

*Sandwich With a Side of Motivation: An Investigation of the Effects of  
the Feedback Sandwich Method on Motivation*

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**Abstract**

The “feedback sandwich” method involves placing corrective feedback between two positive statements. Although it has been argued that this method is an effective means of delivering feedback to students because it seemingly makes constructive feedback more pleasant (e.g., Dohrenwent, 2002), there exists limited empirical research to support this claim. Receiving feedback from instructors has implications for a host of perceptual and behavioral variables for students. The limited body of empirical research on the feedback sandwich method provides evidence that while this method is associated with perceived usefulness and effectiveness (e.g., Davies & Jacobs, 1985), its use may not influence subsequent performance (Prochazaka et al., 2020). This study examines the effects of feedback sequencing on motivation using an experimental design in a sample. Results indicate the feedback sandwich method had no effect on self-reported motivation levels. Results are discussed with regard to their applied and theoretical implications.

Keywords: Feedback Sandwich, Student Motivation, Feedback Sequencing

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## **Introduction**

Student motivation is a key predictor of a host of desirable educational outcomes including performance, learning, and self-efficacy (e.g., Lim, 2004; Razak & See, 2010). It is unsurprising, then, that motivation is a key construct in the study of teaching and learning. Although motivation may derive from a host of internal variables within students (e.g., interest in topic, use of technology in a class), one major way in which motivation may be incited is through the behaviors of instructors, namely feedback on class assessments.

Feedback is an essential part of the learning process and often provides students with a framework for improvement, as well as an explication for their quantitative grade. While instructor feedback can enhance student motivation, it may also have the adverse effect. Hattie and Timperley (2007) argue that “feedback is one of the most powerful influences on learning and achievement, but this impact can be either positive or negative”. Such a statement points to the crucial role that message framing plays in the generation of positive educational outcomes. Thus, the question arises, how might instructors frame messages in order to facilitate positive educational outcomes within students?

One possible way instructors may frame messages to promote positive outcomes is through the use of the “feedback sandwich” method. This method involves placing corrective feedback between two positive statements (Dohrenwent, 2002). Although it has been argued that this method is an effective means of delivering feedback to students because it seemingly makes constructive feedback more pleasant (e.g., Dohrenwent, 2002; Schwarz, 2013), there exists limited empirical research to support this claim (for exceptions, see Davies & Jacobs, 1985; Dolan, Covert, Fleming, & Keppel, 2021; Henley & Reed, 2015; Parkes et al., 2013; Prochazaka et al., 2020).

The purpose of the current study is to examine the effects of feedback sequencing on motivation in effort to provide empirical evidence for the effectiveness of the sandwich method, with regard to student motivation. Furthermore, of the limited body of research on the sandwich method, few studies have examined all potential combinations of feedback sequencing. The current study seeks to look at all potential combinations of feedback statements in effort to provide a more robust test of the method. By examining the effects of feedback sequencing on motivation, potential mediators on the feedback-performance relationship may be elucidated. The implications of such findings would likely have important theoretical and applied implications.

## **Feedback and the Feedback Sandwich Method**

The current study defines instructor feedback refers as instructor-based comments on student work provided with the goal of enhancing students’ academic performance (Mulliner & Tucker, 2017). Often, when delivering feedback to students, instructors often employ both positive and corrective statements. These positive and corrective statements may be a general comment about a student (e.g., “you have a lot of potential”) or a specific comment about the student’s performance on the assignment (e.g., “you demonstrate a good understanding of the concept.”).

The sequencing of positive and corrective statements may be an important factor predicting the effectiveness of the feedback in relation to student perceptions, motivation, and performance. The feedback sandwich method, which focuses on the sequencing of feedback statements, has

garnered a considerable amount of attention in the popular press as a method to enhance a host of student-related variables (e.g., Dohrenwent, 2002; Schwarz, 2013). This method proposes that placing corrective feedback in between pieces of positive feedback is more effective at generating positive student outcomes compared to other sequences (e.g., two positive feedback statements followed by constructive feedback).

The feedback sandwich method has argued to be more effective at generating positive student outcomes compared to other sequences. However, while widely discussed in the popular press as an effective means of providing feedback (e.g., Dohrenwent, 2002; Schwarz 2013), the feedback sandwich method has not generated much empirical research to date. The limited studies in this area suggest that feedback sandwich leads to higher levels of student-reported perceptions of usefulness and effectiveness, compared to other feedback sequences (e.g., Davies & Jacobs, 1985), but may not be as effective at influencing actual performance in a class (e.g., Prochazaka et al., 2020). Overall, this body of literature suggests that feedback sequencing may influence student perceptions of the feedback itself, but perhaps not performance. With regard to the effects of sequencing on perceptions, the cognitive processes through which feedback influences perceptions remain unclear.

