Journal of the Scholarship of Teaching and Learning, Vol. 22, No. 3, September 2022, pp.55-75.
doi: 10.14434/josotl.v22i3.31866

Importance of Goal and Feedback Orientation in Determining Feedback Effectiveness

Kathy Paulson Gjerde[1], Deborah Skinner[1], and Margaret Padgett[1]
[1]Butler University

Abstract: In this study, we examine two student characteristics (goal orientation and feedback orientation) that might predispose students to use and benefit from two different types of feedback. Students receiving future-oriented feedback exhibited significantly greater improvement in their quiz scores compared to students receiving past-oriented feedback, although the degree was a function of both student goal and feedback orientation. Specifically, high learning-goal-orientation students had greater performance improvement when they received future-oriented feedback while high performance-prove-orientation students had greater improvement when they received past-oriented feedback. Students with a high active-feedback-seeking orientation improved more than other students, and students with a high passive-feedback-seeking orientation improved less when they received future-oriented feedback.

Keywords: goal orientation, assessment, feedforward

Learning, regardless of the context in which it takes place, rarely occurs without significant practice and guidance. Practice provides learners with experiences using the knowledge or skill while guidance, often from a knowledgeable external source, provides learners with information about their progress and where changes might be made. This guidance is often referred to as feedback and, ideally, it is used by learners to make changes to improve their performance. In an educational context, feedback is typically provided by the instructor, although it may sometimes be provided by peers. Despite the important role that feedback plays in learning, research on the effectiveness of feedback at improving performance has produced mixed results (c.f. Kluger & DeNisi, 1996; Black & Wiliam, 1998; Evans, 2013; Hattie & Timperley, 2007), at least partially because feedback is often *not* used by learners (e.g., Brown & Glover, 2006). The quality of the feedback provided can certainly influence whether feedback is used; however, an equally important factor is the feedback recipient (i.e., the learner). How recipients perceive and interpret the feedback they receive as well as their attitudes toward feedback in general, play a key role in determining if, and how, they use feedback (Carless & Boud, 2018; Leenknecht et al., 2019; Winstone et al., 2019).

In this pilot study, we consider the role that two student characteristics, goal orientation and feedback orientation, may play in students' ability to use and benefit from two different types of feedback. Despite limitations introduced by the exploratory nature of our analysis, our results suggest that students receiving future-oriented feedback exhibited significantly greater improvement in their quiz scores compared to students receiving past-oriented feedback, although the degree of improvement was a function of both student goal orientation and feedback orientation. In the next section, we summarize the feedback and goal orientation literature most relevant to our pilot study. A description of the specific intervention utilized follows, including details relating to the sample, measures, and model. We summarize the results of our exploratory analysis, concluding with a discussion of practical implications and model extensions.

Literature Review

Feedback vs. Feedforward

Feedback, as the term is typically used, refers to any information that is provided to learners about their performance on, or understanding of, some task, assignment, or activity (Hattie & Timperley, 2007). Feedback is, by its nature, backward-looking. It examines a past performance, determines the degree of success or failure in that past performance, and focuses on finding and fixing mistakes that have already occurred (Rysdam & Johnson-Shull, 2015). While the goal of feedback may be to improve future performance and enhance learning,[1] the heavy emphasis on past performance may limit its effectiveness in achieving this goal. To address this deficiency inherent in feedback, Rysdam and Johnson-Shull (2015) recommended a small, but significant, change in how instructors respond to student work. In particular, instead of providing feed*back*, they recommend providing feed*forward*. Feedforward provides the learner with information and strategies to help them prevent mistakes in the future. Feedforward frames comments to students as recommendations for what they ought to do in the future, rather than in terms of the mistakes they made in the past. It is, thus, explicitly future-focused and forward-looking. Carless (2007) and others (e.g., Van Heerden, 2020; Shafi et al., 2018) have also used the term "feedforward" to refer to feedback information provided in a way that facilitates its application to future work.

Although Rysdam and Johnson-Shull (2015) were focused mostly on the nature of the comments that instructors provide to students on their work, the feedback vs. feedforward distinction has a broader application that mirrors the distinction commonly made between summative and formative assessment.[2] Summative assessment provides students with a summary, often quantitative in nature, of how well they have performed or of what they have learned. Because it summarizes "the achievement status of a student" (Sadler, 1989) and thus, like feedback, focuses on past performance, it can be viewed as an assessment *of* learning (Amua-Sekyi, 2016). In contrast to summative assessment, formative assessment is "information communicated to the learner that is intended to modify his or her thinking or behavior for the purpose of improved learning" (Shute 2008, 154). Formative assessment is, like feedforward, focused on the future and thus, can be considered assessment *for* learning (Amua-Sekyi, 2016). Although it is common to distinguish between these two types of assessment, they are inherently intertwined, and may be viewed as complementary components of a single process (Dixson & Worrell, 2016; Houston & Thompson, 2017).

