = 8$ for criteria 4-7, and $n = 4$ for criterion 8. Order of performance levels was Not Present, Developing, Established, Advancing, and Exemplary.

For the peer review session, students used the entire scoring rubric to provide feedback on another

student's proposal draft. This scoring rubric, however, included spaces for comments regarding each of the

evaluative criteria and the entire draft. Although 18 students participated in the peer review session, only 13 who consented to participate in the current study reviewed and provided feedback on a consented student's proposal draft. Of these 13 students, five received two sets of feedback (i.e., two reviewers provided feedback on five students' drafts). Thus, there were 18 sets of ratings from the peer review session, and descriptive statistics for 13 students' categorical scoring rubric ratings are provided in Table 33.

Table 33

Descriptive Statistics for the Scoring Rubric Ratings from the Peer Review Session in Case II

Evaluative criterion	Minimum	Maximum	Median
1 Explanation of the topic	Established	Exemplary	Advancing
2 Review of the previous literature	Developing	Exemplary	Advancing
3 Purpose of the study	Not present	Exemplary	Advancing
4 Participants in the study	Developing	Exemplary	Advancing
5 Design of the study [a]	Developing	Exemplary	Advancing
6 Materials for the study	Not present	Exemplary	Established/Advancing
7 Procedure of the study	Not present	Exemplary	Advancing
8 Significance of the study	Not present	Exemplary	Developing
9 References	Not present	Exemplary	Established/Advancing
10 Writing style	Developing	Exemplary	Advancing
11 Grammar and usage	Developing	Exemplary	Advancing
12 Mechanics of style	Developing	Exemplary	Advancing

Note. n = 18 ratings from 13 students. Order of performance levels was Not Present, Developing, Established, Advancing, and Exemplary.
[a] *n* = 17 ratings

Prior to providing comments on the course evaluation questionnaire regarding the scoring rubric-based feedback provided on their drafts, students rated the effectiveness of this feedback in their learning of research writing. Descriptive statistics from students' ratings are provided in Table 34.

Table 34

Descriptive Statistics for the Effectiveness of the Scoring Rubric Feedback on the Drafts in Case II

Questionnaire item	Minimum	Maximum	Range	Median	Mean	Standard deviation
Receiving written feedback from peers on your literature review draft (through the rubric)	1.0	5.0	4.0	3.5	3.6	1.4
Receiving written feedback from peers on your introduction draft (through the rubric)	1.0	5.0	4.0	4.0	3.4	1.4
Receiving written feedback from peers on your method draft (through the rubric)	1.0	5.0	4.0	4.0	3.7	1.3
Receiving written feedback from peers during the peer review session (through the rubric)	1.0	5.0	4.0	3.5	3.4	1.3

Note. $n = 12$. The rating scale was 1 = Not at all effective, 2 = Slightly effective, 3 = Somewhat effective, 4 = Very effective, 5 = Extremely effective.

These indicated students perceived the feedback provided as 'Somewhat effective' or 'Very effective.' This is consistent with students' other ratings and comments regarding the peer-based feedback provided on their drafts during the component conferences and peer review session. None of the students' comments, however, included information regarding their perspectives of the scoring rubric-based feedback.

Summary and Comparison

The data that addressed the third subquestion indicated how information associated with performance was provided to students. I provided feedback on most students' assessments in Case I, and this included comments in the margins, in-text edits, and general comments. I also provided scoring rubric-based feedback on students' drafts that included criterion ratings and general comments. Both students and I provided feedback on students' assessments in Case II, and my feedback on students' tools included comments in the margins and general comments whereas students' feedback on other students' drafts included comments in the margins, as well as potentially questions, suggestions, and corrections. Students in Case II also provided scoring rubric-based feedback on other students' drafts that included both criterion ratings and comments.

The pre-conference questions for students in Case I included their questions and concerns about the current and next components, as well as the feedback on their drafts, and the post-conference questions included what students learned and their questions and concerns about the current component. The pre-conference questions for students in Case II also included their questions and concerns about the current and next components, and the post-conference questions also included what students learned and their questions and concerns about the current component. The midterm conference questions for students in Case II included their questions and concerns about the literature review, introduction, and method components, as well as the course in general. The proposal conference questions for students in Case I included their questions and concerns about the research proposal paper, the feedback from the peer review session, and how they felt about submitting their papers. The proposal conference questions for students in Case II included their questions and concerns about the feedback from the peer review session, the different sections and components of the research proposal paper, and how they felt about submitting their papers.

Students in Case I provided feedback on other students' proposal drafts using the scoring rubric during the peer review session, and this included criterion ratings and comments. Students in Case II also provided feedback on other students' proposal drafts during the peer review session, and this included comments, compliments, and questions, as well as both criterion ratings and comments from the scoring rubric. A few (20%) students in Case I indicated I provided verbal feedback that was helpful, and some (30%) students also indicated I provided written feedback and feedback through email that was helpful. Several (58%) students in Case II indicated the feedback provided by me was helpful, and a few (17%) students indicated they preferred my feedback rather than peer-based feedback because they trusted my opinion more than other students' opinions. A few (17%) students in Case II indicated the feedback provided by other students was helpful because they liked to know others' thoughts and could talk and ask questions of each other, but a few (17%) students also indicated the feedback provided by other students was not helpful because there was little feedback and the conferences were awkward over Zoom. One student in Case II, however, indicated both my and other students' feedback regarding the method component was helpful because this was difficult and confusing for them and the multiple forms of feedback covered all bases.

Students in Case I rated the feedback provided as effective, but the written feedback on the IRB protocol submission form and the written and verbal feedback during the peer review session were the least effective. Students in Case II also rated the feedback provided as effective, but the feedback provided by me was more effective than the feedback provided by other students and other students' written feedback was more effective than their verbal feedback. Although students in both cases rated the scoring rubric-based feedback as effective, only one student in Case I indicated the scoring rubric based-feedback was not effective because it was broader than the other feedback provided.

How did information associated with performance convey students' progress and how they should proceed?

This fourth subquestion also was based on the Feed Back dimension of Hattie and Timperley's (2007) model of feedback. Thus, the aligned data also included: (a) assessment-based feedback provided by me and by students, (b) scoring rubric-based feedback provided by me and by students, (c) students' responses to the conference questions, and (d) students' responses to course evaluation questionnaire items regarding the effectiveness of these data sources in their learning of research writing.

Case I/Instructor Feedback → Student

The assessment-based feedback provided on students' tools and drafts by me included: (a) comments in the margins, (b) in-text edits, and (c) general feedback comments provided to all students. The scoring rubric-based feedback provided on students' drafts by me and by other students (i.e., during the peer review session) included: (a) criteria ratings based on the performance level descriptions, (b) general comments I provided to all students, and (c) comments students provided to other students. Except for the scoring rubric criteria ratings, all these feedback data, as well as students' responses to the conference questions, were coded using the four levels of feedback (i.e., Task, Process, Regulation, and Self) from Hattie and Timperley's (2007) model. As explained in chapter III (see Table 6), these feedback data were assigned pattern codes such that: (a) TASK was the code applied if the feedback was directed at performance of the task being assessed, or how they did and why; (b) PROCESS was the code applied if the feedback was directed at strategies underlying performance of the task, or what they did and why; and (c) REGULATION was the code applied if the feedback was directed at strategies beyond performance of the task that lead toward writing a research

proposal paper, or what to do next. Hattie and Timperley's fourth level is directed to the self/student as a person but due to its lack of information regarding student learning, I have been careful not to provide feedback directed only at this level. Any self-related feedback I provided was more directed at the Task or Process levels, such as 'Good notes!' or 'Good thoughts!' and were coded as 'SELF (directed at task).'

Because the in-text edits (i.e., additions to and deletions from the written text mostly focused on errors regarding APA style, grammar, and mechanics) were directed toward the current performance of the task, all this feedback was coded as TASK. Similarly, information missing from the descriptions of performance levels on the scoring rubric was noted with the ratings I provided using '~~strikethrough~~ text,' and all this feedback also was coded as TASK. In addition, the general feedback I provided on the primary source-based paragraphs of students' literature review drafts summarized the purpose, method, and results/conclusions for each source (if information regarding each of these was provided). Because this feedback was intended to help students note any patterns among their sources as they continued working on the research proposal paper, all this feedback was coded as REGULATION. The remaining comments in the margins and general feedback comments (both assessment- and scoring rubric-based) were coded as TASK, PROCESS, REGULATION, or SELF (directed at task). Coded examples of the feedback I provided to students are included in Table 35. The general comments from the literature review, introduction, and method drafts' scoring rubric-based feedback were provided in Tables 19, 21, and 23, respectively, but examples of student-based feedback comments from the proposal draft rubric during the peer review session are included in Table 35.

Table 35

Coded Examples of the Feedback on Students' Research Proposal Paper Assessments in Case I

Assessment	Feedback	Code
References list	There should be more recent research/scholarship than 1990s/2000s regarding this topic/problem,	TASK
	so please let me know if you were unable to locate any sources published after 2010.	PROCESS
	When you have located more recent sources, use the literature review table (or another tool that is more helpful for you) to extract the important information from those sources.	REGULATION

(Table Continues)

Table 35, Continued

Assessment	Feedback	Code
References list	All of the entries are in complete APA style -	TASK
	'- excellent work!	SELF (directed at task)
Literature review table	Be careful – much of this is copied/pasted directly from the source (i.e., is plagiarized).	TASK
	Ensure that you summarize/paraphrase the information you extract from your sources.	PROCESS
	Good notes!	SELF (directed at task)
	Using both experimental-based and observational-based data is a good way to address threats to both the internal and external validity within a study.	TASK
	Consider how this information can be used as you develop your proposed research study.	REGULATION
Literature review draft	Double-check the entries below …	PROCESS
	because some of them are not in complete APA style.	TASK
	Did the authors examine and/or control for this?	TASK
	Great thoughts!	SELF (directed at task)
Introduction outline	Great limitations that you noted!	SELF (directed at task)
	I imagine that the first limitation exists because of the small populations, especially when categories within 'deaf infants' are examined.	TASK
	All of these seem like they provide good directions for your proposed research study.	REGULATION
	What is unknown regarding language development among those with siblings?	TASK
	Consider why we (researchers, laypeople, etc.) should care whether sibling relationships can influence younger siblings' language development.	PROCESS
Introduction draft	Explain how substance abuse was a significant factor in adolescent development.	PROCESS
	I know we have discussed this, but more should be included regarding the outside support,	TASK

(Table Continues)

Table 35, Continued

Assessment	Feedback	Code
Introduction draft	especially if that will be a factor in your proposed research study.	REGULATION
	OK, you are not only using a longitudinal design…	TASK
	but a sequential design – great idea!	SELF (directed at task)
IRB protocol submission form	Good consideration of the practicalities of conducting this proposed research study.	SELF (directed at task)
	What potential risks (e.g., breach of confidentiality) might occur as part of conducting your proposed research study?	TASK
	After you have identified the potential risks,	PROCESS
	consider ways to minimize them	PROCESS
Method draft	Based on this, it seems that you have three groups to compare rather than two;	TASK
	if that is the case, then consider recruiting 1,500 families for an even 500 families in each group (school-age siblings, younger-than-school-age siblings, and no siblings).	PROCESS
	Consider other limitations that can influence the internal and external validity of your proposed study.	REGULATION
Proposal draft scoring rubric	I think she did a great job on this paper.	SELF (directed at task)
	In some places she should put in more detail…	REGULATION
	and use her sources more for back up in the other sections.	REGULATION
	Her introduction sections [*sic*] looks [*sic*] very thorough,	TASK
	but I think is missing the overall puprose [*sic*] of her study.	TASK

Note. All feedback was provided by me except the proposal draft scoring rubric feedback provided by other students.

The frequencies and percentages of feedback directed at Hattie and Timperley's four levels from all students' assessments are provided in Table 36. For the references list assessment, two students' initial submissions were returned because they were not formatted as APA style reference lists. Of the initial feedback provided to these two students, four statements (44.4%) were coded as TASK, three statements (33.3%) were coded as PROCESS, and two statements (22.2%) were coded as REGULATION. The feedback they received from their second submissions is included with the other students' feedback in Table 36. The in-

text edits (i.e., additions to and deletions from the written text mostly focused on errors regarding APA style, grammar, and mechanics) to the drafts were indicated by editing markup in the documents (i.e., 'Track Changes' in Microsoft Word) and were counted for each written paragraph. These included 28 in-text edits for the references list assessment, two in-text edits for the literature review table, one in-text edit for the introduction outline, and seven in-text edits for the IRB protocol submission form. For the drafts, these included 308 in-text edits for the literature review draft, 975 in-text edits for the introduction draft, and 695 in-text edits for the method draft. And for the scoring rubric ratings (i.e., ~~strikethrough~~ indications that evidence from the descriptions of performance levels was missing from the draft), these included seven for the literature review draft scoring rubric, 15 for the introduction draft scoring rubric, and 23 for the method draft scoring rubric. All of these are included with the respective TASK coded feedback provided in Table 36.

Table 36

Frequencies and Percentages of the Feedback Codes from Students' Research Proposal Paper Assessments in Case I

Assessment	TASK		PROCESS		REGULATION		SELF	
	#	%	#	%	#	%	#	%
References list ($n = 10$)	111	68.1	10	6.1	41	25.2	1	0.6
Literature review								
Table ($n = 9$)	212	52.3	26	6.4	155	38.3	12	3.0
Draft ($n = 8$)	347	63.1	4	0.7	191	34.7	8	1.5
Rubric ($n = 8$) [a]	7	8.1	1	1.2	70	81.4	8	9.3
Introduction								
Outline ($n = 10$)	79	33.5	23	9.7	127	53.8	7	3.0
Draft ($n = 8$)	1,087	98.6	13	1.2	1	0.0	1	0.0
Rubric ($n = 8$) [a]	23	15.3	79	52.7	40	26.7	8	5.3
Method								
IRB form ($n = 9$)	121	84.0	20	13.9	0	0.0	3	2.1
Draft ($n = 8$)	856	98.2	4	0.5	12	1.4	0	0.0
Rubric ($n = 8$) [a]	39	45.9	0	0.0	38	44.7	8	9.4
Proposal draft rubric ($n = 7$) [a]	34	50.7	0	0.0	27	40.3	6	9.0

Note. All feedback was provided by me except the proposal draft rubric feedback that was provided by other students.
[a] Only the scoring rubric comments were coded, not the criteria ratings.

These indicated of the 10 sources on which I provided feedback, seven (70.0%) had the highest proportion of feedback directed at the Task level. Of those, five had the second-highest proportion of feedback directed at the Regulation level, and the other two had the second-highest proportion of feedback directed at the Process level. Two (20.0%) of the remaining three sources had the highest proportion of feedback directed at the Regulation level. The second-highest proportion of feedback for the literature review draft scoring rubric was directed at the Self level, and the second-highest proportion of feedback for the introduction outline was directed at the Task level. And the final source (10.0%) on which I provided feedback (introduction draft scoring rubric) had the highest proportion of feedback directed at the Process level, with the second-highest proportion of feedback directed at the Regulation level. For the proposal draft rubric on which students provided feedback to other students during the peer review session, the highest proportion of feedback was directed at the Task level, with the second-highest proportion of feedback directed at the Regulation level.

In addition to the feedback provided to students, their responses to the conference questions were coded based on Hattie and Timperley's (2007) model to indicate on what levels of feedback students' questions were focused. These then provided an indication of the types of feedback students sought during their conference discussions with me. The literature review, introduction, and method (i.e., component) conferences included three pre-conference questions regarding: (a) the current component of the research proposal paper, (b) the feedback provided by me on their current draft, and (c) the next component of the research proposal paper. All three component conferences also included two post-conference questions regarding: (a) what students learned about the current component and (b) any remaining questions or concerns about the current component. Of those five conference questions, three addressed questions or concerns regarding the current component (i.e., two pre-conference and one post-conference) and one post-conference question addressed what students learned regarding the current component. Given this last question addressed student learning rather than their questions or concerns, it was aligned with the Feed Forward dimension of Hattie and Timperley's model and thus, was analyzed in response to the fifth subquestion.

Similarly to how the feedback was coded, students' responses to questions regarding the current component were assigned pattern codes such that: (a) TASK was the code applied if the responses were focused on how they did and why, (b) PROCESS was the code applied if the responses were focused on what

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they did and why, and (c) REGULATION was the code applied if the responses were focused on what to do next. Because the remaining conference question aligned with this dimension addressed the next component of the research proposal paper, all responses were coded as REGULATION in addition to TASK or PROCESS based on the focus of the response. In addition, NONE was a code for all question responses to account for students indicating they had no questions or concerns, and OTHER was a code for all question responses not focused on one of the feedback levels. Coded examples of students' responses to these conference questions are included in Table 37.

Table 37

Examples of the Feedback Codes from Students' Responses to Component Conference Questions 1-3 and 5 in Case I

Conference	Question	Student response	Code
Literature review	1	I understand that this is to help me find similarities in other studies researching this same topic.	PROCESS
	2	So I was supposed to add implications, limitations, and further research?	TASK
	3	I'm only supposed to introduce my topic and use my secondary source for background, correct?	REGULATION-TASK
	3	also if not each of my article resources support the problem my study is looking into directly, how do I connect each to prove that further research is necessary.	REGULATION-PROCESS
	5	As of right now, I do not have anymore, [*sic*]	NONE
	5	but I am sure I will have questions soon	REGULATION
Introduction	1	Structuring my introduction more smoothly…	TASK
	1	(*Structuring my introduction more*) ...and accurately.	TASK
	2	Am I suppose to include the results in the introduction?	TASK
	3	Since I am using a very similar method section of one of my resources,	REGULATION-PROCESS
	3	do I reference them throughout my methods section?	REGULATION-TASK
	5	none as of right now,	NONE

(Table Continues)

Table 37, Continued

Conference	Question	Student response	Code
Introduction	5	but I am sure some will come up later on	REGULATION
Method	1	How detailed should the section be?	TASK
	1	finding questionnaires for my surveys	PROCESS
	2	So when do i bring up the specific questionnaires that I am using?	TASK
	2	Only in the materials section?	TASK
	3	Do i need a separate paragraph for the significance part?	REGULATION- TASK
	3	and i just include why this study is important?	REGULATION- TASK
	5	I do not have any questions/ concerns as of right now.	NONE
	5	The methods conference covered every doubt.	OTHER

Note. Questions 1, 2, and 3 were pre-conference and addressed the current component, the feedback students received on their current drafts, and the next component, respectively. Question 5 was post-conference and addressed the current component.

Table 38 provides the frequencies and percentages of the codes from students' responses to the

literature review, introduction, and method conference questions.

Table 38

Frequencies and Percentages of the Feedback Codes from Students' Responses to Component Conference

Questions 1-3 and 5 in Case I

Conference and question	NONE/ OTHER		TASK		PROCESS		REGULATION		REGULATION - TASK		REGULATION - PROCESS	
	#	%	#	%	#	%	#	%	#	%	#	%
Literature review												
1 (*n* = 5)	2	16.7	6	50.0	2	16.7	2	16.7	-	-	-	-
2 (*n* = 5)	1	14.3	4	57.1	1	14.3	1	14.3	-	-	-	-
3 (*n* = 5)	1	11.1	-	-	-	-	-	-	2	22.2	6	66.7
5 (*n* = 5)	6	75.0	0	0.0	0	0.0	2	25.0	-	-	-	-

(Table Continues)

Table 38, Continued

Conference and question	NONE/ OTHER		TASK		PROCESS		REGULATION		REGULATION - TASK		REGULATION - PROCESS	
	#	%	#	%	#	%	#	%	#	%	#	%
Introduction												
1 ($n = 4$)	1	16.7	4	66.7	1	16.7	0	0.0	-	-	-	-
2 ($n = 5$)	2	28.8	5	71.4	0	0.0	0	0.0	-	-	-	-
3 ($n = 5$)	2	28.6	-	-	-	-	-	-	3	42.9	2	28.6
5 ($n = 4$)	4	80.0	0	0.0	0	0.0	1	20.0	-	-	-	-
Method												
1 ($n = 6$)	2	20.0	6	60.0	2	20.0	0	0.0	-	-	-	-
2 ($n = 6$)	1	12.5	7	87.5	0	0.0	0	0.0	-	-	-	-
3 ($n = 5$)	2	25.0	-	-	-	-	-	-	6	75.0	0	0.0
5 ($n = 5$)	6	85.7	1	14.3	0	0.0	0	0.0	-	-	-	-

Note. Questions 1, 2, and 3 were pre-conference and addressed the current component, the feedback students received on their current drafts, and the next component, respectively. Question 5 was post-conference and addressed the current component.