Additionally, the scant body of research in the area of the feedback sandwich method rarely examine all potential combinations of feedback sequencing. Typically, studies looking at the effects of the feedback sandwich typically employ three experimental conditions: (1) Sandwich feedback, (2) Positive-first feedback, and (3) Constructive first feedback without considering how the ordering of specific positive statements may influence perceptions, motivation, and performance. As previously argued, however, a major way in which statements may vary is with regard to specificity and generality; that is, we might see different effects based on the ordering of specific positive and general positive statements.

## **The Current Study**

Few studies have examined all potential combinations of sequencing. In addition, no studies to date have looked at the effects of the feedback sandwich method on motivation. By examining the effects of sequencing on motivation, potential mediators in the feedback-performance may begin to be elucidated. The implications of such findings would likely have important theoretical and applied implications.

This study examines the effects of feedback sequencing on motivation while examining all possible combinations of feedback sequencing. The following research question guides this study:

RQ1: Does the ordering of general and specific feedback statements impact perceptions of motivation?

Secondly, the current study also examines the effect of feedback sequencing on self-reported motivation. In light of the literature on the sandwich method (e.g., Davies & Jacobs, 1985; Dohrenwent, 2002; Prochazaka, Ovcari, & Durinik, 2020), the following hypothesis is proposed:

H1: The feedback sandwich method will lead to higher levels of self-reported motivation in class compared to other sequences of feedback.

## **Methodology**

### **Design and Procedures**

A total of 155 participants took part in this between-groups experimental study. Participants were recruited from undergraduate classes at a mid-sized public university in the Northeast United States. Participants ranged in age from 18 to 23 and were mostly female (64.90%).

Data were collected through Qualtrics, an online survey platform. Upon their recruitment to this study, participants were told that the focus of the study was on the effects of instructor feedback on cognition and emotion.

Participants were told to envision a hypothetical situation in which they were taking a class which required the completion of two papers, each worth 25% of their grade. They were then told that they received their grade for the first paper, which was a 60%. Participants were then presented with their feedback on this assignment. At this point, participants were randomly assigned to one of six feedback conditions. Together, these six conditions represented all possible combinations of feedback sequencing. The two positive feedback statements in this study read, “The structure of your paper is good” (specific statement) and “You have the potential to do good work” (general statement). The corrective feedback statement was as follows: “Your understanding of the content is incorrect” (see Table 1 for all feedback condition messages) To enhance the ecological validity of the current study, we presented the grade and feedback in a format consistent with that of the learning management platform used at the institution at which data were collected (see Figures 1 and 2 for sample experimental stimuli).

Condition	Ordering	Condition Message
Sandwich (1)	Positive General Constructive Positive Specific	You have the potential to do good work. Your understanding of the content is incorrect. The structure of your paper is good.
Sandwich (2)	Positive Specific Constructive Positive General	The structure of your paper is good. Your understanding of the content is incorrect. You have the potential to do good work.
Constructive First (1)	Constructive Positive General Positive Specific	Your understanding of the content is incorrect. You have the potential to do good work. The structure of your paper is good.
Constructive First (2)	Constructive Positive Specific Positive General	Your understanding of the content is incorrect. The structure of your paper is <u>good</u> . You have the potential to do good work.
Positive First (1)	Positive General Positive Specific Constructive	You have the potential to do good work. The structure of your paper is good. Your understanding of the content is incorrect.
Positive First (2)	Positive General Positive Specific Constructive	The structure of your paper is good. You have the potential to do good work. Your understanding of the content is incorrect.

Table 1: Condition Messages

**Please imagine the following scenario:**

*You are taking a writing-intensive class for your major this semester. For this class, you must write two papers. Each paper is worth 25% of your final grade. Last week you submitted your first paper to D2L. Today when you logged onto D2L, you receive the following alert for the class:*

 "Paper 1" updated. Your grade is: 60 %

Figure 1: Grade Message

After seeing your grade, you click on the link to see your feedback on the assignment and you see the information below. **Please be sure to read all of the elements contained in the message.**

# Feedback for Paper 1

## Dropbox Feedback

### Overall Feedback

The structure of your paper is good. Your understanding of the content is incorrect. You have the potential to do good work.