These indicated that across the three component conferences, students' questions regarding the current component and feedback on the current draft (i.e., questions 1 and 2) were mostly focused on the Task level and they mostly did not have any questions or concerns regarding the current component after the conferences occurred (i.e., question 5).

Prior to the proposal conference, students responded to questions regarding: (a) the research proposal paper, (b) the feedback provided on their proposal drafts during the peer review session, and (c) how they felt about submitting their research proposal papers. In addition to the three feedback-based codes (i.e., TASK, PROCESS, and REGULATION), NONE, and OTHER, students' responses to the final question included codes for POSITIVE, NEUTRAL, and NEGATIVE based on the tone of their responses. Coded examples of students' responses to these conference questions are included in Table 39.

Table 39

Examples of the Feedback Codes from Students' Responses to the Proposal Conference Questions in Case I

Question	Student response	Code
1	Where to put limitations/unknowns in the lit review,	TASK

(Table Continues)

Table 39, Continued

Question	Student response	Code
1	do I put them in the end of the of the study …	TASK
	or summarize them near the end of the section	TASK
2	There was not much feedback to go off of.	OTHER
	Nothing	NONE
3	Pretty good,	POSITIVE
	still have to integrate a few more sources…	REGULATION
	and clarify information	REGULATION
	I feel "eh"...if that is a feeling.	NEUTRAL
	I do not feel confident yet.	NEGATIVE
	The only problem I have is the citing of sources…	PROCESS
	and if I did them correctly.	TASK

Note. Questions 1, 2, and 3 addressed the research proposal paper, the feedback provided on the proposal drafts during the peer review session, and how students felt about submitting their research proposal papers, respectively.

Table 40 provides the frequencies and percentages of the feedback codes from students' responses to the proposal conference questions. In addition, three (50.0%) students felt positively about submitting their papers, one (16.7%) student felt negatively, and one (16.7%) was neutral (the sixth student did not indicate how they felt).

Table 40

Frequencies and Percentages of the Feedback Codes from Students' Responses to the Proposal Conference Questions in Case I

Question	NONE/OTHER		TASK		PROCESSS		REGULATION	
	#	%	#	%	#	%	#	%
1	1	8.3	11	91.7	0	0.0	0	0.0
2	4	50.0	3	37.5	0	0.0	1	12.5
3	1	8.3	1	8.3	1	8.3	9	75.0

Note. *n* = 6. Questions 1, 2, and 3 addressed the research proposal paper, the feedback students provided during the peer review session, and how students felt submitting the research proposal paper, respectively.

These indicated that although students had questions or concerns regarding their research proposal papers, they generally did not feel negatively about submitting their papers and knew what they needed to do before submitting them.

In their responses to the course evaluation questionnaire items, students indicated the information related to their performance on the assessments (i.e., feedback) was helpful in their progression and in conveying how they should proceed. Their responses that specifically addressed this feedback were coded using Hattie and Timperley's (2007) levels of feedback, although no responses were coded as the Self level. Table 41 provides the frequencies and percentages of these codes from students' responses, and these indicated the feedback was helpful mostly because it was directed at the Task level, followed by the Regulation level.

Table 41

Frequencies and Percentages of Feedback Codes from Students' Responses to the Questionnaire Items regarding the Feedback Provided in Case I

Component	TASK		PROCESS		REGULATION	
	#	%	#	%	#	%
References	7	70.0	0	0.0	3	30.0
Literature review	13	61.9	3	14.3	5	23.8
Introduction	4	28.6	6	42.9	4	28.6
Method	10	66.7	3	20.0	2	13.3
Proposal	5	62.5	1	12.5	2	25.0

Note. n = 10.

Five students (50.0%) indicated the feedback provided regarding the references list assessment was helpful. Of the 10 coded segments that addressed the feedback on this component, all of them were focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "Feedback is always effective, because I know what to do and what not to do." And as an example of a response focused on the Regulation level, another student noted, "[the feedback] made it easier to feel confident as I moved forward."

Six students (60.0%) indicated the feedback provided regarding the literature review component was helpful. Of the 23 coded segments that addressed the feedback on this component, 21 (91.3%) of them were

focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "I got a lot of feedback on what I did right and wrong. … it pointed out mistakes I did not know I made." As an example of a response focused on the Process level, another student noted, "It helped me to understand what best to focus on when it comes to the literature at hand." And as an example of a response focused on the Regulation level, another student noted, "It allowed for me to use that information later on. It was not a one time writing piece. It built on to another section (the introduction)." Four students (40.0%) indicated the feedback provided regarding the introduction component was helpful. Of the 14 coded segments that addressed the feedback on this component, all of them were focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "The feedback allowed for me to add in information I did not think of (such as, whether fathers are involved in my study), validity, reliability, and more." As an example of a response focused on the Process level, this same student noted, "It was effective because I was also able to narrow my topic down further and look at what I was trying to hypothesize, as well as looking at other data supporting or denying this." And as an example of a response focused on the Regulation level, another student noted, "Every feedback given was clearly stated and I was able to understand what I was supposed to do in order to improve my writing in these section [*sic*] and strengthen my paper."

Six students (60.0%) indicated the feedback provided regarding the method component was helpful. Of the 18 coded segments that addressed the feedback on this component, 15 (83.3%) of them were focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "Again, it helped me add to my paper and make my writing clearer." As an example of a response focused on the Process level, another student noted, "It allowed for me to see clearly what I needed to add or think about further." And as an example of a response focused on the Regulation level, another student noted, "I thought that it was effective for me because it provided me more information on the instrumentation needed for my study and how to cite it/use it in the methods section." Four students (40.0%) indicated the feedback provided regarding the proposal component was helpful. Of the 12 coded segments that addressed the feedback on this component, eight (66.7%) of them were focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "it was effective because i [*sic*] knew what i [*sic*] needed to edit in my paper." As an example of a response focused on the Process level, another student noted, "I thought that

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it was effective, it provided me with information that I overlooked or did not match with previously written material." And as an example of a response focused on the Regulation level, the first student noted, "some things i [*sic*] already knew i [*sic*] had to change but it helped in reassuring me that i [*sic*] was on the right track."

The only time students indicated the feedback provided was not helpful in their progression or in conveying how they should proceed was during peer review session. Four students (40.0%) indicated this feedback was not effective due to their peers' inabilities to provide helpful feedback (if much feedback was provided at all). As one student noted, "I don't think that my paper was well reviewed due to my peers [*sic*] own level of knowledge of scholarly writing." and as another student noted, "Attending the peer review session was not helpful at all. My peer did not provide any feedback except for two words, which was frustrating due to the fact that I wrote as much as I could on his/her paper."

Case II/Instructor Feedback → Student ← Student Feedback

The assessment-based feedback provided on students' tools by me included: (a) comments in the margins, (b) in-text edits, and (c) general feedback comments provided to all students. I provided guidelines for the general feedback students were expected to provide on each other's drafts during the component conferences, and the scoring rubric-based feedback provided on students' drafts by other students included: (a) criteria ratings based on the descriptions of performance levels and (b) comments students provided to other students. Except for the scoring rubric criteria ratings, all these feedback data, as well as students' responses to the conference questions, were coded using the four levels of feedback (i.e., TASK, PROCESS, REGULATION, AND SELF [directed at task]) from Hattie and Timperley's (2007) model, as well as OTHER for some students' scoring rubric-based feedback not directed at one of the four levels. In addition, the general feedback I asked students to provide on the literature review, introduction, and method drafts was intended to help them note any patterns and/or focus their thoughts on important information as they continued working on their research proposal papers, and all this feedback was coded as REGULATION. Coded examples of the feedback provided by both me and students are included in Table 42.

The frequencies and percentages of feedback directed at Hattie and Timperley's four levels from all students' assessments are provided in Table 43. The feedback I provided on students' tools as in-text edits

Table 42

Coded Examples of the Feedback on Students' Research Proposal Paper Assessments in Case II

Assessment	Feedback	Code
References list	Entry 10 is a popular magazine article…	TASK
	and also is not peer-reviewed like an academic journal article,	TASK
	so you also should replace that with a peer-reviewed source.	TASK
	None of the entries are in complete APA style,	TASK
	so review the APA style guidelines when formatting the entries for the References list of your research proposal paper.	PROCESS
	Use the literature review table (or another tool that is more helpful for you) to extract the important information from these sources.	REGULATION
	All of the entries are in complete APA style -	TASK
	- great work!	SELF (directed at task)
Literature review table	Good notes!	SELF (directed at task)
	This was not a primary source,	TASK
	so it may have been difficult to answer these questions without a research study being conducted.	PROCESS
	Consider how this information can be used as you develop your proposed research study.	REGULATION
Literature review draft	I thought you did a good job …	SELF (directed at task)
	of explaining how the researchers collected their data.	PROCESS
Literature review draft scoring rubric	You put in enough information …	TASK
	without explaining how the questionaries were set up.	PROCESS
	Great job!	SELF (directed at task)
	I'm sorry I was not able to read more than I did.	OTHER
	And, for the first source, I'd try to make the study's purpose a little clearer if you can.	TASK
	Other than that, it was good …	TASK

(Table Continues)

Table 42, Continued

Assessment	Feedback	Code
Literature review draft scoring rubric	and included a lot of information!	PROCESS
Introduction outline	Good thoughts!	SELF (directed at task)
	You described several potential extraneous variables,	PROCESS
	and it is good to consider their potential influence.	PROCESS
	Did the authors of your sources provide any ways to address these …	TASK
	that you could incorporate with your proposed research study?	REGULATION
Introduction draft	Hey girl--Great writing! (:	SELF (directed at task)
	Question: How does the study you're proposing fill in gaps of previous research?	TASK
	Is your angle that your study will show the effects of current (compared to older technology) technology on parent-family relationships?	TASK
Introduction draft scoring rubric	There was some description on previous research,	TASK
	but not much.	TASK
	There were no citations throughout the intro.	TASK
	Overall, a great start!	SELF (directed at task)
	Just remember to use in-text citation …	PROCESS
	and to include specific past research done.	PROCESS
	This was actually regarding [Student name]'s draft,	OTHER
	I got confused an accidentally put [Another student's name], who is receiving [*sic*] mine.	OTHER
Method outline	Good thoughts!	SELF (directed at task)
	All of these seem appropriate as dependent/outcome variables.	TASK
	The data regarding 'time spent on social media' most likely can be collected through the apps themselves.	TASK

(Table Continues)

Table 42, Continued

Assessment	Feedback	Code
Method outline	In addition, consider: (1) Balance of maximizing benefits while minimizing risk and harm,	PROCESS
	(2) Informed consent/assent,	PROCESS
	and (3) Debriefing;	PROCESS
	among others that may be appropriate for this area of research.	PROCESS
	Consider: (1) How you can be more confident that the results you find actually are reflective of the variables you included,	REGULATION
	and (2) How generalizable the results of your proposed research study will be to the population.	REGULATION
Method draft	Great start to your method section!	SELF (directed at task)
	I would just add more detail ... of each section	TASK
	(*I would just add more*) ... and explanation of each section	TASK
Method draft scoring rubric	It looks good!	SELF (directed at task)
	I would just separate it into the sections of procedure/participants/design/materials…	TASK
	with headers…	TASK
	so that it is easy for readers to navigate.	TASK
Proposal draft scoring rubric	A good start!	SELF (directed at task)
	You have the basic structure…	TASK
	but I would go over the rubric…	REGULATION
	to make sure that you have all the details that are needed in each section.	REGULATION
	The other big thing would be formatting.	TASK
	Review APA style…	REGULATION
	and make sure you are being consistent throughout.	REGULATION

Note. Feedback on students' references lists and tools was provided by me, and feedback on students' drafts using the scoring rubric was provided by other students.

(i.e., additions to and deletions from the written text) were indicated by editing markup in the documents (e.g.,

'Track Changes' in Microsoft Word). These included four in-text edits for the references list assessment and

one in-text edit for the literature review table. All these are included with the respective TASK coded feedback

provided in Table 43.

Table 43

Frequencies and Percentages of the Feedback Codes from Students' Research Proposal Paper Assessments in

Case II

Assessment	TASK		PROCESS		REGULATION		SELF		OTHER	
	#	%	#	%	#	%	#	%	#	%
References list (*n* = 16)	126	61.2	14	6.8	64	31.1	2	1.0	0	0.0
Literature review										
Table (*n* = 13)	330	47.5	33	4.7	217	31.2	115	16.5	0	0.0
Draft (*n* = 8)	34	34.4	10	10.1	50	50.5	5	5.0	0	0.0
Rubric (*n* = 11) [a]	47	68.1	4	5.8	2	2.9	8	11.6	8	11.6
Introduction										
Outline (*n* = 16)	90	15.6	61	10.6	330	57.2	96	16.6	0	0.0
Draft (*n* = 6)	38	25.2	0	0.0	109	72.2	4	2.6	0	0.0
Rubric (*n* = 14) [a]	69	70.4	14	14.3	0	0.0	12	12.2	3	3.1
Method										
Outline (*n* = 16)	250	38.1	215	32.8	39	5.9	152	23.2	0	0.0
Draft (*n* = 4)	47	70.1	0	0.0	17	25.4	3	4.5	0	0.0
Rubric (*n* = 7) [a]	36	75.0	0	0.0	0	0.0	12	25.0	0	0.0
Proposal draft rubric (*n* = 13) [a]	83	52.9	0	0.0	55	35.0	19	12.1	0	0.0

Note. All draft and rubric feedback was provided by students, and the remaining feedback was provided by me.
[a] Only the scoring rubric comments were coded, not the criteria ratings.

These indicated of the four sources on which I provided feedback (i.e., references list and the three tools), three

of them (75.0%) had the highest proportion of feedback directed at the Task level. Of those, two had the

second-highest proportion of feedback directed at the Regulation level, and the other had the second-highest

proportion of feedback directed at the Process level. And the final source (25.0%) on which I provided

feedback (i.e., introduction outline) had the highest proportion of feedback directed at the Regulation level,

with the second-highest proportion of feedback directed at the Self level. For the seven sources on which

students provided feedback to each other (i.e., drafts and scoring rubrics), five of them (71.4%) had the highest

proportion of feedback directed at the Task level. Of those, two had the second-highest proportion of feedback directed at the Regulation level, one had the second-highest proportion of feedback directed at the Process level, and the other two had the second-highest proportion of feedback directed at the Self level (one of these also had the same proportion of feedback coded as OTHER). Both remaining sources (28.6%) had the highest proportion of feedback directed at the Regulation level, with the second-highest proportion of feedback directed at the Task level.

In addition to the feedback provided to students, their response to the pre- and post-conference questions were coded based on Hattie and Timperley's (2007) model to indicate on what levels of feedback students' questions were focused. The literature review, introduction, and method (i.e., component) conferences included two pre-conference questions regarding: (a) the current component of the research proposal paper and (b) the next component of the research proposal paper. Because I did not provide feedback on students' drafts and they had not yet provided feedback on other students' drafts, the third pre-conference question from Case I (i.e., that targeted the feedback on the drafts) was not included in Case II. All three of these component conferences also included two post-conference questions regarding: (a) what students learned about the current component and (b) any remaining questions or concerns about the current component. Of these four conference questions, two addressed questions or concerns regarding the current component (i.e., one pre-conference and one post-conference), and one post-conference question addressed what students learned regarding the current component. Given this last question addressed student learning rather than their questions or concerns, it was aligned with the Feed Forward dimension of Hattie and Timperley's model and thus, was analyzed in response to the fifth subquestion.

Similarly to how the feedback was coded, students' responses to questions regarding the current component were assigned pattern codes using Hattie and Timperley's (2007) model of feedback (i.e., TASK, PROCESS, and REGULATION). Because the remaining conference question addressed the next component of the research proposal paper, all responses were coded as REGULATION in addition to TASK or PROCESS based on the focus of the response. In addition, NONE was a code for all question responses to account for students indicating they had no questions or concerns, and OTHER was a code for all question responses not

focused on one of the feedback levels. Coded examples of students' responses to these conference questions are included in Table 44.

Table 44

Examples of the Feedback Codes from Students' Responses to Component Conference Questions 1, 2, and 4 in

Case II

Conference	Question	Student response	Code
Literature review	1	My only fear is that I was not thorough enough in my literature review?	TASK
	1	I feel like I was (obviously I probably could have done it better),	TASK
	1	but I feel as though it was hard for me to condense certain sources down to a paragraph.	PROCESS
	1	I'm not sure specificallly [*sic*] what I want to do as far as the method goes/research topic.	REGULATION
	2	What is all of the information I need to provide?	REGULATION-TASK
	2	How can I be sure to include everything that the reader needs to know?	REGULATION-PROCESS
	4	Also, I used a Google Doc to add comments on [Student name]'s work.	OTHER
	4	I had a lot of my questions answered today, so I think I am okay for now!	NONE
Introduction	1	I am still having problems finding ways to relate all of the studies to each other, which is apparent in my writing.	PROCESS
	1	I felt like my intro was very choppy…	TASK
	1	(*I felt like my intro was very*) ... and unorganized	TASK
	1	And I am sure I will have more questions once I have the one-on-one meeting with you,	OTHER
	2	Similar to the introduction section, make sure I cover all the right content.	REGULATION-TASK
	2	I am confused about how to create trustworthy and believable methods for this paper	REGULATION-PROCESS

(Table Continues)

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Table 44, Continued

Conference	Question	Student response	Code
Introduction	2	I do not have any questions about the method section right now.	NONE
	4	Mainly I am concerned with figuring out what people I want to study.	REGULATION
Method	1	I am just having a hard time …	PROCESS
	1	incorporating previous research into the methods section.	PROCESS
	1	If I added enough detail for each material	TASK
	2	How long should this section be	REGULATION-TASK
	2	I still need a bit of time…	REGULATION-PROCESS
	2	to figure out the significance section	REGULATION-PROCESS
	4	None at the moment	NONE
	4	I think I have a good understanding…	OTHER
	4	of what to do!	OTHER

Note. Questions 1 and 2 were pre-conference and addressed the current component and the next component, respectively. Question 4 was post-conference and addressed the current component.

Table 45 provides the frequencies and percentages of the codes from students' responses to the

literature review, introduction, and method conference questions.

Table 45

Frequencies and Percentages of the Feedback Codes from Students' Responses to Component Conference

Questions 1, 2, and 4 in Case II

Conference and question	NONE/ OTHER		TASK		PROCESS		REGULATION		REGULATION - TASK		REGULATION - PROCESS	
	#	%	#	%	#	%	#	%	#	%	#	%
Literature review												
1 (*n* = 16)	8	18.6	20	46.5	10	23.3	5	11.6	-	-	-	-
2 (*n* = 16)	14	41.2	-	-	-	-	-	-	12	35.3	8	23.5
4 (*n* = 9)	15	65.2	3	13.0	3	13.0	2	8.7	-	-	-	-

(Table Continues)

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Table 45, Continued

Conference and question	NONE/ OTHER		TASK		PROCESS		REGULATION		REGULATION - TASK		REGULATION - PROCESS	
	#	%	#	%	#	%	#	%	#	%	#	%
Introduction												
1 (*n* = 16)	7	17.5	25	62.5	8	20.0	0	0.0	-	-	-	-
2 (*n* = 16)	15	42.9	-	-	-	-	-	-	6	17.1	14	40.0
4 (*n* = 15)	12	36.4	11	33.3	4	12.1	6	18.2	-	-	-	-
Method												
1 (*n* = 10)	6	21.4	18	64.3	4	14.3	0	0.0	-	-	-	-
2 (*n* = 10)	4	28.6	-	-	-	-	-	-	8	57.1	2	14.3
4 (*n* = 8)	10	100.0	0	0.0	0	0.0	0	0.0	-	-	-	-

Note. Questions 1 and 2 were pre-conference and addressed the current component and the next component, respectively. Question 4 was post-conference and addressed the current component.

These indicated that across the three component conferences, students' questions regarding the current component (i.e., question 1) were mostly focused on the Task level, with questions focused on the Process level being the second-highest for the literature review and introduction conferences. Although students did not have any questions regarding the current component after the method conference (i.e., question 4), they did have questions regarding the current components after the other two conferences.

Prior to the midterm and proposal conferences, students responded to questions similar to those for the three component conferences. For the midterm conference, students responded to questions regarding: (a) the literature review component, (b) the introduction section, (c) the method section, and (d) the course in general, although for this last question only responses regarding the research proposal paper assignment were coded. In addition to the three feedback-based codes (i.e., TASK, PROCESS, and REGULATION), NONE, and OTHER, students' responses to the method section question were coded as REGULATION in addition to TASK or PROCESS based on the focus of the response because students had not yet formally begun to work on the method section at the time when this conference occurred. Coded examples of students' responses to these conference questions are included in Table 46.

Table 46

Examples of the Feedback Codes from Students' Responses to the Midterm Conference Questions in Case II

Question	Student response	Code
1	Is the entire lit review included in the paper?	TASK
	I know you emphasized addressing the limitations of the studies we mention in our introduction.	PROCESS
2	I am unsure how much information ... I need in my introduction.	TASK
	(*I am unsure*) ... and exactly what information I need in my introduction.	TASK
	They were answered	NONE
3	I am having trouble with figuring out…	REGULATION-PROCESS
	how I should go about using two different age groups (adolescence and early adulthood).	REGULATION-PROCESS
	Is it too much to do both?	REGULATION-TASK
	I hope that kind of makes sense.	OTHER
4	I want to make sure I am on track…	TASK
	and preparing myself to finish the entire paper.	PROCESS
	Where should I be in terms of progress?	REGULATION

Note. $n = 13$ for questions 1-3; $n = 2$ for question 4. Questions 1, 2, 3, and 4 addressed the literature review component, the introduction section, the method section, and the course in general, respectively.

Table 47 provides the frequencies and percentages of the codes from students' responses to the midterm conference questions which indicated students' questions were focused mostly on the Task level, followed by the Process level.

Table 47

Frequencies and Percentages of the Feedback Codes from Students' Responses to the Midterm Conference Questions in Case II

Question	NONE/ OTHER		TASK		PROCESS		REGULATION		REGULATION - TASK		REGULATION - PROCESS	
	#	%	#	%	#	%	#	%	#	%	#	%
1 ($n = 13$)	8	21.1	21	55.3	9	23.7	0	0.0	-	-	-	-

(Table Continues)

Table 47, Continued

Question	NONE/ OTHER		TASK		PROCESS		REGULATION		REGULATION - TASK		REGULATION - PROCESS	
	#	%	#	%	#	%	#	%	#	%	#	%
2 (*n* = 13)	4	10.0	18	45.0	18	45.0	0	0.0	-	-	-	-
3 (*n* = 13)	9	17.6	-	-	-	-	-	-	23	45.1	19	37.3
4 (*n* = 2)	0	0.0	2	40.0	1	20.0	2	40.0	-	-	-	-

Note. Questions 1, 2, 3, and 4 addressed the literature review component, the introduction section, the method section, and the course in general, respectively.

For the proposal conference, students responded to questions regarding: (a) the feedback they received on their proposal drafts during the peer review session, (b) the literature review component, (c) the introduction section, (d) the method section, (e) the significance component (i.e., of their research proposal papers), (f) the references list, and (g) how they felt about submitting their research proposal papers. In addition to the three feedback-based codes (i.e., TASK, PROCESS, AND REGULATION), NONE, and OTHER, responses to the final question included codes for POSITIVE, NEUTRAL, and NEGATIVE based on the tone of their responses. Coded examples of students' responses to the proposal conference questions are included in Table 48.

Table 48

Examples of the Feedback Codes from Students' Responses to the Proposal Conference Questions in Case II

Question	Student response	Code
1	My feedback was pretty clear!	NONE
	The structure of the paper …	TASK
	and the amount of detail needed	TASK
	I didn't really get any concrete advice.	OTHER
2	What if I didn't take much influence from other sources,	PROCESS
	but I do see contrasts between their method and mine?	PROCESS
	How does it need to be different than the lit review we previously submitted?	TASK
3	Does the hypothesis need to be an if then statement,	TASK

(Table Continues)

Table 48, Continued

Question	Student response	Code
3	or can it be more explaining what will be done in the study?	TASK
4	I am a little confused on how to do the design section.	PROCESS
	I had all my questions answered the last time we met.	NONE
	If something pops up I will let you know!	REGULATION
5	I haven't added a significance component,	PROCESS
	but I can get started on that	REGULATION
	Can we use information from previous research in here.	TASK
6	I think that I fixed the mistakes in this section.	TASK
	I want to go over my reference list	REGULATION
7	At the moment, I do not feel like it is a strong paper.	NEGATIVE
	I feel decent about my research proposal paper	NEUTRAL
	I feel pretty good about how it looks;	POSITIVE
	I think I just need to tweak my methods section…	REGULATION
	and add in the significance section.	REGULATION

Note. Questions 1, 2, 3, 4, 5, 6, and 7 addressed the feedback they received on their proposal drafts during the peer review session, the literature review component, the introduction section, the method section, the significance component (of their research proposal papers), the references list, and how they felt about submitting their research proposal papers, respectively.

Table 49 provides the frequencies and percentages of the codes from students' responses to the proposal conference questions. In addition, three (25.0%) students felt positively about submitting their research proposal papers, two (16.7%) felt negatively, and seven (58.3%) were neutral.

Table 49

Frequencies and Percentages of the Feedback Codes from Students' Responses to the Proposal Conference Questions in Case II

Question	NONE/OTHER		TASK		PROCESS		REGULATION	
	#	%	#	%	#	%	#	%
1 (*n* = 13)	12	57.1	8	38.1	0	0.0	1	4.8

(Table Continues)

Table 49, Continued

Question	NONE/OTHER		TASK		PROCESS		REGULATION	
	#	%	#	%	#	%	#	%
2 (*n* = 12)	8	47.1	6	35.3	3	17.6	0	0.0
3 (*n* = 12)	6	40.0	9	60.0	0	0.0	0	0.0
4 (*n* = 12)	5	25.0	10	50.0	3	15.0	2	10.0
5 (*n* = 12)	6	35.3	7	41.2	2	11.8	2	11.8
6 (*n* = 11)	7	63.6	3	27.2	0	0.0	1	9.1
7 (*n* = 12)	1	7.7	0	0.0	0	0.0	12	92.3

Note. Questions 1, 2, 3, 4, 5, 6, and 7 addressed the feedback they received on their proposal drafts during the peer review session, the literature review component, the introduction section, the method section, the significance component (of their research proposal papers), the references list, and how they felt about submitting their research proposal papers, respectively.

These indicated that although students had questions or concerns regarding their research proposal papers, they generally did not feel negatively about submitting their papers and knew what they needed to do before submitting them.

In their responses to the course evaluation questionnaire items, students indicated the information related to their performance on the assessments (i.e., feedback) was helpful in their progression and in conveying how they should proceed. Their responses that specifically addressed this feedback were coded using Hattie and Timperley's (2007) levels of feedback, although no responses were coded as the Self level. Table 50 provides the frequencies and percentages of these codes from students' responses, and these indicated feedback was helpful mostly because it was directed at the Regulation level, followed by the Task level.

Table 50

Frequencies and Percentages of the Feedback Codes from Students' Responses to the Questionnaire Items regarding the Feedback Provided in Case II

Component	TASK		PROCESSS		REGULATION	
	#	%	#	%	#	%
References	9	81.8	0	0.0	2	18.2
Literature review	6	31.6	0	0.0	13	68.4
Introduction	7	53.8	0	0.0	6	46.2

(Table Continues)

Table 50, Continued

Component	TASK		PROCESSS		REGULATION	
	#	%	#	%	#	%
Method	0	0.0	0	0.0	3	100.0
Peer review session	4	50.0	0	0.0	4	50.0
Midterm/proposal conferences	0	0.0	4	20.0	16	80.0

Note. *n* = 12.

Five students (41.7%) indicated the feedback provided regarding the references list assessment was helpful. Of the 11 coded segments that addressed the feedback on this component, all of them were focused on one of the feedback levels. Two students' responses included segments coded at both the Task and Regulation levels. As one of these students noted, "It was effective because Derek wrote exactly what he did or did not like about the reference list which made it easy to edit." and as the other student noted, "It was very effective because it helped me to know what I was missing and how I could improve on what I was trying study." Six students (50.0%) indicated the feedback provided regarding the literature review component was helpful. Of the 19 coded segments that addressed the feedback on this component, all of them were focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "It helped us to know if we were on the right tract [*sic*] with citing and format." And as an example of a response focused on the Regulation level, another student noted, "it was [effective], it made it a lot easier to use your sources in the real paper."

Six students (50.0%) indicated the feedback provided regarding the introduction component was helpful. Of the 15 coded segments that addressed the feedback on this component, 13 (86.7%) of them were focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "It was effective and helped me figure out what to add and how an introduction should be formatted." And as an example of a response focused on the Regulation level, another student noted, "It was effective because it made it easy for me to know what parts of my paper needed work." Three students (25.0%) indicated the feedback provided regarding the method component was helpful. Of the five coded segments that addressed the feedback on this component, three (60.0%) of them were focused only on the Regulation level, as one student noted, "i [*sic*] could improve it for the real paper."

Four students (33.3%) indicated the feedback provided regarding their proposal drafts during the peer review session was helpful. Of the 10 coded segments that addressed the feedback on this component, eight (80.0%) of them were focused on one of the feedback levels. As an example of a response focused on the Task level, one student noted, "it really helped me for other students to catch my mistakes …" And as an example of a response focused on the Regulation level, the same student noted, "… or help me understand what to say when I couldn't figure it out myself." Five students (41.7%) indicated the feedback provided by me during the midterm conference, proposal conference, or additional meetings was helpful. Of the 20 coded segments that addressed the feedback during these meetings, all were focused on one of the feedback levels. Of those 20 segments, none of them were focused on the Task level, but one student's response included segments focused on the Process level, "It was really helpful in allowing me to understand how to find internal consistency of measures when it is not explicitly mentioned in a past article." As an example of a response focused on the Regulation level, one student noted, "Midterm conference was helpful, helped me figure out what I needed as far as guidance from the course to finish my proposal." Similarly, another student noted their additional meetings with me, "Helped clear things up when I was stuck on something."

The only time students indicated the feedback provided was not helpful in their progression or in conveying how they should proceed was when it was provided by other students. Three students' (25.0%) responses indicated this feedback was not effective, as one student noted, "No one talked and there were no comments within the doc [*sic*]. I had a harder time knowing what needed to be changed."

Summary and Comparison

The data that addressed the fourth subquestion indicated how information associated with performance conveyed students' progress and how they should proceed. Of the 10 data sources on which I provided feedback to students in Case I, many (70%) had most feedback directed at the Task level, some (20%) had most feedback directed at the Regulation level, and a few (10%) had most feedback directed at the Process level. Of those data sources on which the Task level was most frequent, many (71%) had feedback directed at the Regulation level as second-most frequent, and some (29%) had feedback directed at the Process level as second-most frequent. Of those data sources on which the Regulation level was most frequent, several had feedback directed at either the Task level (50%) or the Self level (50%) as second-most frequent. Of the

data source on which the Process level was most frequent, feedback directed at the Regulation level was second-most frequent. Of the one data source on which students provided feedback to other students in Case I (i.e., proposal draft during the peer review session), feedback directed at the Task level was most frequent (50%), and feedback directed at the Regulation level was second-most frequent (40%).

Of the four data sources on which I provided feedback to students in Case II (i.e., references list assessment and three tools), many (75%) had most feedback directed at the Task level, and some (25%) had most feedback directed at the Regulation level. Of those data sources on which the Task level was most frequent, many (67%) had feedback directed at the Regulation level as second-most frequent, and some (33%) had feedback directed at the Process level as second-most frequent. Of the data source on which the Regulation level was most frequent, feedback directed at the Self level was second-most frequent. Of the seven data sources on which students provided feedback to other students in Case II (i.e., three drafts and four scoring rubrics), many (71%) had most feedback directed at the Task level, and some (29%) had most feedback directed at the Regulation level. Of those data sources on which the Task level was most frequent, several had feedback directed at either the Regulation level (40%) or the Self level (40%) as second-most frequent, and some (20%) had feedback directed at the Process level as second-most frequent. Of those data sources on which the Regulation level was most frequent, both had feedback directed at the Task level as second-most frequent.

In Case I, students' responses to the component pre-conference questions regarding the current component were most focused on the Task level across the three conferences. Both the Process and Regulation levels (as well as none/other) were second-most focused during the literature review conference, and the Process level (as well as none/other) was second-most focused during the introduction and method conferences. Students' responses to the pre-conference questions regarding the feedback on their drafts also were most focused on the Task level across the three drafts. Both the Process and Regulation levels (as well as none/other) were second-most focused for the literature review draft, but none/other was second-most focused for both the introduction and method drafts. Students' responses to the pre-conference questions regarding the next component were most focused on the Regulation-Process level during the literature review conference, and the Regulation-Task level was second-most focused. The Regulation-Task level was most focused during

the introduction and method conferences, the Regulation-Process level (as well as none/other) was second-most focused during the introduction conference, and none/other was second-most focused during the method conference. Students' responses to the component post-conference questions regarding the current component were most focused as none/other. The Regulation level was second-most focused after the literature review and introduction conferences, and the Task level was second-most focused after the method conference.

In Case II, students' responses to the component pre-conference questions regarding the current component were most focused on the Task level across the three conferences. The Process level was second-most focused during the literature review and introduction conferences, and none/other was second-most focused during the method conference. Students' responses to the pre-conference questions regarding the next component were most focused as none/other during the literature review and introduction conferences. The Regulation-Task level was second-most focused during the literature review conference, and the Regulation-Process level was second-most focused during the introduction conference. The Regulation-Task level was most focused during the method conference, and none/other was second-most focused. Students' responses to the component post-conference questions regarding the current component were most focused as none/other after all three conferences, and this was the only focus after the method conference. Both the Task and Process levels were second-most focused after the literature review conference, and the Task level was second-most focused after the introduction conference.

In Case II, students' responses to the midterm conference questions were most focused on the Task level for the literature review component, and the Process level was second-most focused. Both the Task and Process levels were most focused for the introduction component, and none/other was second-most focused. The Regulation-Task level was most focused for the method component, and the Regulation-Process level was second-most focused. Both the Task and Regulation levels were most focused regarding the course in general. In Case I, students' responses to the proposal conference question regarding their research proposal papers were most focused on the Task level, and none/other was second-most focused. None/other was most focused regarding other students' feedback from the peer review session, and the Task level was second-most focused. The Regulation level was most focused regarding students' submissions of their papers, and feeling positively about their submissions was second-most focused. In Case II, students' responses to the proposal conference

question regarding other students' feedback from the peer review session was most focused as none/other, and the Task level was second-most focused. None/other also was most focused regarding the literature review component and the references list, and the Task level was second-most focused for both. The Task level was most focused regarding the introduction, method, and significance components, and none/other was second-most focused for all of these. The Regulation level was most focused regarding students' submissions of their papers, and feeling neutral about their submissions was second-most focused.

Several (50%) students in Case I indicated the feedback on their references list assessment was helpful and of those responses, the Task level was most focused and the Regulation level was second-most focused. Several (60%) students also indicated the feedback on the literature review component was helpful and of those responses, the Task level was most focused and the Regulation level was second-most focused. Some (40%) students indicated the feedback on the introduction component was helpful and of those responses, the Process level was most focused and both the Task and Regulations levels were second-most focused. Several (60%) students indicated the feedback on the method component was helpful and of those responses, the Task level was most focused and the Process level was second-most focused. Some (40%) students indicated the feedback on the proposal component was helpful and of those responses, the Task level was most focused and the Regulation level was second-most focused. Some (40%) students, however, indicated the feedback from the peer review session was not helpful.

Several (42%) students in Case II indicated the feedback on their references list assessment was helpful and of those responses, the Task level was most focused and the Regulation level was second-most focused. Several (50%) students indicated the feedback on the literature review component was helpful and of those responses, the Regulation level was most focused and the Task level was second-most focused. Several (50%) students also indicated the feedback on the introduction component was helpful and of those responses, the Task level was most focused and the Regulation level was second-most focused. Some (25%) students indicated the feedback on the method component was helpful and of those responses, the Regulation level was both most focused and the only focus of these responses. Some (33%) students indicated the feedback from the peer review session was helpful and of those responses, both the Task and Regulation levels were most focused. Some (25%) students, however, indicated the feedback from the peer review session was not helpful.

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Several (42%) students indicated the feedback during the midterm and proposal conferences was helpful and of those responses, the Regulation level was most focused and the Process level was second-most focused.

How did information associated with performance impact student learning?

This fifth subquestion was based on the Feed Forward dimension of Hattie and Timperley's (2007) model of feedback. The aligned data included: (a) the research proposal papers' scoring rubric ratings, (b) the differences between the drafts' and papers' scoring rubric ratings, (c) students' responses to the remaining conference question, and (d) students' responses to course evaluation questionnaire items regarding how they changed during the semester and how my approaches to instruction assisted in their learning of research writing.

Case I/Instructor Feedback → *Student*

Table 51 provides descriptive statistics for the scoring rubric ratings from students' research proposal papers.

Table 51

Descriptive Statistics for the Scoring Rubric Ratings from the Research Proposal Papers in Case I

Evaluative criterion	Minimum	Maximum	Range	Median	Mean	Standard deviation
1 Explanation of the topic	3.0	8.0	5.0	7.0	6.8	1.6
2 Review of the previous literature	2.0	8.0	6.0	7.0	6.9	1.8
3 Purpose of the study	0.0	8.0	8.0	5.0	4.8	2.7
4 Participants in the study	5.0	8.0	3.0	7.0	7.0	0.8
5 Design of the study	5.0	8.0	3.0	7.5	7.3	0.9
6 Materials for the study	5.0	8.0	3.0	7.5	7.0	1.2
7 Procedure of the study	2.0	8.0	6.0	7.0	6.2	2.0
8 Significance of the study	0.0	8.0	8.0	7.5	6.4	2.7
9 References	0.0	4.0	4.0	3.0	2.6	1.1
10 Writing style	2.0	4.0	2.0	4.0	3.6	0.7
11 Grammar and usage	3.0	4.0	1.0	4.0	3.7	0.5

(Table Continues)

Table 51, Continued

Evaluative criterion	Minimum	Maximum	Range	Median	Mean	Standard deviation
12 Mechanics of style	3.0	4.0	1.0	4.0	3.7	0.5
Total score	47.0	76.0	29.0	68.5	66.0	10.3

Note. *n* = 10. Criteria 1-8 ratings could range from 0 to 8 points, criteria 9-12 ratings could range from 0 to 4 points, and total scores could range from 0 to 80 points.

These indicated at least one student received the lowest score of 58.8% of the total points, and at least one student received the highest score of 95% of the total points. The average paper scores were 85.6% (based on the median score) and 82.5% (based on the mean score) of the total points. Eight students submitted both introduction and method drafts, and the average scores from these students' drafts and research proposal papers, as well as the differences between the draft and paper average scores, are provided in Table 52.