Figure 2: Sample Condition Message (Sandwich Condition 2)

## Measures

In order to understand if feedback sequencing had an effect on motivation, after reading their condition feedback messages, participants completed an adapted version of Beatty and Payne's (1985) Motivation Scale. This scale used 12 items measured on 7-point bipolar response scales, with higher numbers representing higher levels of motivation ( $M = 3.89$ ,  $SD = 1.13$ ,  $\alpha = .88$ ).

We also controlled for both positive and negative emotion, as emotion may confound the feedback-motivation relationship. We measured positive and negative emotion separately using the Positive and Negative Emotion Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). This scale utilizes 10 items to measure positive emotion and ten items used to measure negative emotion. Both scales are measured on 5-point Likert-type scales ranging from *slightly or not at all* to *extremely* (Positive emotion:  $M = 2.25$ ,  $SD = 0.65$ ,  $\alpha = .79$ ; Negative emotion:  $M = 3.36$ ,  $SD = 0.86$ ,  $\alpha = .88$ ).

## Results

### RQ1: Ordering of General and Specific Feedback Statements

A major purpose of this study was to examine whether or not the type of positive statement (i.e., general, specific) had an impact on motivation. As a result, we designed six experimental conditions in the current study. These six conditions represented two variations of the sandwich method, two variations of positive first feedback, and two variations of constructive first feedback. To examine whether or not the type of statement impacted the feedback-motivation relationship, we conducted a series of independent sample t-tests (see Table 2 for means based on condition).

	Motivation			Positive Emotion			Negative Emotion		
	<i>M</i> ( <i>SD</i> )	<i>t</i> ( <i>df</i> )	<i>p</i>	<i>M</i> ( <i>SD</i> )	<i>t</i> ( <i>df</i> )	<i>p</i>	<i>M</i> ( <i>SD</i> )	<i>t</i> ( <i>df</i> )	<i>p</i>
Sandwich (1)	3.677 (1.05)			2.18 (0.62)			3.36 (0.65)		
Sandwich (2)	4.12 (1.11)	-1.06 (41)	.30	2.38 (0.67)	1.06 (42)	.30	3.17 (1.03)	0.74 (42)	.47
Constructive First (1)	3.86 (1.18)			2.13 (.59)			3.55 (.79)		
Constructive First (2)	3.95 (1.27)	-0.25 (44)	.80	2.10 (0.55)	0.17 (44)	.86	3.16 (.77)	1.71 (44)	.10
Positive First (1)	3.60 (1.16)			2.25 (0.48)			3.54 (0.78)		
Positive First (2)	3.89 (0.99)	-0.83 (40)	.41	2.09 (0.57)	1.01 (40)	.32	3.37 (1.04)	0.59 (40)	.56

Table 2: Condition Means and Results of T-Test

First, we examined whether or not motivation scores varied based on our two sandwich conditions. Results of this t-test demonstrated that no differences existed ( $t(41) = -1.06, p = .30$ ). Therefore, the ordering of general and specific statements in the sandwich method had no impact on motivation. Next, we explored whether or not mean differences existed in motivation scores for our two positive first conditions. Results of this t-test demonstrated that no differences existed ( $t(44) = -0.25, p = .80$ ). Therefore, the ordering of general and specific statements in a positive feedback first sequence had no impact on motivation. Finally, we explored whether or not mean differences existed in motivation scores for our two constructive first conditions. Results of this t-test demonstrated that no differences existed ( $t(40) = -0.83, p = .41$ ). Therefore, the ordering of general and specific statements in a constructive feedback first sequence had no impact on motivation. A similar pattern of results was identified for positive and negative emotion (see Table 2).

Because no differences were identified in our sandwich, positive first, and constructive first conditions, we then collapsed our six conditions into three in order to enhance our statistical power. As a result, the subsequent analyses are run on three conditions: (1) Sandwich feedback sequencing; (2) Positive first feedback sequencing; and (3) Constructive first feedback sequencing (see Table 3 for condition means for collapsed conditions).