Table 52

Average and Difference Scores from Students' Drafts and Research Proposal Papers in Case I

Evaluative criterion	Draft		Paper		Difference	
	Median	Mean	Median	Mean	Median	Mean
1 Explanation of the topic	5.0	4.9	7.5	6.8	2.5	1.9
2 Review of the previous literature	7.0	5.4	7.0	6.8	0.0	1.4
3 Purpose of the study	4.0	3.4	5.0	4.8	1.0	1.4
4 Participants in the study	3.0	3.5	7.0	7.3	4.0	3.8
5 Design of the study	4.0	3.5	7.5	7.5	3.5	4.0
6 Materials for the study	2.5	3.5	7.5	7.1	5.0	3.6
7 Procedure of the study	3.5	3.5	7.0	6.4	3.5	2.9
8 Significance of the study	5.0	4.2	7.5	6.6	2.5	2.4

Note. *n* = 8. For criterion 8 draft only, *n* = 5. 'Draft' included the introduction draft (criteria 1-3) and method draft (criteria 4-8, although information regarding criterion 8 was not expected).

These indicated the average scores between the drafts and the research proposal papers increased for every criterion except the median score for criterion 2 (Review of the previous literature). This criterion's median and mean scores from these same eight students' literature review draft scoring rubric ratings, however, were 4.0 and 3.8, respectively, which indicated both scores increased between the literature review

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draft and the introduction draft. In comparing these eight students' research proposal papers with those from the two students who did not submit both introduction and method drafts, the median scores for the eight students were higher for seven (of the 12) criteria, the same for four criteria, and lower by 0.5 points for one criterion. The mean scores for the eight students were higher for six criteria and lower for the other six criteria. Both the median (68.5) and mean (66.8) paper scores, however, were higher for the eight students who completed both drafts compared to the two students who did not complete these drafts (both median and mean paper scores were 63.0).

Students' responses to the conference questions were coded based on Hattie and Timperley's (2007) model of feedback to indicate on what levels of feedback these were focused, and one of the two post-conference questions addressed what students learned regarding the current component (i.e., literature review, introduction, and method). Similarly to how responses to the other conference questions were coded, these responses were assigned pattern codes using Hattie and Timperley's model (i.e., TASK, PROCESS, and REGULATION). Coded examples of students' responses to this conference question are included in Table 53.

Table 53

Examples of the Feedback Codes from Students' Responses to Component Conference Question 4 in Case I

Conference	Student response	Code
Literature review	I learned how to properly site sources with more than 1 auther [*sic*]	TASK
	How I can increase the flow of my literature review in my final paper.	TASK
	which [*sic*] ones [previous research studies] to prioritize for my study.	PROCESS
	Also it came to my understanding to incorporate my secondary source into my first or second paragraph of my literature review.	PROCESS
	What is needed to be included in my introduction section.	REGULATION
	I found a topic to write my paper about.	REGULATION
Introduction	what [*sic*] things go into what paragraphs.	TASK
	How to fix my wording.	TASK
Method	How to discuss my materials better in my method section.	TASK
	I need to expand and add a couple more things.	TASK

(Table Continues)

Table 53, Continued

Conference	Student response	Code
Method	Moving forward, I have a better idea of how I need to outline this section of my proposal paper.	REGULATION

Note. This question addressed what students learned regarding the current component.

Table 54 provides the frequencies and percentages of the codes from students' responses to this question after their literature review, introduction, and method conferences. These indicated most of what students learned was focused on the Task level, followed by the Regulation level (but not after the introduction conference), and then the Process level (only after the literature review conference).

Table 54

Frequencies and Percentages of the Feedback Codes from Students' Responses to Component Conference Question 4 Responses in Case I

Conference	TASK		PROCESS		REGULATION	
	#	%	#	%	#	%
Literature review (*n* =5)	3	25.0	4	33.3	5	41.7
Introduction (*n* = 4)	8	100.0	0	0.0	0	0.0
Method (*n* = 5)	12	92.3	0	0.0	1	7.7

Note. This question addressed what students learned regarding the current component.

In their responses to the course evaluation questionnaire items, students indicated the information associated with their performance (i.e., feedback) impacted their learning of research writing. Eight students (80.0%) indicated at the beginning of the semester, as one student noted, "i [*sic*] think my knowledge of research writing was average." Similarly, another student specified, "I had forgotten a lot of the steps in research writing and the correct format." Three students (30.0%) indicated at the beginning of the semester, as one student noted, "my [*sic*] skills were a little below average because i [*sic*] was pretty lost at first." Similarly, another student specified,

> Although I had background in writing research papers, there is always a worry (finding articles and
> compiling everything together). I believe I lacked skills in APA due to my high school teaching only
> MLA and not many of my classes before ISU stressing writing in APA.

In addition, eight students (80.0%) indicated at the beginning of the semester, as one student noted, "I felt confident in my writing for papers, but not necessarily for research study papers." Similarly, another student specified, "I feel at the beginning of the semester I was nervous due to not knowing where to start."

Eight students (80.0%) indicated at the end of the semester, as one student noted, "I feel like I have learned a lot more about different research designs and [how to] better write a research paper." Similarly, another student noted,

> I have never been to [*sic*] excited about it [research writing], but at least I have a better understanding of it now. … I know more resources to use to find scholarly journals, and the type of information to include in a research paper.

Six students (60.0%) indicated at the end of the semester, as one student noted, "I think my skills in research has also slightly improved." Similarly, another student specified, "I still think that there is room for improvement, but I am pretty comfortable with my ability to write an APA style research paper." In addition, nine students (90.0%) indicated at the end of the semester, as one student noted, "I think that I am a lot more comfortable when it comes to scholarly writing." Similarly, another student specified, "I now feel much better about my scholarly writing." and as another student specified, "I feel accomplished that I have completed my research proposal paper."

Four students (40.0%) specifically indicated connections among the changes they experienced in their knowledge of, skills in, and attitudes toward research writing. As one student noted, "my attitudes towards research writing have become more positive since i [*sic*] understand and can comprehend research studies better." and as another student noted, "As of right now, I still don't like it as much, but gaining knowledge about how to write research writing [*sic*] has increased my liking for this kind of writing." The third student noted, "I think that my skills have improved, which has helped me be more comfortable with my scholarly writing abilities." and the fourth student noted, "My attitude towards writing research papers has improved with writing this research paper as I have learned what makes up the components of a good research paper."

In addition, four (40.0%) students generally indicated how completing the research proposal paper assignment impacted their learning:

- "At the beginning I had some knowledge from previous classes like children and adolescent development classes along with the mentioned stats and research methods. I did not mind the [writing] process and this class made completing it a lot easier than previous classes."

- "I know that without this class, my writing would not have improved as it has due to this past semester in [the ARMP] … After [the ARMP], I feel that I have increased by [*sic*] knowledge, skills, and attitudes toward research writing."

- "I would say that I am more confident and knowledgeable in writing than I was before because I was writing my own research paper and not with other group members who had a strong writing background."

- "Through all of the feedback provided, I am able to write a decent paper."

Although most students indicated their knowledge, skills, and/or attitudes regarding research writing increased during the semester, one (10.0%) did not change their attitude. This student noted at the beginning of the semester, "my knowledge was in the middle, I knew some things, but not everything. My skills were average and I did not like research writing." This student then noted at the end of the semester, "knowledge of research is above average, skill in research is above average and attitude is the same."

In addition to indicating how they changed during the semester, students indicated how my approaches to instruction assisted with their learning of research writing. All 10 students provided positively toned responses, and each of their responses targeted one of two areas (if not both). The first area focused on my levels of engagement with and responsiveness to students, as one student noted, "he has provided many opportunities to ask questions and meet with him. he [*sic*] stays after class to answer questions and encourages everyone to talk." Similarly, another student noted,

> I thought that he was really approachable with questions and concerns about my research paper. If I ever had a question or needed anything he was always there to help, which allowed me to grow in my scholarly writing skills.

The second area focused on my showing I care about students' success, as one student noted, "very helpful and i [*sic*] can tell her [*sic*] cares about his students doing well." Similarly, another student noted,

I think Derek has a passion for what he does, which influences you to want to learn more. He is

extremely patient and empathetic. He really knows what he is doing, which makes it easier for you to

understand the content. He really takes his time to make sure that you are doing well in the class.

Two students' responses addressed both areas as one student noted,

Derek's approach to teaching is very inclusive and involves the class. Although this class period is

long, he wants to make sure we are interested and engaged. I learn more, participate more, and in

general care more about a class when the professor is interactive and vocally acknowledges that they

want their students to learn and Derek throughout the semester has done that.

And as the other student noted,

It was nice that the work was split up so that we were not overwhelmed. It was also great to have such

good feedback. The feedback was not vague and it truly showed how much he cared about each

student's success. I believe that student's [*sic*] tend to care about a course more if they feel the

professor cares, as well. It was also nice that Derek did not pressure anyone, he was very

understanding. In the end, all he wanted was for us to grow and write the best possible paper we could

(understanding that everyone has different strengths and weaknesses). I knew if I had any questions

that I could email Derek at any moment.

Case II/Instructor Feedback → Student ← Student Feedback

Table 55 provides descriptive statistics for the scoring rubric ratings from students' research proposal

papers.

Table 55

Descriptive Statistics for the Scoring Rubric Ratings from the Research Proposal Papers in Case II

Evaluative criterion	Minimum	Maximum	Range	Median	Mean	Standard deviation
1 Explanation of the topic	5.0	8.0	3.0	7.0	6.7	1.0
2 Review of the previous literature	3.0	8.0	5.0	7.5	6.8	1.7
3 Purpose of the study	0.0	8.0	8.0	7.0	5.1	2.9
4 Participants in the study	2.0	8.0	6.0	7.0	6.9	1.8

(Table Continues)

Table 55, Continued

Evaluative criterion	Minimum	Maximum	Range	Median	Mean	Standard deviation
5 Design of the study	3.0	8.0	5.0	8.0	7.3	1.3
6 Materials for the study	2.0	8.0	6.0	5.0	5.3	1.7
7 Procedure of the study	3.0	8.0	5.0	7.0	6.1	2.1
8 Significance of the study	0.0	8.0	8.0	7.0	5.4	2.7
9 References	1.0	4.0	3.0	3.0	3.1	1.0
10 Writing style	2.0	4.0	2.0	3.0	3.1	0.6
11 Grammar and usage	2.0	4.0	2.0	3.0	3.3	0.6
12 Mechanics of style	2.0	4.0	2.0	3.0	3.3	0.6
Total score	36.0	79.0	43.0	62.5	62.3	11.9

Note. $n = 16$. Criteria 1-8 ratings could range from 0 to 8 points, criteria 9-12 ratings could range from 0 to 4 points, and total scores could range from 0 to 80 points.

These indicated at least one student received the lowest score of 45.0% of the total points, and at least one student received the highest score of 98.8% of the total points. The average scores were 78.1% (based on the median score) and 77.9% (based on the mean score) of the total points. Six students' introduction and method drafts were reviewed during their respective component conferences (three students also had the same reviewer during both conferences), and the median scores from these students' drafts and research proposal papers, as well as the differences between the draft and paper median scores, are provided in Table 56. Because only the five performance levels' labels (i.e., Not present, Developing, Established, Advancing, and Exemplary) were included without their corresponding numbers in the online scoring rubrics, these categorical ratings are provided for both the drafts and the papers in Table 56.

Table 56

Median and Difference Scores from Students' Drafts and Research Proposal Papers in Case II

Evaluative criterion	Draft	Paper	Difference
1 Explanation of the topic	Advancing	Advancing	0
2 Review of the previous literature	Established	Advancing/Exemplary	+ 1.5
3 Purpose of the study	Established/Advancing	Exemplary	+ 1.5

(Table Continues)

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Table 56, Continued

Evaluative criterion	Draft	Paper	Difference
4 Participants in the study	Established	Exemplary	+ 2
5 Design of the study	Established/Advancing	Exemplary	+ 1.5
6 Materials for the study	Established	Advancing	+ 1
7 Procedure of the study	Established	Exemplary	+ 2
8 Significance of the study	Advancing	Established	- 1

Note. $n = 6$. For criterion 8 draft only, $n = 3$. 'Draft' included the introduction draft (criteria 1-3) and method draft (criteria 4-8, although information regarding criterion 8 was not expected). Order of performance levels was Not Present, Developing, Established, Advancing, and Exemplary.

These indicated the median scores between the drafts and the research proposal papers increased at least one category for every criterion except 1 (Explanation of the topic; no difference) and 8 (Significance of the study; one category lower). In comparing these six students' research proposal papers with those from the 10 students who did not submit both introduction and method drafts, the median scores for the six students were higher for six (of the 12) criteria, the same for two criteria, and lower for four criteria. The mean scores for the six students were higher for nine criteria, the same for one criterion, and lower for two criteria. The median paper scores were lower for the six students (61.0) compared to the 10 students (66.0), but the mean paper scores were higher for the six students (64.2) compared to the 10 students (61.1).

Students' responses to the conference questions were coded based on Hattie and Timperley's (2007) model of feedback to indicate on what levels of feedback these were focused, and one of the two post-conference questions addressed what students learned regarding the current component (i.e., literature review, introduction, and method). Similarly to how responses to the other conference questions were coded, these responses were assigned pattern codes using Hattie and Timperley's model (i.e., TASK, PROCESS, and REGULATION). Coded examples of students' responses to this conference question are included in Table 57.

Table 57

Examples of the Feedback Codes from Students' Responses to Component Conference Question 3 in Case II

Conference	Student response	Code
Literature review	I learned that while I have good information,	TASK

(Table Continues)

Table 57, Continued

Conference	Student response	Code
Literature review	I don't need to include everything (amount of participants, names of questionarres, [*sic*] etc.).	TASK
	I also have to improve some of my writing 'flow' as [Student's name] put it.	TASK
	I have learned that I need to figure out how to organize my literature review.	PROCESS
	I need to take my sources and relate them to each other	PROCESS
	(*I need to take my sources and relate them to*) … and my main topic of 'why holistic/alternative therapy is beneficial and needs more exposure'.	PROCESS
Introduction	I learned that I need to expand on why research is needed in this area.	TASK
	I learned that I need to add more topics of methods and limitations from past research.	TASK
	How to put in the previous research into a paper.	PROCESS
	Explaining methods and hypotheses are needed.	PROCESS
	I learned through looking at the bolded words that most of the previous research has taken place though surveys/questionarres [*sic*]…	REGULATION
	and has been correlational in nature.	REGULATION
Method	How materials should be properly cited.	TASK
	I have learned that my draft needs to be more thorough…	TASK
	(*I have learned that my draft needs to be more thorough*) … and explanatory.	TASK
	combining [*sic*] my sources [*sic*] strategies	PROCESS

Note. This question addressed what students learned regarding the current component.

Table 58 provides the frequencies and percentages of the codes from students' responses to this question after their literature review, introduction, and method conferences. These indicated most of what students learned was focused on the Task level, followed by the Process level, with the Regulation level only after the introduction conference.

In their responses to the course evaluation questionnaire items, students indicated the information associated with their performance (i.e., feedback) impacted their learning of research writing. Six students

Table 58

Frequencies and Percentages of the Feedback Codes from Students' Responses to Component Conference

Question 3 in Case II

Conference	TASK		PROCESS		REGULATION	
	#	%	#	%	#	%
Literature review (*n* = 11)	21	72.4	8	27.6	0	0.0
Introduction (*n* = 16)	27	79.4	3	8.8	4	11.8
Method (*n* = 9)	12	92.3	1	7.7	0	0.0

Note. This question addressed what students learned regarding the current component.

(50.0%) indicated at the beginning of the semester, as one student noted, "I did not have very much prior knowledge of writing a research paper." Similarly, another student specified, "I was somewhat well-informed about scholarly research in terms of understanding the basics of previous research studies and simple study designs." Seven students (58.3%) indicated at the beginning of the semester, as one student noted, "My skills were basic." Similarly, another student specified, "I thought my skills were okay, but not great either." In addition, seven students (58.3%) indicated at the beginning of the semester, as one student noted, "I was really nervous to write this one because I was afraid that I wouldn't do as well as I could if I had a lot more prior experiences." Similarly, another student specified,

> At the beginning of the semester I was not very confident on [*sic*] research writing. … I had a negative attitude because the first time I wrote a research paper I was confused [and] didn't know how well I would do with another one.

> Seven students (58.3%) indicated at the end of the semester, as one student noted, "I have a better understanding of research knowledge." Similarly, another student specified, "I know much more about research/writing than I did before based on the lecture [*sic*] ive [*sic*] listened to, the feedback ive [*sic*] recieved [*sic*], the conferences, and my personal research." Seven students (58.3%) indicated at the end of the semester, as one student noted, "My skills have gotten better." Similarly, another student specified, "I believe I am a stronger writer." Two students (16.7%) indicated at the end of the semester, as one student noted, "My confidence in writing myself has grown a ton." Similarly, the other student specified, "I am definitely not as scared to write a research paper after taking this class."

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Although most students indicated their knowledge, skills, and/or attitudes regarding research writing improved during the semester, three (25.0%) students did not. As one student noted,

I would say that my knowledge and my attitude about writing is honestly still the same. I don't grasp on to research, it is one of those things that i [*sic*] just don't do well with and i [*sic*] am okay with that.

Another student noted at the beginning of the semester, "I had a pretty decent amount of knowledge. My skills were basic, and I hated writing papers." and at the end of the semester, "I have a better understanding of research knowledge. My skills have gotten better. My attitude is still the same." In addition, the third student indicated, "I still hate research and scholarly writing, that will never change. HOWEVER [*sic*], the way this course is set up really makes it easier for a person like me who hates scholarly writing and research to be successful."

Two students (16.7%) specifically indicated how the COVID-19 global pandemic, which had been occurring for more than one year at the time, impacted their learning. As one student noted,

I think that the pandemic has influenced my attitude towards research/writing/class work negatively in general and it is difficult to stay motivated and focused while writing. … I am just feeling super burnt out from the pandemic so motivation has been a struggle.

And as the other student noted,

I did not want to be in school. The pandemic really screwed my motivation. So, with that said, I did not want to do any sort of writing for a multitude of reasons - a couple of them being that it is hard for me to focus at home, and I am completely and totally burnt out. Plus senioritis. I do not like doing research writing, because I struggle with sounding professional, and I struggle to read professional work because of the vocabulary sometimes. I don't know. It's a lot of work and I don't like to do it, but I will when I have to, and I have - if that makes any sense at all.

In addition, students indicated how my approaches to instruction assisted in their learning of research writing. Of the 12 students who responded, 11 (91.7%) provided positively toned responses, and most of their responses targeted two related areas of my not emphasizing deadlines and instead emphasizing students' success. As one student noted, "I thought your teaching styles were helpful. Throughout the semester, I never felt pressured and I was able to learn a lot." and as another student noted, "Derek was an amazing professor

and emphasized learning over deadlines and points which is very much appreciated! He wants all his students to succeed and grow as learners, writers, and researchers." Similarly another student noted,

> Derek is an awesome instructor and really cares about his students' success! I love that he is not hard on due dates. He is super flexible, and given that I am a senior and working all while taking other [advanced]-level courses during a pandemic, this was INSANELY [*sic*] helpful, because it relieved me of so much stress. I do not do well with hard deadlines, especially when surrounded with all the stress that I have right now (I literally found a grey hair the other day). I found that the flexible due dates really relieved any pressure and actually is helping me to do better.

One student (8.3%), however, indicated my not emphasizing deadlines was not always effective, "I love how helpful you are but the extensive [*sic*] deadlines does not help most people because we procrastinate."

Summary and Comparison

The data that addressed the fifth subquestion indicated how information associated with performance impacted student learning. In Case I, the minimum score on the research proposal paper rubric was 59% of the total points, and the maximum score was 95% of the total points. The median score on the research proposal paper rubric was 86% of the total points, and the mean score was 83% of the total points. In Case II, the minimum score on the research proposal paper rubric was 45% of the total points, and the maximum score was 99% of the total points. Both the median and mean scores on the research proposal paper rubric were 78% of the total points.

Eight students in Case I completed both the introduction and method drafts, and the mean scores and all but one median score for the criterion ratings increased between their drafts and papers. Seven of the median criterion scores for these eight students on the research proposal paper rubric were higher than the two students who did not complete both the introduction and method drafts, and six of the mean criterion scores were higher for these eight students than the two students. Both the median and mean rubric scores for these eight students were higher than the median and mean scores for the two students. Six students in Case II completed both the introduction and method drafts, and the median scores for all but two criteria ratings increased between their drafts and papers. Six of the median criterion scores for these six students on the research proposal paper rubric were higher than the 10 students who did not complete both the introduction

and method drafts, and nine of the mean criterion scores were higher for these six students than the 10 students. Although the median rubric score for these six students was lower than the median score for the 10 students, the mean rubric score was higher for these six students than the 10 students.

In Case I, students' responses to the component post-conference questions regarding what they learned were most focused on the Regulation level after the literature review conference, and the Process level was second-most focused. The Task level was both most focused and the only focus after the introduction conference. The Task level also was most focused after the method conference, but the Regulation level was second-most focused. In Case II, students' responses to the component post-conference questions regarding what they learned were most focused on the Task level after both the literature review and method conferences, and the Process level was second-most focused after both. The Task level also was most focused after the introduction conference, but the Regulation level was second-most focused.

Most (80%) students in Case I indicated they increased their knowledge of research writing during the semester, specifically regarding different research designs, how to write better, and more resources to find scholarly information. Several (60%) students indicated they increased their skills in research writing during the semester and although there still were improvements to be made, students were more comfortable with their writing abilities. Most (90%) students indicated they increased their attitudes toward research writing such that they both felt much better about writing and felt accomplished for completing their research proposal papers. Although one student indicated they increased both their knowledge and skills, they still did not enjoy research writing. Some (40%) students also indicated the connections among their increased knowledge, skills, and attitudes, and some (40%) students generally indicated how completing the research proposal paper assignment impacted their learning of research writing. Several (58%) students in Case II indicated they increased their knowledge of research writing during the semester, specifically a better understanding of research and more information about writing. Several (58%) students also indicated they increased their skills in research writing, specifically having better writing skills and being stronger writers. A few (17%) students indicated they increased their attitudes toward research writing, specifically increased confidence in their writing and decreased fear about writing research papers. Some (25%) students, however, indicated they did not increase their knowledge of, skills in, or attitudes toward research writing, specifically they do not

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understand research writing and are fine with that and their knowledge and skills increased but their attitudes remained the same. A few (17%) students also indicated how the COVID-19 global pandemic negatively impacted their learning and motivation, both in the ARMP and in general.

All students in Case I indicated how my approaches to instruction positively impacted their learning. One reason was my levels of engagement with and responsive to students. These included providing many opportunities to ask questions and meet with students, staying after class meetings to talk with students, encouraging all students to talk during class meetings, and being approachable. The other reason was my showing I cared about student success. This included being helpful, patient, and empathetic; being knowledgeable about teaching and helping students understand the content; being passionate about teaching and influencing students to want to learn; and taking time to ensure students are doing well. Most (92%) students in Case II indicated how my approaches to instruction positively impacted their learning, and the primary reason was my not emphasizing deadlines and instead emphasizing student success. This included my helpful teaching style, not pressuring students so they could learn more, emphasizing learning over points, and wanting students to grow as writers and researchers. One student, however, indicated that although they appreciated how helpful I was and the deadline extensions, the latter are not always beneficial for students because many procrastinate.

How did information associated with performance lead to greater possibilities for learning?

This sixth subquestion also was based on the Feed Forward dimension of Hattie and Timperley's (2007) model of feedback. Because this subquestion addressed how students could apply what they learned to similar performances in the future, none of the data sources aligned with this dimension could be used to address it. Students' responses to the course evaluation questionnaire items, however, did provide some indication what they learned regarding research writing had been applied or would be applied in the future.

Case I/Instructor Feedback → Student

Although some students did not agree, three students (30.0%) indicated completing the IRB protocol submission form (i.e., the tool for the method component) was helpful despite not being completed for an actual research study. As one student noted, "Since I would like to do research in the future I liked that I had the opportunity to fill out one although it wasn't the real deal." and as another student noted, "Having an IRB

draft was very beneficial as in my future I know I will be required to complete one." Four students (40.0%) indicated completing the ARMP was helpful for other research papers they would write. One student noted the 'general research methods' content was "helpful for the future if I ever have to write a research paper again." and regarding the feedback provided by me, they noted, "this will help me write better in the future." Two students indicated completing the research proposal paper assignment was or would be helpful for their capstone/culminating experience research papers they wrote or would write as one of the final requirements for the undergraduate program in psychology. As one student noted, "When writing my [culminating experience] capstone paper, it [introduction section components] was nice to use as a reference." and as the other student noted, "I feel confident in moving forward as I begin my research proposal paper for my [culminating experience] because of this class with Derek." And the fourth student indicated after completing the ARMP, "I now feel much better about … and my abilities to complete an extensive paper. This helped with graduate school applications and I will take this knowledge into grad school as well."

Case II/Instructor Feedback → *Student* ← *Student Feedback*

Four students' (33.3%) responses to the course evaluation questionnaire items provided some indication what they learned regarding research writing would be applied in the future. One student noted, "he [Derek] gave a lot of information that can be useful in the future." and another student noted, "I found all of the course content to be very valuable and will use my knowledge from this class in the future." This same student also noted, "My confidence … has grown a ton as well as how I would approach the [writing] process." Similarly, the third student noted, "I have developed a lot of skill set [*sic*] to write papers similar to this." In addition, the fourth student noted, "I feel much more positive and open to using research writing in the future."

Summary and Comparison

The data that addressed the sixth subquestion indicated how information associated with performance leads to greater possibilities for learning. Some (30%) students in Case I indicated completing the IRB protocol submission form was helpful because they wanted to or would conduct research in the future and appreciated the opportunity to complete this for their proposed research studies. Some (40%) students also indicated completing the research proposal paper assignment was helpful for their future writing, and this

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included the research writing students completed or would complete both for their capstone/culminating experiences and for graduate school. Some (33%) students in Case II also indicated completing the research proposal paper assignment was helpful for their future writing, and this included how they would approach the process in the future when writing similar papers.

CHAPTER V: DISCUSSION

This chapter is divided into four sections. The first section provides a summary of the findings, and the second section provides a comparison of the findings with the reviewed literature. The third section provides a personal view of the findings, and the fourth section provides the limitations of the current study and directions for future research studies and thus, concludes both this fifth chapter and this dissertation.

Summary of the Findings

The purpose of the current study was to examine undergraduate psychology students' feedback processes associated with developing a research proposal paper. Because the central phenomenon was feedback on student learning, the conceptual framework for the current study indicated the alignment among the process of evaluating student learning and different conceptions of feedback, including Hattie and Timperley's (2007) model of feedback. The case study research design was selected to investigate my students' feedback processes within the contexts of the ARMP I had both revised and adapted. To better understand these changes and the feedback provided, I combined both descriptive and comparative case study types to examine my students' feedback processes associated with developing a research proposal paper. There were two central questions that guided the current study:

1A. What are undergraduate psychology students' feedback processes associated with developing a research proposal paper?

2A. How are undergraduate psychology students' feedback processes associated with developing a research proposal paper different when feedback is 'Instructor → Student' compared to 'Instructor → Student ← Student?'

The first question more directly targeted the descriptive component and was mostly answered through the within-case analyses, whereas the second question more directly targeted the comparative component and was mostly answered through the cross-case analyses. Given its use in previous research, Hattie and Timperley's model guided the data recording and analysis procedures, and six subquestions based on this model also guided the current study:

1B. How did the data sources inform students of the type and level of performance to be attained?

2B. How did these help students to progress and attain the type and level of performance?

3B. How was information associated with performance provided to students?

4B. How did this information convey students' progress and how they should proceed?

5B. How did information associated with performance impact student learning?

6B. How did this information lead to greater possibilities for learning?

Because the responses to both central questions were addressed through the responses to the six subquestions, these are explained below, followed by an explanation of the responses to the central questions.

The Six Subquestions

Within the context of the current study, the first and second subquestions were based on the Feed Up dimension of Hattie and Timperley's (2007) model and aligned with course-based data focused on the goal of developing a research proposal paper and how students would achieve that goal. In doing so, these data both informed students regarding the type and level of performance expected for the research proposal paper assignment (i.e., the first subquestion) and helped students to progress and attain the type and level of performance (i.e., the second subquestion). Because this goal did not change between the two cases, most of the data aligned with this dimension were similar, if not identical, between them. The similar course goals and objectives indicated the necessary knowledge and how that knowledge would be applied as students completed the research proposal paper assignment. The identical course and supplemental readings and research proposal papers that were reviewed provided multiple examples of both professional (i.e., published) and novice (i.e., student) writing, respectively. Students in both cases indicated the course content, course and supplemental readings, and research proposal paper reviews informed them regarding the assignment expectations. The research proposal paper assignment was identically divided into different components (e.g., literature review, method) that were similarly divided into different assessments (e.g., tools, drafts) and was assessed using the same scoring rubric in both cases. The tool for the method component differed between the two cases, but who reviewed and provided feedback on students' drafts and the component conferences were the primary differences. In Case I, I provided feedback on students' drafts, they met with me during the corresponding conferences, and they only provided peer-based feedback during the peer review of their proposal drafts. In Case II, however, students provided feedback on other students' drafts, they met with other students during the corresponding conferences, and they only completed two conferences with me (i.e., midterm and proposal).

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Students in both cases indicated the assessments they completed as part of the different components provided information regarding the research proposal paper assignment, although their responses tended to emphasize the conferences. In both cases, students indicated the conferences with me were more informative than the conferences with peers (students in Case II) or the peer review session (students in both cases). Thus in response to the first subquestion, the data sources informed students of the type and level of performance to be attained when completing the research proposal paper in several ways. The course content provided mostly a review of the necessary knowledge, and the course and supplemental readings and research proposal paper reviews provided examples of both research studies and research writing. The multiple assessments of the different components provided the assignment expectations, and the research proposal paper reviews provided options for how those expectations could be addressed.

The course-based data aligned with the Feed Up dimension not only informed students regarding the type and level of performance expected for the research proposal paper assignment (i.e., the first subquestion) but also helped them to progress and attain the type and level of performance that was expected (i.e., the second subquestion). Despite the differences among the course goals and objectives between the two cases, these indicated knowledge of the course content would help students both when they reviewed previous research studies and as they developed their proposed research studies. Similarly, the course and supplemental readings and the research proposal paper reviews provided several opportunities for students to work with examples and become more familiar with the assignment expectations as specified through the evaluative criteria and descriptions of performance levels within the scoring rubric. Students in both cases indicated the course content and research proposal paper reviews helped them when completing the research proposal paper assignment, with the latter providing templates to which they could compare their own drafts as they wrote them. Only students in Case I, however, indicated the course and supplemental readings were helpful beyond providing examples of research writing. The process of moving from the first assessment to the last assessment of the research proposal paper assignment was intended to help students both learn and apply the course content while completing a part of the actual research process. Students in both cases indicated completing the different assessments throughout the semester was helpful rather than only submitting the research proposal

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paper at the end of the semester and the tools helped them to write their drafts that then helped with writing their research proposal papers.

In both cases, students also reported the conferences with me were more helpful than the conferences with peers because the former provided opportunities to discuss their papers and their progress with me as the instructor. Similarly, the peer-based conferences, whether the peer review session (Case I) or the component conferences and peer review session (Case II) were reported as being less helpful due to the feedback (or lack thereof) other students provided on their drafts. Thus in response to the second subquestion, the data sources helped students to progress and attain the type and level of performance when completing the research proposal paper in several ways. The course content (specifically, APA style) was applied when completing the different assessments, and the reviews of research proposal papers provided examples students compared to their own drafts when writing them. Although the course and supplemental readings informed students of the type and level of performance, they did not indicate these readings helped them to progress. Dividing the assignment into multiple assessments completed throughout the semester, however, did help students progress from the tools to the drafts to the papers. In addition, the conferences with me and the opportunities to discuss both their performance and their progress during those seemed to further help students progress toward completing the research proposal paper assignment.

The third and fourth subquestions were based on the Feed Back dimension of Hattie and Timperley's (2007) model and aligned with course-based data focused on the information provided to students regarding their performance toward achieving the goal of developing a research proposal paper (i.e., feedback provided throughout the course). Although this information was provided to students through different forms and from different sources (i.e., the third subquestion), it helped provide students with a sense of both their progress toward achieving this goal and direction to help them proceed toward achieving this goal (i.e., the fourth subquestion). I provided students in both cases with written feedback on the different tools for each component that included both general and specific feedback, although only specific feedback was provided regarding the method component tools (i.e., IRB protocol submission form in Case I and method outline in Case II). I provided students in Case I with written feedback on their drafts that included both in-text feedback and scoring rubric-based feedback, and I also provided verbal feedback to these students during their individual-

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based conferences. Students in Case II, however, provided written feedback to other students on their drafts that included scoring rubric-based feedback and potentially in-text feedback. These students also potentially provided verbal feedback to other students during the peer-based conferences in addition to the general verbal feedback I provided to all students at the end of those conferences.

Because there were fewer opportunities for me to provide feedback to students in Case II during the peer-based conferences, the midterm conference was an opportunity for me to provide more specific feedback during the course rather than only during the proposal conference at the end of the course. Students in both cases provided feedback on other students' proposal drafts during the peer review session before completing the proposal conference with me. Students in both cases indicated the written feedback on the different tools and the verbal feedback from me during the conferences was helpful in providing information regarding their performance and progress. Students in Case I indicated similarly regarding the feedback on their drafts, but students in both cases indicated the peer-based feedback was not as helpful, whether it was provided in-text, from comments, or through the scoring rubric. Students in Case II, however, indicated the written feedback from other students was more helpful than their verbal feedback, but this could be due to less verbal feedback being provided compared to the written feedback. Thus in response to the third subquestion, the data sources indicated the feedback was helpful across the different forms through which and individuals by whom this feedback was provided. I provided written feedback on all students' tools and verbal feedback during all the conferences, and students in both cases indicated this feedback was helpful. I also provided both written and scoring rubric-based feedback on their drafts to students in Case I and more direct verbal feedback during their individual-based conferences, both of which seemed to be helpful. Students in Case II similarly indicated their individual-based midterm and proposal conferences with me were helpful. These students also provided scoring rubric-based feedback, and potentially both written and verbal feedback, on other students' drafts during the peer-based conferences and the peer review session, the latter of which also occurred for students in Case I. Students in both cases, however, indicated the feedback provided by other students was less helpful than the feedback provided by me.

The course-based data aligned with the Feed Back dimension not only were provided through different forms and from different sources (i.e., the third subquestion) but also were provided at different levels

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of Hattie and Timperley's (2007) model of feedback to give students a sense of both their progress and direction to help them proceed toward completing the research proposal paper assignment (i.e., the fourth subquestion). In both cases, most of the feedback provided by me and by other students across the different assessments was directed at the Task level, followed by the Regulation level within Hattie and Timperley's model. The reasons why students in both cases indicated the feedback provided was helpful seemed to be due mostly to this feedback being directed at both the Task and Regulation levels. In their responses to the questionnaire items, students in Case I also emphasized the Process level regarding the introduction and method components, whereas students in Case II only emphasized the Process level regarding the midterm and proposal conferences. The responses to the conference questions regarding the current components from students in both cases were focused mostly on the Task level followed by the Process level, and the responses to the conference questions regarding the feedback provided on their drafts (i.e., only from students in Case I) were focused mostly on the Task level followed by none/other, which suggested the feedback was clear and targeted what students did well and not as well. The responses to the midterm conference questions (i.e., only from students in Case II) also were focused mostly on the Task level, followed by the Process level. Although students in both cases mostly did not have questions after they completed the conferences, more students in Case II did after the literature review and introduction conferences, which could be due to the lack of having opportunities to meet individually with me during these component conferences as the students in Case I did.

Although students in both cases had questions and concerns prior to their proposal conferences, most students felt positively or neutrally regarding the submission of their research proposal papers at the end of their semesters. As was stated previously, students in both cases also reported the feedback provided by me was more helpful than the feedback provided by other students. Thus in response to the fourth subquestion, the data sources indicated the feedback provided to students was helpful in conveying a sense of both their progress and direction to help them proceed. Most of the feedback I provided to students in both cases was directed at the Task level, and most of the feedback that students provided to other students in both cases also was directed at the Task level. This would be expected given a broad purpose of feedback is to provide a sense of how well or correctly a task was performed and as such, feedback directed at the Task level is used to convey one's progress toward a goal. After the Task level, most of the feedback both students and I provided

in both cases was directed at the Regulation level. This also would be expected because in addition to providing feedback regarding how they did, both students and I provided feedback regarding the next tasks as they completed the research proposal paper assignment. As such, feedback directed at the Regulation level is used to convey how one should proceed toward a goal, such as my providing this level of feedback to help students complete their drafts after completing their tools. Students' responses to the questionnaire items supported this given most of their responses for why the feedback was helpful were focused on the Task and Regulation levels. Their responses to the conference questions being focused mostly on the Task and Process levels suggested students were interested in knowing whether how and what they did was correct.

The fifth and sixth subquestions were based on the Feed Forward dimension of Hattie and Timperley's (2007) model and aligned with course-based data focused on how the information students received regarding their performance toward achieving the goal of developing a research proposal paper (i.e., feedback received throughout the course) influenced their learning. The research proposal paper assignment was intended to provide opportunities for students to learn more about both the research process and research writing, and the extent to which the feedback provided to students helped them to learn more (i.e., the fifth subquestion) and to potentially transfer their learning to other, similar contexts (i.e., the sixth subquestion) was examined through this dimension. In comparing the average (median and mean) rubric scores for the research proposal papers between the two cases, the scores from Case I were slightly higher than the scores from Case II. These differences could be expected given I provided students in Case I with more feedback than I provided to students in Case II and students in both cases reported the feedback provided by me was more helpful than the feedback provided by other students. In comparing the scoring rubric-based feedback provided on students' introduction and method drafts with the scoring rubric-based feedback provided on their research proposal papers, the median criterion scores for the eight students in Case I who submitted both drafts increased for every criterion except 'Review of the literature' but all mean criterion scores increased between the drafts and papers. This suggested the feedback on their drafts positively influenced their learning, and similar patterns were noted for the six students in Case II who submitted both drafts. There was no difference in these students' median scores for one criterion, however, and there was a decrease in the median scores for another criterion. Although these patterns also suggested the feedback on their drafts positively influenced student learning in

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Case II, different individuals provided feedback on the drafts (i.e., other students) and the papers (i.e., me). In addition, different individuals provided feedback on three of the six students' introduction drafts and method drafts, and these differences regarding the providers of feedback, and thus the potential for more variability among the feedback provided, limit the conclusions that can be drawn.

To better determine the extent to which the feedback provided on students' drafts may have influenced their research proposal paper scores, those rubric scores were compared between the students who submitted both introduction and methods drafts and the students who did not. Compared to Case II, a larger proportion of students in Case I completed both drafts (i.e., 80% in Case I but 37.5% in Case II), and 11 of the 12 median rubric criterion scores for these eight students in Case I were higher or identical to those scores for the two students in Case I who did not complete both drafts. For the six students in Case II who completed both drafts, however, 8 of the 12 median rubric criterion scores were higher or identical to those scores for the 10 students in Case II who did not complete both drafts. The median and mean paper scores for the students who completed both drafts in Case I were higher than these scores for the students who did not. The median paper score for the students who completed both drafts in Case II was lower than this score for the students who did not, but the mean score for the former group was higher. Again, different individuals provided feedback on the drafts and the papers in Case II and for half the students who submitted both drafts, different individuals provided feedback on each draft. Those differences, as well as unequal proportions of students completing both drafts between the two cases, limit the confidence of any conclusions that can be drawn.