Condition	Motivation <i>M</i> ( <i>SD</i> )	Positive Emotion <i>M</i> ( <i>SD</i> )	Negative Emotion <i>M</i> ( <i>SD</i> )
Sandwich (PCP)	3.93 (1.08)	2.27 (0.64)	3.27 (0.84)
Constructive First (CPP)	3.94 (1.22)	2.11 (0.56)	3.35 (0.80)
Positive First (PPC)	3.74 (1.08)	2.18 (0.52)	3.46 (0.91)

Table 3: Condition Means for Collapsed Conditions

### H1: Testing the Effects of the Sandwich Method on Motivation

Our hypothesis stated that the sandwich method would lead to higher levels of motivation compared to other sequences (i.e., positive first, constructive first). Additionally, because literature demonstrates that emotion correlates with sequencing and motivation (e.g., Dolan et al., 2021), we controlled for both positive and negative emotion (See Table 4 for correlations among scales). To explore the effects of sequencing on motivation, then, we ran a linear regression in which the effects of feedback sequencing on motivation was examined.

	Motivation	Positive Emotion	Negative Emotion
Motivation	1.00	.57*	-.22*
Positive Emotion	.57*	1.00	.10
Negative Emotion	-.22*	.10	1.00

Note. \* denotes significance at  $p > .05$ .

Table 4: Correlations Among Emotion and Motivation Variables

First, we dummy coded the collapsed feedback sequencing conditions into three groups: (1) Sandwich; (2) Positive first; and (3) Constructive first. Also in the regression model, we controlled for possible confounding variables including positive and negative emotional responses of receiving feedback.

The overall regression model was statistically significant ( $Adj. R^2 = .40$ ,  $F(4, 145) = 25.87$ ,  $p < .001$ ). However, in our model, we did not find an effect for the feedback sandwich (Constructive First  $B = .25$ ,  $\beta = .10$ ,  $p = .14$ ); Positive First  $B = .06$ ,  $\beta = .02$ ,  $p = .74$ ). Therefore, H1 was not supported; the feedback sandwich did not lead to higher levels of motivation compared to other conditions.

Positive and negative emotion, which were added to the model as control variables, were found to influence motivation (Positive Emotion:  $B = 1.08$ ,  $\beta = .62$ ,  $p < 0.01$ ; Negative Emotion:  $B = -.39$ ,  $\beta = -.28$ ,  $p < 0.01$ ). Therefore, both positive and negative emotional responses influenced levels of motivation such that the more positive emotion one experienced, the more motivated they felt, and the more negative emotion they experienced, the less motivated they felt.



## **Discussion**

The purpose of this study was to examine the effects of feedback sequencing on motivation while considering all possible combinations of feedback sequencing. Results of the current study provided no evidence that the ordering of general and specific positive feedback impacted motivation, negative emotion, or positive emotion. Thus, results of the current study provide no evidence that placing specific feedback before general feedback (and vice versa) have an impact on self-reported emotion and motivational variables. Such a finding has important implications for future studies, as these findings suggest that researchers can employ fewer experimental conditions in their examinations of the feedback sandwich method.

Of central interest to this study was the effect of feedback sequencing on self-reported motivation. It was specifically predicted that the feedback sandwich method would generate higher levels of motivation compared to other conditions (i.e., positive feedback first, constructive feedback first). Interestingly, this study failed to find an effect for the sandwich method on motivation. The feedback sandwich method, did, however, demonstrate effects on self-reported positive and negative emotion.

In addition to not influencing actual performance (i.e., Prochazaka et al., 2020), findings from the current study provide evidence that the feedback sandwich method also does not influence motivation. These findings, taken together with the general body of research suggests that while students might perceive the feedback sandwich method to be more useful and of better quality (i.e., Davies & Jacobs, 1985), these perceptions do not go on to influence other motivational and behavioral variables. Therefore, the body of empirical literature largely suggests that the feedback sandwich method's success may not transcend outside of the popular press.

Our failure to detect an effect of feedback sequencing on motivation may be explained by our study's one-shot design. In the current study, students were presented with a single scenario in which they were presented with feedback. It may be the case that the method is most effective in situations where students receive a series of feedback on repeated occasions. A longitudinal design would allow for an examination of such a possibility.

Another possibility is that the feedback sandwich method may work in some situations but not others. For instance, the current study examined written verbal feedback provided to students on a learning management platform. It may be the case that the feedback sandwich works better in face-to-face, compared to online scenarios. Future studies should explore that possibility. Another possible situational variable that may influence the feedback sequencing – motivation relationship may be the type of class in which the feedback is received (e.g., major class versus liberal studies class).

## **Conclusions**

While the feedback sandwich method has generated a great deal of attention and praise in the popular press, few empirical studies support the idea that the feedback sandwich method is students' most preferred and effective method of receiving feedback. Results of the current study corroborate these findings and suggest that the sequencing of feedback statements has little to no impact on student's motivation.

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