Students' responses to the post-conference questions regarding what they learned mostly were focused on the Task level, with more responses from students in Case II focused on the Process level compared to students in Case I and some responses from students in both cases focused on the Regulation level. Students in both cases reported at the end of their semesters they learned more regarding research writing as indicated through their increased knowledge, skills, and attitudes (although fewer students reported changes in attitudes). Several students in Case I specified how their changing knowledge, skills, and attitudes influenced each other while completing the research proposal paper assignment, whereas a few students in Case II specified how their learning and motivation was affected by the COVID-19 global pandemic. In addition, students in Case I indicated my engagement with and responsiveness to students and showing I care about their success assisted

in their learning, whereas students in Case II indicated my lack of emphasis on deadlines and my emphasis on their success assisted in their learning. Thus in response to the fifth subquestion, the data sources indicated the feedback provided to students impacted their learning regarding the research proposal paper assignment. Generally, students in both cases who submitted both introduction and method drafts had an increase or at least no change among most their criteria ratings between their drafts and research proposal papers. These students in Case I also had higher average paper scores than students who did not submit both drafts, but these students in Case II had both a lower median paper score and a higher mean paper score than students who did not. Students' responses regarding what they learned mostly were focused on the Task and Process levels, with some responses also focused on the Regulation level, which suggested student learning was impacted by knowing how they did, what they did, and what to do next. This was supported by students' responses to the questionnaire items that indicated most students in both cases increased their knowledge and skills, with some also changing their attitudes regarding research writing.

The course-based data aligned with the Feed Forward dimension not only were intended to impact student learning through providing multiple forms of feedback throughout the semester (i.e., the fifth subquestion) but also were intended to lead to greater possibilities for learning beyond completing the research proposal paper assignment in the ARMP (i.e., the sixth subquestion). Although some students in Case I reported completing the IRB protocol submission form was not helpful, others reported completing this tool provided an informal opportunity to become more familiar with it prior to their expected, more formal completion of it in the future (i.e., as part of a research study). Several students in Case I also reported completing the research proposal paper assignment better prepared them for similar tasks in their future, such as when completing their culminating experiences/capstone projects for the undergraduate degree program or writing papers in their expected graduate degree programs. Several students in Case II also indicated they would use what they learned from completing the research proposal paper assignment in the future and they felt more positive about their future writing experiences. Although not formal data sources in the current study, the three psychology instructors' responses to the reliability and validity questions and specifically, regarding the criterion-related validity, indicated the scoring rubric evaluative criteria and descriptions of performance levels were reflective of competencies that would be needed for success on future or related research papers.

Thus in response to the sixth subquestion, the data sources indicated the feedback provided to students would lead to greater possibilities for learning beyond the research proposal paper assignment. Students' responses indicated they would use what they learned through completing this assignment in their future endeavors, whether those included completing forms or tasks associated with the IRB, writing research papers for their final undergraduate program requirements, or completing research studies for their future graduate programs.

The Two Central Questions

The six subquestions were based on Hattie and Timperley's (2007) model of feedback, and specifically their three dimensions of Feed Up, Feed Back, and Feed Forward, and helped to address one of the deficiencies in the previous research by applying their model at the postsecondary education level. These six subquestions also helped to address the other deficiencies that were more directly associated with the two central questions. The first central question, 'What are undergraduate psychology students' feedback processes associated with developing a research proposal paper?' was description-based and was mostly answered through the within-case analyses guided by the six subquestions. Based on the current study, undergraduate psychology students' feedback processes associated with developing a research proposal paper were:

- informing students of the type and level of performance to be attained,

- helping students to progress and attain the type and level of performance,

- providing information associated with performance to students,

- conveying students' progress and how they should proceed through this information,

- impacting student learning based on information associated with performance, and

- leading to greater possibilities for learning through this information.

Students were informed of the type and level of performance to be attained through the course content that provided the necessary knowledge, reviews of course and supplemental readings and research proposal papers that provided examples of both research studies and research writing, and the multiple assessments of the research proposal paper that provided the expectations for this assignment. These helped students to progress and attain the type and level of performance through applying the course content when completing the multiple assessments and comparing the example research proposal papers with their own drafts when writing them. In addition, completing the multiple assessments throughout the semester helped students to move from the tools

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to the drafts to the papers, and the conferences with me provided opportunities to discuss both their performance and their progress. Information associated with performance (i.e., feedback) was provided to students on each of the assessments and during each of the conferences; by me or by other students; and in written forms (i.e., in-text edits, general and specific comments), verbal forms (i.e., during the conferences), and scoring rubric criteria ratings and comments.

This information (i.e., feedback) conveyed students' progress and how they should proceed because it mostly was directed at the Task level, followed by the Regulation level, and these levels addressed students' progress and how they should proceed, respectively. In addition, students' responses regarding why this information was helpful indicated it was directed at both the Task and Regulation levels, and their questions and concerns during the conferences were focused mostly on the Task and Process levels, all of which support the information provided helped them know their progress and how to proceed. In doing so, this information (i.e., feedback) impacted student learning as indicated through increases in the scoring rubric criteria ratings and higher paper scores among students who submitted multiple drafts during the semester. Although this evidence was not as conclusive, students' responses regarding what they learned were focused on the Task, Process, and to a lesser extent Regulation levels, and their responses also indicated they increased their knowledge of and skills in research writing. In addition, this information should lead to greater possibilities for learning as indicated through students' responses they would (if not already did) use what they learned when completing similar research-based tasks and when writing similar research papers in the future.

The second central question, 'How are undergraduate psychology students' feedback processes associated with developing a research proposal paper different when feedback is 'Instructor → Student' compared to 'Instructor → Student ← Student?' was comparison-based and was mostly answered through the cross-case analyses that also were guided by the six subquestions. The two cases studied indicated both similarities and differences among the data regarding the feedback provided to students when completing the research proposal paper assignment. Most of the data aligned with the Feed Up dimension were similar, if not identical, between the two cases. This would be expected given this dimension addresses goals and how students will achieve them, and the analysis of the aligned data considered how these data both informed students of the goals and how they helped students to progress toward achieving those goals. The two cases

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represented two classes of the same course, taught by the same instructor, and focused on completing very similar research proposal paper assignments, the last of which was the goal toward which all students were working and on which feedback was provided to students. Although there were slight differences in the course goals and objectives, research proposal paper reviews, and method component tools, the primary differences between the two cases were who provided feedback on students' drafts and during the conferences, whether that was me in Case I or other students in Case II. Students' responses regarding the aligned data were not very different given they reported similar ways the course goals and objectives, research proposal paper reviews, and different assessments both informed them of the assignment expectations and helped them to progress and meet those expectations. Students in both cases, however, reported the conferences with me were more informative and better helped them to progress through the assignment than the peer-based conferences (only Case II) or the peer review session (both Case I and Case II). This mostly was due to discussing their questions and concerns and my responding to those that occurred when meeting with me individually but did not occur when meeting with other students. Despite this, some students in both cases indicated seeing another student's draft, and thus someone else's progress toward completing the research proposal paper assignment, was beneficial in providing another example of how this assignment could be completed.

Because much of the data sources were identical, students' feedback processes associated with informing of the type and level of performance to be attained and helping to progress and attain the type and level of performance was similar between the two cases. The component conferences, however, were different given the students in Case I completed individual-based conference with me whereas the students in Case II completed peer-based conferences with other students. Across both cases, students indicated that meeting individually with me and discussing their specific questions and concerns both better informed them and helped them to progress better than meeting with peers as a group. This was consistent regardless of conference, such that students in Case I indicated all the conferences were more informative and helpful than the peer review session and students in Case II indicated the midterm and proposal conferences were more informative and helpful than the component (i.e., peer-based) conferences and the peer review session.

Given the primary differences between the two cases were who provided feedback on students' drafts and the component conferences, much of the data aligned with Feed Back dimension were similar in concept

because the data were feedback but different in practice because the data were provided by different individuals. This would be expected because this dimension addresses students' progress and how well they are progressing toward meeting the goals addressed through the Feed Up dimension (i.e., completing the research proposal paper assignment). As indicated previously, the two cases represented two classes of the same course, taught by the same instructor, and focused on completing very similar research proposal paper assignments. Because of this, the feedback provided by me was very similar between the two cases, especially the general feedback I provided which was similar, if not identical, between the two cases.

I provided feedback on students' tools in both cases so every student had some (and often, similar) direction regarding the information they submitted for these first assessments within each component and before they began to write about this information in their drafts. I also provided students in Case I with feedback on their drafts and during the individual-based conferences, whereas students in Case II provided feedback on other students' drafts and during the peer-based conferences. Although I reviewed both guidelines for the feedback students in Case II should have provided to each other and examples of the feedback I provided to students from previous semesters, the quantity and quality of the feedback students provided to each other varied. It seems these variations in feedback contributed to the lower ratings from students in Case II regarding how helpful this feedback was given these lower ratings were consistent with how helpful students in Case I considered the peer-based feedback (i.e., during the peer review session) to be. Both the actual feedback provided to students and students' responses regarding how helpful that feedback was indicated this information was directed at how they did (i.e., Task level) and what they should do next (i.e., Regulation level). Although students in Case I mostly did not have questions after completing their individual-based conferences, students in Case II had questions after two of the three peer-based conferences. In addition, students in Case II had fewer questions regarding the next component compared to students in Case I, and this could be due to a lack of questions from and discussions with me during the component conferences regarding their progress and how to proceed (i.e., students may not have been considering their next steps without my specifically prompting them to do so).

Because the providers of feedback were a primary difference between the two cases, students' feedback processes associated with providing information associated with performance to students and

conveying students' progress and how they should proceed also were different. The feedback I provided on students' tools was similar, if not identical, between the two cases, and I also provided feedback on students' drafts and during the individual-based conferences in Case I. Because students provided feedback on other students' drafts during the peer-based conferences in Case II, I reviewed guidelines to help them provide effective feedback to each other, but the lower ratings students in both cases provided regarding any peer-based interactions and feedback indicated the peer-based feedback was less helpful than the feedback I provided. Both the feedback on students' assessments and students' responses indicated the Task and Regulation levels were the most frequent at which the feedback was directed and on which students' responses were focused. These suggested that despite the lower ratings for how helpful the peer-based feedback was, it still helped to convey students' progress and how they should proceed. In addition, the conferences with me were noted previously as being more informative and helpful in progressing, and this was consistent with more students in Case II having both more questions after the conferences and fewer questions regarding the next component. This could have been due to the lack of discussions with me during the peer-based conferences that may have contributed to how well the peer-based feedback provided was able to convey students' progress and how they should proceed.

The higher average rubric scores for students in Case I compared to students in Case II could be explained by the greater amount of feedback I provided to the former group compared to the latter group. The increases in most of the average rubric criteria scores between the drafts and the papers for students in both cases, however, suggested receiving any feedback, regardless of the provider, was an important component of their learning and in their progress toward achieving the goal of completing the research proposal paper assignment. In comparing the average rubric criteria scores of students who completed both the introduction and method drafts with those who did not, the students in Case I received higher or similar median and mean scores for all the evaluative criteria than those who did not complete both drafts. The students in Case II who submitted both drafts received higher or similar median scores for most of the evaluative criteria than those who did not complete both drafts. The providers of feedback on the drafts, but not on the papers, differed between the two cases, and different students in Case II provided feedback on half of the students' introduction and method drafts, which further increases the variation and as such decreases how confidently any

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conclusions can be drawn. Students' responses from both cases that the peer-based feedback was less helpful than the feedback I provided could help to explain these patterns. When indicating what they learned during the conferences, the responses of most students in both cases focused on how they did (i.e., the Task level). Responses among the students in Case I also focused on what they should do next (i.e., the Regulation level), whereas responses among students in Case II also focused on what they did (i.e., the Process level). It seems the feedback provided as part of the conferences was helpful for all students by indicating how well they were progressing, which would be expected given the role of feedback as generally providing a sense of how well learning was demonstrated. The greater emphasis on how the conferences better helped students in Case I to consider the next component of the research proposal paper again could be explained by both the greater amount of feedback I provided and the more frequent interactions these students had with me during their conferences compared to the students in Case II. Such a conclusion also is supported by students in both cases indicating the peer-based feedback was less helpful than the feedback that I provided to them.

Although fewer students in Case II indicated their attitudes regarding research writing changed during the semester, most students in both cases indicated their knowledge and skills increased throughout their semesters. In addition, some students in Case I reported connections among the changes in their knowledge, skills, and attitudes, and a few students in Case II reported how the COVID-19 global pandemic impacted their learning more broadly. The impact of the global pandemic, which had been occurring for over a year when students in Case II completed the ARMP, certainly was present among all students given the course was completely taught in a synchronous-online learning environment and many courses offered at my institution during that year were taught similarly. In general, previous students in my courses have reported I am very understanding of their concerns and adaptable to any issues they have had, and I tried to extend those qualities as much as I could during Case II. Students in both cases seemed to appreciate both my understanding and adaptability through their recognition of my emphasis on and caring about student success. Associated with the differences between the two cases, students in Case I also reported my engagement with and responsiveness to them were aspects of my instruction that helped their learning, whereas students in Case II also reported my lack of strict deadlines for completing assessments were an aspect of my instruction that helped their learning.

Furthermore, students in both cases indicated what they learned from completing the research proposal paper would help them with similar writing assignments in the future.

Because the providers of feedback were a primary difference between the two cases, students' feedback processes associated with impacting student learning based on the feedback and leading to greater possibilities for learning through this feedback also were different. Students in Case I had higher average rubric scores than students in Case II, but students in both cases who completed multiple drafts increased in most of the criterion ratings between their drafts and papers. In addition, most of the criterion ratings were higher or similar for these students in both cases, but the different providers of feedback on the drafts and the papers between the two cases limit how conclusive these findings can be. Students' responses regarding what they learned were mostly focused on the Task level, but the greater number of responses focused on the Regulation level for students in Case I suggested the discussions with me during the conferences had a greater impact on student learning because these students were considering what to do next. The responses from students in Case II were focused on the Process level in addition to the Task level, which suggested they were considering their progress. The peer-based feedback was indicated as being less helpful compared to the feedback I provided, and the two individual-based conferences with me may not have been enough to help the students in Case II consider what to do next. Despite these differences, students in both cases indicated they increased their knowledge of and skills in research writing and how my approaches to instruction were helpful for their learning throughout the semester. Similar proportions of students in both cases also indicated how completing the research proposal paper would help them with similar work in the future, which should further impact student learning and lead to greater possibilities for learning.

Comparison of the Findings with the Literature

The current study demonstrated the alignment among different conceptions of feedback as they are associated with the assessment of student learning. As Walvoord (2004) indicated and others have supported, the evaluation of student learning consists of the four tasks of defining student learning outcomes, gathering information regarding student performance, considering student performance in relation to the learning outcomes, and incorporating all this information to improve future performance. These tasks can be applied to both formative and summative evaluations given the processes are identical for both types and only the

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purposes and how the information is used differs between them. The four components of Walvoord's process address other conceptions, including Black and Wiliam's (1998) components of feedback that specify the information needed for each element of Walvoord's model and Sadler's (1989) criteria for feedback that specify the actions of students when using feedback provided through the components of Walvoord's process. In addition, Hattie and Timperley's (2007) three dimensions of feedback combine elements of both Black and Wiliam's components of feedback and Sadler's criteria for feedback and as such, these three dimensions of feedback (i.e., Feed Up, Feed Back, and Feed Forward) and the four levels at which feedback can be directed (i.e., Task, Process, Regulation, and Self) from Hattie and Timperley's model guided the data recording and analysis procedures of the current study. Their model also provided a framework other research studies (e.g., Brooks et al., 2019; Dewit et al., 2021; Gan & Hattie, 2014; Harris et al., 2015) have used to better examine and understand students' feedback processes as they are associated with student learning.

As previously explained, the results from multiple research studies and the conclusions from several best practices were used to guide both the revisions and adaptations I made to the initial ARMP I taught. Because of this, the findings from the current study are consistent with much of previous research, including the multiple ways feedback can improve students learning. Ghilay and Ghilay (2005) noted improvements in student learning were associated with students identifying and addressing their difficulties, which is similar to students responding to the conference questions in the current study. The improvements Ghilay and Ghilay noted also were associated with students' sense of belonging and motivation given their positive feelings toward their course instructor, which is similar to students' reports of how my instructional approaches helped their learning. After providing students with modeled activities that included feedback while discussing course content (similarly to the course reading discussions and research proposal paper reviews in the current study), Thomas and Sondergeld (2015) noted both student confidence and performance improved (also similarly to the findings of the current study). Prat-Sala and Redford (2012) suggested providing more writing experiences (similarly to the multiple assessments in the current study) can positively influence students' writing self-efficacy and writing performance, which is consistent with both the increased average rubric scores and attitudes regarding research writing for many students in the current study. Ekholm et al. (2015) indicated students' perceptions of feedback on their writing were better predictors of their writing self-regulation than

their writing self-efficacy, which can help to explain the lower focus on the Regulation level compared to the Task and Process levels students in Case II seemed to have had given they (as well as students in Case I) perceived the peer-based feedback to be less effective than the feedback that I provided.

Zafonte and Parks-Stamm (2016) noted students who completed a face-to-face course had greater increases in both APA style examination and essay rubric scores than those who completed the blended version of this course. They suggested these were due to the more consistent interactions among instructors and these students, which is similar to the higher average rubric scores among students in Case I compared to students in Case II and the different learning environments between the cases. Skues and Wise (2014) focused on APA style writing without discussing psychology-focused content in their out-of-class intervention, and students reported this was a positive experience because it helped them limit distractions and attend only to their writing while also providing something they could edit and revise later. This is similar to both the individual-based and peer-based conferences in the current study that only focused on the research proposal paper, not the course content, and also provided direction for students through the feedback provided. Stellmack et al. (2012) noted most students' rubric scores increased between their drafts and papers regardless of whether their drafts were self- or peer-, or instructor-reviewed, and Greenberg (2015) indicated similar increases in rubric scores for students who completed a peer review compared to students who did not complete a peer review. These increases in rubric scores after completing and reviewing drafts also are consistent with the current study given most of the average rubric criteria scores for students in both cases who completed introduction and method drafts increased between their drafts and their research proposal papers.

The current study incorporated Hattie and Timperley's (2007) three dimensions of feedback and four levels at which feedback can be directed to guide the data recording and analysis procedures, and the findings were both similar to and different from those of other research studies that also used their model. In the current study, most of the feedback provided to students in both cases, whether by me or other students, were directed at the Task level. This could be expected given this level of feedback targets how well the performance was accomplished, which is what most individuals, especially students, would consider to be the general purpose of feedback. In their research studies, Brooks et al. (2019), Dewit et al. (2021), Gan and Hattie (2014), and Harris et al. (2015) also noted the most frequent level at which feedback was directed, whether by teachers or

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students, was the Task level. Similarly, Sadler (1989) indicated peer assessment can be helpful because other students' work both is similar to their own and often includes missing and/or incorrect information, the latter of which provides a focus for the feedback. Sadler (1998) also stated providing task-specific (i.e., Task level), learning-process (i.e., Process level) feedback is beneficial in promoting students' self-assessment and self-monitoring (i.e., Regulation level) abilities. Consistent with this, Harris et al. (2015) noted the peer assessment had more Task level feedback than the self-assessment, and Brooks et al. (2019), Dewit et al. (2021), and Gan and Hattie (2014) noted Process level feedback was more frequently provided than either Regulation level or Self level feedback. Brooks et al. (2019) also noted Task level feedback was over four times more frequently provided than Process level feedback, whereas Gan and Hattie (2014) noted Process level feedback was the only significantly different level of feedback between the students who either did or did not receive question-based prompts to guide the feedback they provided.

In the current study, however, feedback directed at the Regulation level was the second most-frequently provided, whether by me or by students, and this is different from the other research studies that incorporated Hattie and Timperley's (2007) model of feedback. In their study, Brooks et al. (2019) noted Task level feedback was over 12 times more frequently provided than Regulation level feedback. Similarly, Gan and Hattie (2014) noted that although more Regulation level feedback was provided by students who received question-based prompts, this level was the least provided among all students and as such, was provided less frequently than praise (i.e., a form of Self level feedback). Dewit et al. (2021) noted Regulation level feedback was absent and Self level feedback was scarce but still more frequent than Regulation level feedback. Furthermore, Harris et al. (2015) noted that although Regulation level feedback was not provided through peer evaluation, older students provided more Regulation level and less Self level feedback through self-evaluation compared to younger students, but the former group provided more Self level feedback through peer evaluation than the latter group (which Harris et al. attributed to the role of social relationships and how those can impact evaluation contexts). Two factors regarding the current study could help to explain the differences in how frequently Regulation level feedback was provided compared to previous research studies.

One factor concerns the samples of participants within these research studies, such that Brooks et al. (2019) sampled elementary/primary-level students (Year 7 in New Zealand), Gan and Hattie (2014) sampled

secondary-level students (Year 12 in New Zealand), and Harris et al. (2015) sampled teachers who taught elementary/primary-level (Years 5-8 in New Zealand) or secondary-level students (Years 9-10 in New Zealand). The current study, however, sampled students at the postsecondary level, and all were advanced level students (i.e., college juniors or seniors). This represented not only an older group of students but also a more selective group given compulsory education in New Zealand extends through Year 13. The students in the current study, however, not only were admitted to a postsecondary education institution but also had progressed through introductory and intermediate level coursework to the advanced level and were nearing the culmination of their undergraduate degree programs. Similarly, all the students who participated in the current study were psychology students and as such, they may have been more engaged both with the course and with the research proposal paper assignment than either the elementary/primary-level students or the secondary-level students who were completing general (i.e., compulsory) education. Dewit et al. (2021) sampled master's-level, technology design students, which represents a more selective group of students than Brooks et al. (2019), Gan and Hattie (2014), and Harris et al. (2015), as well as the current study. Potentially, the students in Dewit et al. (2021) also represented an older group than all four of those studies (definitely older than the samples in Brooks et al., 2019; Gan and Hattie, 2014; and Harris et al., 2015). Despite the more similar populations between Dewit et al. (2021) and the current study, however, the former reported no Regulation level feedback, which suggested neither the developmental level nor the more selective characteristics of the samples in these two studies contributed to the differences in the four levels at which the feedback was directed between the elementary and secondary levels and the postsecondary level.

The other factor that could help to explain the differences in the how frequently Regulation level feedback was provided concerns the data collected and more specifically, the role of those data within the overall context of the learning environments within these research studies. Brooks et al. (2019) collected audio recordings and field observations of 12 classroom-based writing lessons over five weeks. Dewit et al. (2021) collected feedback provided by both instructors and students at three times (i.e., early, midterm, and end) during the 12-week course in which teams of students completed a technology design project. Gan and Hattie (2014) collected feedback students provided on two drafts of an experimental report (each draft focused on half of the final report that was submitted) during four classroom-based lessons. And Harris et el. (2015)

collected student notebooks used for daily in-class work and written assignments the teachers had available (i.e., these data varied greatly across the 11 teachers who participated).

In the current study, however, the data collected were used throughout a full semester/16-week course, and each data source (e.g., literature review draft, method conference) was intended to extend previous data sources (e.g., literature review draft extends the literature review table, method conference extends the method draft). Furthermore, these extensions of earlier-completed assessments to later-completed assessments were made explicit by me throughout the semester to help students understand not only the process of developing a proposed research study but also how the feedback provided should be incorporated as they completed the assignment. The degrees to which it was intended or expected that students use the provided feedback in similar ways is unclear from previous research, but it seems Dewit et al. (2021) and Gan and Hattie (2014) were the closest to this purpose given feedback was provided regarding different components of a single assignment at three and two points in time, respectively. Thus although the lower education (and potentially, engagement) levels of participants in previous research compared to the current study did not seem to contribute to the different amounts of Regulation level feedback provided, the different purposes of the data collected within the learning environments could be likely contributors for why the frequency of Regulation level feedback not only differed among these research studies but also was higher in the current study.

These differences further support the importance of Regulation level feedback in the context of formative evaluation that focuses on continuously providing feedback to help improve student learning, and thus, improve student performance as a demonstration of that learning. Schunk and Greene (2017) defined self-regulated learning as the varied but intentional ways students think and behave, as well as leverage their motivations and emotions, to achieve established learning goals. Although different theoretical frameworks (e.g., social cognitive, information-processing) address self-regulated learning in their own ways, all indicate: (a) students are active in the learning process, (b) working toward goals helps students to remain focused on relevant activities and use appropriate strategies, (c) feedback on learning is an essential component of self-regulation as a cyclical process, and (d) both students' motivation and emotion are important to understanding their abilities and the extent to which they self-regulate (Schunk & Greene, 2017). These common features regarding self-regulated learning were addressed through the course-based data and thus, throughout the

semester, as students in both cases completed the research proposal paper assignment. This single, larger assignment consisted of multiple, smaller assessments students completed over time, with feedback provided over time, to help them direct their actions toward developing their research proposal papers. Given the Regulation level feedback provided in the current study generally focused on strategies and tasks beyond the current task, or what students should do next in completing the assignment, it seemed this level of feedback is essential to provide as one way to further develop students' self-regulated learning abilities.

Personal View of the Findings

Several implications for classroom practice can be taken from the current study. The five implications from the literature review I completed prior to revising the ARMP were further supported through their implementation as part of the ARMP across the two cases, as well as the semesters between the two cases (i.e., the emergency shift to remote learning at the beginning of the COVID-19 global pandemic and the following semester when teaching my first course in a synchronous-online learning environment). The first implication was to develop activities to frequently provide feedback to students on their research writing and ensure this feedback aligns with clear criteria by which they will be evaluated. This was addressed by dividing the research proposal paper assignment into five components and multiple assessments and then either providing feedback or asking students to provide feedback on those assessments aligned with the assignment scoring rubric. The second implication was to implement these activities in a developmental progression such that students have multiple opportunities to write and receive feedback from and then discuss this feedback with both me and other students. This was addressed by aligning three of the tasks of developing a research proposal paper (i.e., determine the research-based knowledge and how it was gained, determine what new knowledge can be gained and why it is needed, and determine how this new knowledge could be gained and what impact it could have) with three of the five components (i.e., literature review, introduction, and method, respectively). These components then were completed throughout the semester using the three assessments (i.e., tools, drafts, and conferences) and the feedback provided on them. The third implication was to direct feedback onto the areas in which individual students seem to be having difficulties and focus on these areas during the discussions I have with them regarding this feedback. This was addressed when I provided feedback on students' tools in both cases and drafts in Case I, as well as when I provided both specific feedback to

students in both cases during their individual-based conferences and general feedback to all students in Case II during the peer-based conferences.

The fourth implication was to provide opportunities for students' self-evaluation of their research writing and include clear prompts to aid in reflection on their learning of research writing. This was addressed through the conference questions to which students responded both before (in Case I), at the beginning of (in Case II), and after their individual-based or peer-based conferences, respectively. The pre-conference questions focused on students' questions and concerns regarding the current and forthcoming components, as well as the feedback I provided on their drafts in Case I, and the post-conference questions focused on what students learned regarding the current component and any remaining questions or concerns they had regarding the current component. For students in Case I, the proposal conference questions focused on the questions and concerns they had regarding the research proposal paper, the feedback from the peer review session, and how they felt about submitting their research proposal paper. For students in Case II, the midterm conference questions focused on the questions or concerns they had regarding the literature review, introduction, and method components (the last of which was forthcoming at that point), as well as the course in general. The proposal conference questions for students in Case II focused on the feedback from the peer review session; questions or concerns regarding the literature review, introduction, method, significance, and references lists components; and how they felt about submitting their research proposal paper. The more thorough conference questions asked during these two, individual-based conferences with students in Case II were used to address the less frequent interactions I had with these students due to both the peer-based component conferences and the synchronous-online learning environment. Across both cases, the questions students asked were used to guide the discussions and the verbal feedback I provided during the conferences (which also addressed the third implication). The fifth implication was to consider how the feedback provided would assist in generalizing their knowledge and skills regarding research writing to other, similar writing tasks and contexts, as well as consider my students' interpretations of this feedback. This was addressed through my thinking of how students could transfer their learning of research writing to other areas and how students would use the feedback. The current study provided a way to collect data from students regarding both given several students indicated they would use what they learned when writing future research papers and Hattie and Timperley's

(2007) four levels of feedback were used to examine the feedback provided to students, both from me and from other students.

In addition to these five implications from the literature review I completed, implications for classroom practice can be taken from the conclusions of the current study regarding peer-based feedback. Some students in both cases indicated reviewing other students' drafts provided a sense of how their peers were completing the assignment to which they could compare their own progress. More students in both cases, however, indicated the feedback provided by me was more helpful than the feedback provided by other students. The levels at which most of the feedback provided by both me and students were directed were identical (i.e., most at the Task level, followed by the Regulation level), which suggested most of the feedback provided conveyed not only a sense of student progress but also how they should proceed. In addition, the students in Case II who completed both introduction and method drafts with feedback provided by other students improved most of their evaluative criteria ratings between their drafts and papers, which suggested this peer-based feedback was helpful despite the different providers of feedback on the drafts (other students) and the research proposal papers (me). Thus, my (and other) students' perceptions peer-based feedback is 'less than' instructor-based feedback were not supported by the findings in the current study, which seem to further support feedback on student learning can be helpful regardless of whether it is provided by instructors or by students. Given many individuals likely have had at least one negative experience with peer review or peer-based feedback as students, considerations for how such activities are incorporated with classroom practice should be made.

As suggested by previous studies, one implication is to provide examples of former students' assessments and the feedback the instructor provided on them. These activities can be helpful for students because they review other students' performance on assessments that are similar to what they will complete, and thus, the student examples and the instructor's feedback on those examples serve as models for what their performance should be and how their performance will be evaluated, respectively. Another, related implication is when reviewing examples of the feedback students should provide to each other, Hattie and Timperley's (2007) four levels of feedback should be included as part of this discussion. Demonstrating these different levels, with coded examples from the instructor-based feedback provided to former students, would not only

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model how feedback can target different components of a performance but also help to focus students' feedback on those levels. This then could assist in making the process of providing peer-based feedback less difficult for students while also making the feedback more beneficial for them. If time is available before students provide feedback, then additional examples of feedback could be distributed and students could determine the level(s) at which the feedback examples were directed, followed by discussion of their responses. These activities should further assist student learning of the differences among the levels of feedback and hopefully, assist students with providing useful feedback to other students. After doing so, students could be encouraged to provide feedback at multiple levels when reviewing other assessments, especially considering the value of Regulation level feedback in increasing students' self-regulated learning abilities.

Limitations and Future Research

Given the case study research design selected for the current study, a primary limitation of the findings is the high potential for lack of generalizability to other contexts, even those with many similarities (e.g., another advanced level, writing intensive psychology research methods course at the same or other institutions). I conducted the current study to better understand how the course I revised and adapted, as well as the feedback provided through the revisions and adaptations, contributed to student learning of research writing and more specifically, how the large amount of feedback provided throughout the semester, whether by me or by students, was beneficial to student learning. Some of the data sources included my instructional materials and because such materials are (to my knowledge) only used by me and my students, other research studies, even if using a similar or identical conceptual framework, would include different (although likely similar) instructional materials as data sources that would most likely alter the results in some ways. Similarly, my instructional approaches may be different, and in some cases very different, from how other instructors teach, which could impact student learning positively (e.g., a similar focus on student success over assessment deadlines is taken) or negatively (e.g., a focus on meeting deadlines over student success is taken).

Similarly, I selected the case study research design to help me better understand students' feedback processes in the revised and adapted versions of the ARMP given these two class sections/cases represented bounded objects of study as integrated systems. I as the course instructor have the most and closest experience

with the ARMP and have 'made it my own' through the revisions and adaptations, which is consistent with the characteristics of both the case study research design specifically and qualitative research methodologies generally. This proximity to the course, as well as to the students in the course, however, can be limiting due to both my position regarding the participants and contexts and my biases, assumptions, worldviews, and theoretical orientations. The potential for such proximity to limit the conclusions is one reason why many educational researchers and evaluators study phenomena within contexts other than their own classrooms or programs. As expected within qualitative research methodologies, I addressed both my positionality and biases when considering my role and reflexivity as a researcher and do not think either negatively impacted the current study. This does not, however, mean there were no negative impacts, and thus, my role as both the instructor and the researcher is a limitation. In addition, different students would be the participants and although the students in both cases of the current study were similar regarding their backgrounds prior to completing the ARMP, such similarities may not be present among students attending other institutions. The case study research design was selected because I thought students' feedback processes associated with developing a research paper would be based on several components of a course in which those processes are studied and would lose their meaning if separated from the contexts in which they existed (i.e., separated from the courses or the students). Despite these limitations inherent with the case study research design, the findings of the current study add to the literature regarding students' feedback processes.

The current study addressed three deficiencies in previous research and although I now know much more regarding my students' feedback processes, additional research could help both me and others to further advance knowledge in this area. Within the contexts of the revised and adapted ARMP, I would continue this research by examining the role of peer-based feedback within a face-to-face learning environment. The first semester in which I taught the adapted ARMP was face-to-face, and I was teaching it for the second time in this learning environment during the emergency shift to remote learning due to the COVID-19 global pandemic. During the next two semesters (i.e., before and during Case II), I taught the adapted ARMP as a synchronous-online course and during the semester after Case II, I again taught this version but as a face-to-face course. Given my own level of comfort with online learning and teaching, I prefer the face-to-face learning environment in general and specifically for the peer-based conferences due to the opportunities to

more easily (i.e., compared to using videoconferencing) monitor students in their groups and respond to their questions or concerns. Some students indicated the peer-based conferences were slightly awkward through videoconferencing, but I am unsure of the extent to which this impacted both the feedback students provided and how effective it was. Some students also indicated the additional stress they were experiencing due to the COVID-19 global pandemic, so this in addition to the synchronous-online learning environment may have had a negative impact on student learning during Case II. Examining the role of peer-based feedback, and especially students' perceptions of how helpful such feedback in for their learning, in a face-to-face learning environment without similar stressors would add to the literature.

All the data in the current study were written-based (i.e., course-based assessments, feedback on those assessments, responses to conference questions), but none were verbal-based such as the discussions that occurred during the individual-based or peer-based conferences and the feedback provided during those discussions. I noted the general feedback I verbally provided to students in Case II during the peer-based conferences, and students' responses indicated the written feedback provided by other students was more helpful than their verbal feedback. Analyzing the 'in-the-moment' feedback, however, and especially in response to students' questions and concerns as they occur, would add to the findings regarding the written-based feedback. Such analyses could help further explore students' feedback processes and how they may be different in different contexts, such as when meeting in a larger group compared to meeting only with an instructor, and in different modes, such as when writing feedback compared to verbalizing it. Similarly, additional data collection methods, such as classroom observations and participant interviews, would allow for deeper analysis of students' feedback processes. The current study incorporated several common elements of both the case study research design and qualitative research methodologies, including the analysis of documents and use of textual coding of the data, but observations and interviews also are common elements that were not incorporated. The course evaluation questionnaire was the only self-report method used to collect students' perceptions in the current study, but this method only allows individuals to respond to the items as presented on the questionnaire. Incorporating both observations and interviews, especially if conducted at multiple times throughout the semester, would allow for collecting self-report data and probing for more information than is possible with only questionnaires.

The current study both described undergraduate psychology students' feedback processes associated with developing a research proposal paper and compared these processes when the feedback was provided by the instructor or by other students, but additional research can further examine students' feedback processes. One way to do this is continue comparing feedback provided by instructors with feedback provided by students, as well as from students to themselves. This last form of feedback was not examined through the current study directly, although there were several times throughout the semester when students did self-evaluate their learning and their progress more formally (e.g., responding to the conference questions). Incorporating formal and specific self-evaluation, especially of students' drafts using the scoring rubric, and asking them to reflect on any differences between their self-evaluation and others' evaluations (whether instructor or peers) would provide yet another dimension of understanding students' feedback processes when the providers of feedback are different.

Another direction could be a more intentional integration of the different frameworks associated with self-regulated learning. In the current study, feedback directed at the Regulation level was more common than in previous studies that also incorporated Hattie and Timperley's (2007) four levels of feedback, and one reason could be the multiple, smaller assessments used as part of the single, larger assignment in the current study. Given the alignment between Regulation level feedback and self-regulated learning, such frameworks can further inform how students use feedback directed at this level. The framework I believe most aligns with my instructional approach is the social-cognitive framework that considers the interactive and reciprocal nature of personal, environmental, and behavioral factors and how those impact the ways we think, feel, and act (Usher & Schunk, 2017). As such, this framework is not limited to one or even two of these factor groups in explaining human cognition, emotions, or behaviors but rather considers how these are influenced by both internal and external conditions. As applied to self-regulated learning, this framework specifies three subfunctions of self-regulation that include self-observation, self-evaluation, and self-reaction, and all of these occur during the three phases of learning. These three phases include forethought (e.g., analyzing the task, considering motivations and beliefs), performance (e.g., monitoring actions, using relevant strategies), and reflection (e.g., assessing performance, considering reactions; Usher & Schunk, 2017). Although this framework was not initially used as part of the revisions I made to the ARMP, there are components reflected

in the writing process I developed for students, such as the tools, drafts, and conferences aligning with the phases of forethought (i.e., gathering and organizing information to write), performance (i.e., organizing and writing about this information), and reflection (i.e., discussing writing and next component), respectively. Thus, integrating Hattie and Timperley's four levels of feedback with the social-cognitive framework can provide yet another way to better understand self-regulated learning and how its development among students can be encouraged through feedback on student learning.

In conclusion, the purpose of the current study was to examine my undergraduate psychology students' feedback processes associated with developing a research proposal paper within the ARMP I revised and then adapted from the initial course I taught. To better understand these changes and the feedback provided, whether by me or by students, I combined both descriptive and comparative case study types that provided a methodology for examining both my students' feedback processes throughout the semester and how these feedback processes were different based on the provider of feedback. One class section represented the revised version of the ARMP that was taught to less students in a face-to-face learning environment during a fall semester (i.e., Case I), and another class section represented the adapted version of the ARMP that was taught to more students in a synchronous-online learning environment during a spring semester (i.e., Case II). The data collected, recorded, and analyzed included course materials, class activities, the assessments and scoring rubric of the research proposal paper assignment, the assessment- and scoring rubric-based feedback provided on those assessments, and students' responses to conference questions and questionnaire items.

Generally, much of this course was similar, if not identical, between the two cases. The primary differences were that I provided most of the feedback throughout the semester to students in Case I whereas both students and I provided feedback throughout the semester to students in Case II. Across both cases, students indicated the feedback I provided was more helpful in their learning and progressing through the different assessments of the research proposal paper assignment than the feedback other students provided. In analyzing the feedback provided either by me or by students, most was focused at the Task level, followed by the Regulation level, and this was consistent with the reasons why students indicated the feedback was helpful (i.e., their reasons were focused on both the Task and Regulation levels). The rubric scores for students' research proposal papers were higher among students in Case I compared to students in Case II, which could

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be expected given I provided students in Case I with more feedback than I provided to students Case II and students indicated the feedback provided by me was more helpful than the feedback provided by other students. The increases in most of the rubric criteria scores between the drafts and the research proposal papers for students in both cases who completed introduction and method drafts suggested that receiving any feedback, regardless of the provider, was an important component of their learning. In addition, students in both cases indicated their knowledge and skills (and for some, their attitudes as well) regarding research writing increased throughout the semester and what they learned about the research process and writing a research paper would be helpful for them and used in other contexts beyond the ARMP.

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APPENDIX A: RESEARCH PROPOSAL PAPER SCORING RUBRIC

Evaluative Criteria	Not Present 0	Developing 1 – 2	Established 3 – 4	Advancing 5 – 6	Exemplary 7 – 8
Explanation of the Topic		The topic and a problem related to it are identified.	The topic and a problem related to it are described via the previous literature.	The topic and a problem related to it are described via the previous literature and noted as a problem of interest and needed study.	The topic and a problem related to it are described via the previous literature and noted as a problem of interest and needed study by reflecting on and generating alternatives to studying it.
Review of the Previous Literature		The literature reviewed describes the research questions, methodologies, and conclusions related to the topic and its related problem.	The literature reviewed describes the research questions, methodologies, and conclusions and reflects on the limitations that require further study related to the topic and its related problem.	The literature reviewed describes the research questions, methodologies, and conclusions; summarizes this information by discussing inconsistencies or 'unknowns;' and reflects on the limitations that require further study related to the topic and its related problem.	The literature reviewed describes the research questions, methodologies, and conclusions; summarizes this information by discussing inconsistencies or 'unknowns;' reflects on the limitations that require further study; and identifies the gain in knowledge related to the topic and its related problem the study hopes to achieve.
Purpose of the Study		The research question(s) are identified, and how the overviewed methods will answer them is described.	The research question(s) and how the overviewed methods to answer them are described and justified based on the literature reviewed.	The research question(s) and how the overviewed methods to answer them are described and justified based on the literature reviewed, and hypotheses are made.	The research question(s), the overviewed methods to answer them, and the hypotheses are justified based on the literature reviewed.

Evaluative Criteria	Not Present 0	Developing 1 – 2	Established 3 – 4	Advancing 5 – 6	Exemplary 7 – 8
Participants in the Study		The participants and recruitment site(s) are identified.	The participants are described in terms of relevant demographic data; the sampling technique is identified; and the recruitment site(s) and methods are identified.	The participants are described in terms of relevant demographic data; the sampling technique is described; and the recruitment site(s) and methods are described.	The participants (in terms of relevant demographic data), the sampling technique, and recruitment site(s) and methods are justified based on the literature reviewed.
Design of the Study		The research/developmental design, independent/subject variables, and dependent variables are identified.	The research/developmental design is identified, and the independent/subject variables and dependent variables are described in terms of the types of measures that will be used.	The research/developmental design is described, and the independent/subject variables and dependent variables are described in terms of the types of measures that will be used.	The research/developmental design is described; the independent/subject variables and dependent variables are described in terms of the types of measures that will be used; and these are justified based on the literature reviewed.
Materials for the Study		The independent/subject and dependent variables and the methods used to manipulate or measure them are identified.	The independent/subject and dependent variables are operationalized, and the methods used to manipulate or measure them are described.	The independent/subject and dependent variables are operationalized, and the methods used to manipulate or measure them are described in terms of their items or scales.	The independent/subject and dependent variables are operationalized; the methods used to manipulate or measure them are described in terms of their items or scales; and the reliability and validity information are discussed.
Procedure of the Study		The various conditions, their order(s), and relevant ethical issues or concerns are identified.	The various conditions, their order(s), and relevant ethical issues or concerns are described.	The various conditions, their order(s), and relevant ethical issues or concerns are described; and attempts to address researcher control are identified.	The various conditions, their order(s), relevant ethical issues or concerns, and attempts to address researcher control are described and justified based on the literature reviewed.

Evaluative Criteria	Not Present 0	Developing 1 – 2	Established 3 – 4	Advancing 5 – 6	Exemplary 7 – 8
Significance of the Study		The purpose and limitations of the study are identified.	The purpose of the study is described, and limitations of the study are identified in terms of threats to internal and external validity.	The purpose of the study is described, and limitations of the study are described in terms of how threats to internal and external validity will be addressed.	The purpose of the study is described; limitations of the study are described in terms of how threats to internal and external validity will be addressed; and the research study is justified based on the literature reviewed.

Evaluative Criteria	Not Present 0	Developing 1	Established 2	Advancing 3	Exemplary 4
References		Some of the required sources are included, but all of the entries contain errors.	Most of the required sources are included, but most of the entries contain errors.	All of the required sources are included, but some of the entries contain errors.	All (or more) of the required sources are included, and none of the entries contain errors.
Writing Style		There is slight continuity in presentation of ideas and smoothness of expression; the tone and economy of expression are slightly appropriate; precision and clarity are slightly evident, and use of linguistic devices is slightly limited.	There is somewhat continuity in presentation of ideas and smoothness of expression; the tone and economy of expression are somewhat appropriate; precision and clarity are somewhat evident, and use of linguistic devices is somewhat limited.	There is moderate continuity in presentation of ideas and smoothness of expression; the tone and the economy of expression are moderately appropriate; precision and clarity are moderately evident, and use of linguistic devices is moderately limited.	There is mostly continuity in presentation of ideas and smoothness of expression; the tone and the economy of expression are mostly appropriate; precision and clarity are mostly evident, and use of linguistic devices is mostly limited.

Evaluative Criteria	Not Present 0	Developing 1	Established 2	Advancing 3	Exemplary 4
Grammar and Usage		Slight attention given to verbs and agreement of subject and verbs; pronouns and relative pronouns and subordinate conjunctions; and misplaced and dangling modifiers and use of adverbs.	Some attention given to verbs and agreement of subject and verbs; pronouns and relative pronouns and subordinate conjunctions; and misplaced and dangling modifiers and use of adverbs.	Moderate attention given to verbs and agreement of subject and verbs; pronouns and relative pronouns and subordinate conjunctions; and misplaced and dangling modifiers and use of adverbs.	Most attention given to verbs and agreement of subject and verbs; pronouns and relative pronouns and subordinate conjunctions; and misplaced and dangling modifiers and use of adverbs.
Mechanics of Style		Slightly appropriate use of punctuation; spelling; capitalization; abbreviations; and numbers.	Somewhat appropriate use of punctuation; spelling; capitalization; abbreviations; and numbers.	Moderately appropriate use of punctuation; spelling; capitalization; abbreviations; and numbers.	Mostly appropriate use of punctuation; spelling; capitalization; abbreviations; and numbers.
Comments:					

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APPENDIX B: COURSE EVAUATION QUESTIONNAIRE (CASE I)

Section I: Writing experiences prior to PSY 331

1. Identify the non-psychology, college/university-level courses you have completed at Illinois State University and other colleges/universities that included writing as a significant component (e.g., ENG 101, other general composition courses).

2. Describe:
   - The types of papers you wrote;
   - The topics of those papers; and
   - The guidance in writing you received from course instructors and/or teaching assistants,
   as part of completing those non-psychology, college/university-level courses that included a significant writing component.

3. Describe:
   - The types of papers you wrote;
   - The topics of those papers; and
   - The guidance in writing you received from course instructors and/or teaching assistants,
   as part of completing PSY 231 (Research Methods in Psychology) at Illinois State University.

4. Identify the psychology courses beyond PSY 231 you have completed that included a significant writing component (e.g., 300-level courses in psychology).

5. Describe:
   - The types of papers you wrote;
   - The topics of those papers; and
   - The guidance in writing you received from course instructors and/or teaching assistants,
   as part of completing those psychology courses beyond PSY 231 that included a significant writing component.

6. Describe yourself at the beginning of this semester in terms of your:
   - Knowledge of research/scholarly writing,
   - Skills in research/scholarly writing, and
   - Attitudes toward research/scholarly writing.

Section II: Formal writing experiences during PSY 331

Please rate the following formal components of the research proposal paper assignment regarding their effectiveness in your learning, growth, and development of research/scholarly writing.

1. <u>References component</u>

Completing your **References list**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **References list**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective

Describe why completing the References list and the written feedback provided was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

2. <u>Literature review component</u>

Completing your **Literature review table**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Literature review table**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Writing your **Literature review draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Literature review draft (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Literature review draft (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Attending the **Literature review conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving verbal feedback during the **Literature review conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective

Describe why:
- Completing the literature review table,
- Writing the literature review draft, and
- Attending the literature review conference**,**

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

Describe why the written and verbal feedback provided on the literature review component was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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3. Introduction component

Completing your **Introduction outline**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Introduction outline**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Writing your **Introduction draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Introduction draft (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Introduction draft (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Attending the **Introduction conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving verbal feedback during the **Introduction conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective

Describe why:
- Completing the introduction outline,
- Writing the introduction draft, and
- Attending the introduction conference,

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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Describe why the written and verbal feedback provided on the introduction component was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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4. Method component

Completing your **IRB protocol submission form**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective

Receiving written feedback on your **IRB protocol submission form**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Writing your **Method draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Method draft (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving written feedback on your **Method draft (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Attending the **Method conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving verbal feedback during the **Method conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective

Describe why:
- Completing the IRB protocol submission form and relevant appendices,
- Writing the method draft, and
- Attending the method conference,

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

Describe why the written and verbal feedback provided on the method component was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

5. <u>Proposal component</u>

Writing your **Proposal draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Attending and receiving written feedback during the **Peer review session (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Attending and receiving written feedback during the **Peer review session (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Attending and receiving verbal feedback during the **Peer review session**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Attending the **Proposal conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective
Receiving verbal feedback during the **Proposal conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective

Describe why:
- Writing the proposal draft,
- Attending the peer review session, and
- Attending the proposal conference,

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

Describe why the written and verbal feedback provided on the proposal component was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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Section III: Informal writing experiences during PSY 331

In addition to the formal components listed above, several informal components were incorporated as part of the research proposal paper assignment. Please describe how effective these were in terms of <u>your learning, growth, and development of research/scholarly writing</u>

1. Review of A. Student's research proposal paper:

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2. Review of Method Student's research proposal paper:

<div style="border:1px solid black; height:40px;"></div>

3. Review of Derek's research proposal paper:

<div style="border:1px solid black; height:40px;"></div>

4. Any additional written and/or verbal feedback received from Derek (beyond the feedback provided on the tools and drafts and during the conferences listed previously) to receive further assistance with your research proposal paper assignment:

<div style="border:1px solid black; height:40px;"></div>

5. Any additional meetings with Derek (beyond the conferences listed previously) to seek further assistance with your research proposal paper assignment:

<div style="border:1px solid black; height:40px;"></div>

Section IV: Other, non-writing-specific experiences in PSY 331

Given the research proposal paper assignment is situated within our PSY 331 course, please describe how effective the following course components were in terms of your knowledge of, and skills in, and attitudes toward research/scholarly writing.

1. Course content regarding 'General principles of research methods in psychology,' including the topics of:
   - Conceptual frameworks, developmental theories, and research proposals;
   - Library research;
   - General research strategies;
   - Research ethics;

- Research settings;
- Qualitative and applied research methodologies; and
- Writing in APA style.

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2. Course content regarding 'Research design and data measurement/collection and analysis/interpretation in psychology,' including topics of:
   - Data collection: Survey, observational, and interview research;
   - Research design and developmental designs;
   - Data measurement and procedure;
   - Numerical data analysis: Descriptive and inferential statistics; and
   - Textual data analysis: Coding, categorizing, and theming.

<div style="border:1px solid black"> </div>

3. Course content regarding 'Developmental research methods,' including the topics of:
   - Research methods to study perinatal and neonatal development;
   - Research methods to study cognitive, social, and emotional development during infancy;
   - Research methods to study cognitive, social, and emotional development during childhood;
   - Research methods to study biological, cognitive, and social transitions, and psychosocial outcomes of adolescence; and
   - Research methods to study physical, cognitive, social, and emotional development during adulthood and aging.

<div style="border:1px solid black"> </div>

4. Course readings and examination supplements that were empirical journal articles, including:
   - Lang, Pelham, Johnston, & Gelernter (1989);
   - Lang, Pelham, Atkeson, & Murphy (1999);
   - Whitbourne, Zuschlag, Elliot, & Waterman (1992); and
   - Whitbourne & Watermen (1979).

<div style="border:1px solid black"> </div>

Section V: Concluding thoughts

1. Describe how Derek's approaches to instruction have assisted in your learning, growth, and development regarding research/scholarly writing.

<div style="border:1px solid black"> </div>

2. Describe yourself now at the end of this semester in terms of your:
   - Knowledge of research/scholarly writing,
   - Skills in research/scholarly writing, and
   - Attitudes toward research/scholarly writing.

Section I: Writing experiences prior to PSY 331

1. Identify the non-psychology, college/university-level courses you have completed at Illinois State University and other colleges/universities that included writing as a significant component (e.g., ENG 101, other general composition courses).

   | |

2. Describe:
   - The types of papers you wrote;
   - The topics of those papers; and
   - The guidance in writing you received from course instructors and/or teaching assistants,
   as part of completing those non-psychology, college/university-level courses that included a significant writing component.

   | |

3. Describe:
   - The types of papers you wrote;
   - The topics of those papers; and
   - The guidance in writing you received from course instructors and/or teaching assistants,
   as part of completing PSY 231 (Research Methods in Psychology) at Illinois State University.

   | |

4. Identify the psychology courses beyond PSY 231 you have completed that included a significant writing component (e.g., 300-level courses in psychology).

   | |

5. Describe:
   - The types of papers you wrote;
   - The topics of those papers; and
   - The guidance in writing you received from course instructors and/or teaching assistants,
   as part of completing those psychology courses beyond PSY 231 that included a significant writing component.

   | |

6. Describe yourself at the beginning of this semester in terms of your:
   - Knowledge of research/scholarly writing,
   - Skills in research/scholarly writing, and
   - Attitudes toward research/scholarly writing.

   | |

Section II: Formal writing experiences during PSY 331

Please rate the following formal components of the research proposal paper assignment regarding their effectiveness in your learning, growth, and development of research/scholarly writing.

6. References component

Completing your **References list**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from Derek on your **References list**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Describe why completing the References list and the written feedback provided was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

7. Literature review component

Completing your **Literature review table**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from Derek on your **Literature review table**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Writing your **Literature review draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Reviewing/providing feedback on another student's draft during the **Literature review conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from peers on your **Literature review draft (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from peers on your **Literature review draft (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving verbal feedback from peers during the	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Literature review conference						
Receiving written and/or verbal feedback from Derek regarding your **pre/post-conference questions**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Describe why:
- Completing the literature review table,
- Writing the literature review draft, and
- Reviewing/providing feedback on another student's draft during the literature review conference**,**

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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Describe why the written and verbal feedback provided on the literature review component was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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8. Introduction component

Completing your **Introduction outline**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from Derek on your **Introduction outline**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Writing your **Introduction draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Reviewing/providing feedback on another student's draft during the **Introduction conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from peers on your **Introduction draft (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from peers on your **Introduction draft (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Receiving verbal feedback from peers during the **Introduction conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written and/or verbal feedback from Derek regarding your **pre/post-conference questions**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Describe why:

- Completing the introduction outline,
- Writing the introduction draft, and
- Reviewing/providing feedback on another student's draft during the introduction conference,

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

Describe why the written and verbal feedback provided on the introduction component was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

9. <u>Midterm component</u>

Describe why attending the Midterm conference and the written and/or verbal feedback provided was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

10. <u>Method component</u>

Completing your **Method outline**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from Derek on your **Method outline**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Writing your **Method draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Reviewing/providing feedback on another student's draft	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

during the **Method conference**						
Receiving written feedback from peers on your **Method draft (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from peers on your **Method draft (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving verbal feedback from peers during the **Method conference**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written and/or verbal feedback from Derek regarding your **pre/post-conference questions**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Describe why:
- Completing the method outline,
- Writing the method draft, and
- Reviewing/providing feedback on another student's draft during the method conference,

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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Describe why the written and verbal feedback provided on the method component was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

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11. <u>Proposal component</u>

Writing your **Proposal draft**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Reviewing/providing feedback on other students' drafts during the **Peer review session**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Receiving written feedback from peers during the **Peer review session (within the document)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving written feedback from peers during the **Peer review session (through the rubric)**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable
Receiving verbal feedback from peers during the **Peer review session**	Not at all effective	Slightly effective	Somewhat effective	Very effective	Extremely effective	Not applicable

Describe why:
- Writing the proposal draft, and
- Reviewing/providing feedback on other students' drafts during the Peer review session,

was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

Describe why the written and verbal feedback provided during the Peer review session was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

Describe why attending the Proposal conference and the written and/or verbal feedback provided was or was not effective in terms of your learning, growth, and development regarding research/scholarly writing.

Section III: Informal writing experiences during PSY 331

In addition to the formal components listed above, several informal components were incorporated as part of the research proposal paper assignment. Please describe how effective these were in terms of <u>your learning, growth, and development of research/scholarly writing</u>

1. Reviews and discussions of Derek's research proposal paper:

2. Reviews and discussions of A. Student's research proposal paper:

3. Any additional written and/or verbal feedback received from Derek (beyond the feedback provided on the tools and drafts and during the conferences listed previously) to receive further assistance with your research proposal paper assignment:

<div style="border:1px solid black; height:40px;"></div>

4. Any additional meetings with Derek (beyond the conferences listed previously) to seek further assistance with your research proposal paper assignment:

<div style="border:1px solid black; height:40px;"></div>

Section IV: Other, non-writing-specific experiences in PSY 331

Given the research proposal paper assignment is situated within our PSY 331 course, please describe how effective the following course components were in terms of your knowledge of, and skills in, and attitudes toward research/scholarly writing.

1. Course content regarding 'General principles of research methods in psychology,' including the topics of:
   - Conceptual frameworks and research proposals;
   - Library research and abstracting the literature;
   - Variables, researcher control, sampling, and research design;
   - Data measurement;
   - Data collection
   - Research ethics and research settings;
   - Procedure and internal/external validity;
   - Writing in APA style; and
   - Qualitative research methodologies and applied research methodologies.

<div style="border:1px solid black; height:40px;"></div>

2. Course content regarding 'Developmental psychology research methods,' including the topics of:
   - Developmental theories and developmental designs;
   - Research methods to study perinatal and neonatal development;
   - Research methods to study cognitive, social, and emotional development during infancy;
   - Research methods to study cognitive, social, and emotional development during childhood;
   - Research methods to study adolescent development; and
   - Research methods to study adult development and aging.

<div style="border:1px solid black; height:40px;"></div>

3. Course readings and examination supplements that were empirical journal articles, including:
   - Lang, Pelham, Johnston, & Gelernter (1989);
   - Lang, Pelham, Atkeson, & Murphy (1999);
   - Whitbourne, Zuschlag, Elliot, & Waterman (1992); and
   - Whitbourne & Watermen (1979).

<div style="border:1px solid black; height:40px;"></div>

Section V: Concluding thoughts

1. Describe how Derek's approaches to instruction have assisted in your learning, growth, and development regarding research/scholarly writing.

   <div style="border:1px solid #000; height:2em;"></div>

2. Describe yourself now at the end of this semester in terms of your:
   - Knowledge of research/scholarly writing,
   - Skills in research/scholarly writing, and
   - Attitudes toward research/scholarly writing.

   <div style="border:1px solid #000; height:2em;"></div>

APPENDIX D: SCORING RUBRIC REVIEW QUESTIONNAIRE

Thank you again for reviewing this scoring rubric and providing your feedback regarding its use in evaluating research proposal papers. For additional context, the purpose and objectives of this assignment are provided below.

Purpose: Demonstrate student's ability to develop and write a research proposal paper.

Objectives:
- Determine what previous knowledge has been gained and how it was gained;
- Determine what new knowledge can be gained and why it is needed;
- Determine how this new knowledge can be gained and what impact it can have; and
- Write about all of these in an APA-style research paper.

_____

1. To what extent do the evaluation criteria/descriptions of the score levels address all aspects of a student's ability to develop and write a research proposal paper?

   [ ]

2. To what extent do the evaluation criteria/descriptions of the score levels address any information extraneous to a student's ability to develop and write a research proposal paper?

   [ ]

3. To what extent is there information addressed through developing and writing a research proposal paper that should be evaluated through the scoring rubric but is not present in the evaluation criteria/descriptions of the score levels?

   [ ]

4. To what extent are the scoring categories/descriptions of the score levels well defined?

   [ ]

5. To what extent are the differences between the score categories/ descriptions of the score levels clear?

   [ ]

6. To what extent do the evaluation criteria/descriptions of the score levels reflect competencies that would suggest success on future or related research papers?

   [ ]

7. To what extent are there aspects of future or related research papers that are not reflected in the evaluation criteria/descriptions of the score levels?

   [ ]