In a descriptive study, Rysdam and Johnson-Shull (2015) content analyzed the comments provided by instructors on student writing and found that most of the written comments would be characterized as feedback rather than as feedforward because they were primarily focused on identifying and labeling the mistakes that students made in their submitted work. Other studies (e.g., Connor & Lunsford, 1993; Lunsford & Lunsford, 2008) have found similar results. Interestingly, consistent with previous research (e.g., Stern & Solomon, 2006) they also found that the majority of comments emphasized grammar, usage, and other mechanical mistakes made rather than more substantive issues relating to organization and support/evidence for arguments made. Although they did not provide data about the relative effectiveness of these two types of comments, they suggested that feedforward comments would be more beneficial for student learning than feedback comments. Some research supports this suggestion. For example, Gjerde, Padgett, and Skinner (2017) compared

[1] It should be noted that while feedback may be primarily intended to enhance student learning and performance, it has other, often unintentional, impacts on students, including influencing their personal identity (Torres & Anguiano, 2016).
[2] The feedback/feedforward distinction is also similar to the distinction that has been made between evaluative vs. developmental feedback (Van Heerden, 2020).

the effectiveness of what they termed process feedback and outcome feedback. Process feedback in their study exemplified feedforward because it was framed as future-oriented suggestions for improving a student's response. This future focus was further emphasized by the fact that the process feedback was provided on the brainstorming that students did *before* writing their final answer to the quiz question. Outcome feedback in their study exemplified feedback because it involved identifying mistakes that students had made in preparing their final answer. The past focus was also demonstrated by providing the feedback on the final answer that the student wrote rather than on their pre-answer brainstorming. Their results showed that process feedback (i.e., feedforward) resulted in greater performance improvement on subsequent quizzes than outcome feedback. In a similar vein, Carless (2007) reported that students found feedback provided on drafts of their work (which would likely have more of a feedforward orientation to it) to be more useful than feedback provided on the completed assignment (which would likely have a feedback orientation).

Regardless of whether the comments provided by the instructor are framed as feedback or as feedforward, the information provided can help students to identify performance gaps, where there is a difference between the desired or expected performance and their current performance. The Feedback Intervention Theory proposes that there are four possible responses to a performance gap: increasing effort to reduce the gap, changing the performance standard (i.e., the desired or expected performance), abandoning the standard, or rejecting the feedback entirely. Learning only occurs when someone chooses to take the action necessary to close the gap (Kluger & DeNisi, 1996). This leads to the following question: What motivates a student to use feedback they are provided to help them close a performance gap, (i.e., to learn) rather than engage in one of the other responses that do not result in learning?

Research examining feedback literacy (Sutton, 2012; Carless & Boud, 2018) and feedback engagement (Winstone et al., 2017; Winstone et al., 2019) point to the critical role of the feedback recipient in the decision about whether and how to use feedback. Research focusing on the feedback recipient has examined recipient characteristics that might affect if, and how, they respond to feedback, including academic self-efficacy (Adams et al., 2020), student achievement level (Pitt et al., 2020), and feedback beliefs (Winstone et al., 2019; Rakoczy et al., 2019). We build on this literature by examining another feedback recipient/student characteristic, their goal orientation, which may influence how students interact with feedback information.

Goal Orientation

Goal orientation reflects the motivational orientation that one has toward a task on which one is working and, consequently, the nature of the goals a student might seek to accomplish in an educational setting (Dweck, 1986; Dweck & Leggett, 1988). The original conception of goal orientation identified two types of goals: performance and learning (Dweck, 1986). Students with a performance-goal orientation are focused on performing well and demonstrating their competence to others, while those with a learning-goal orientation emphasize developing their competence. Underlying these two orientations are differing sets of beliefs about ability and effort (VandeWalle & Cummings, 1997). Students with a performance-goal orientation believe their ability level is fixed and cannot be developed. They also believe that having to put forth significant effort on a task is an indication of low ability. Consequently, when faced with a difficult task or with failure, they respond in a maladaptive way by losing interest in, and withdrawing from, the task and by making negative ability attributions. In contrast, students with a learning-goal orientation believe that ability can be developed. They also believe that putting forth effort will enhance one's task mastery. These beliefs about ability and effort lead to adaptive responses to failure, such as increasing effort and persisting.

Although the original model included only two goals, most research has used a three-dimensional model that resulted from dividing the performance-goal orientation into a performance-prove orientation and a performance-avoid orientation. Both orientations focus on demonstrating competence, but each has a different emphasis. Those with a performance-prove orientation are concerned with being viewed favorably by others and demonstrating their competence while those with a performance-avoid orientation try to avoid displaying incompetence and being viewed negatively by others.

Goal orientation is relevant for understanding student academic performance because it has been found to influence not only task performance and learning but also how students react to feedback in learning situations. Two meta-analyses have found that performance and learning are positively related to a learning-goal orientation but negatively related to a performance-avoid orientation (Payne et al., 2007; VanYperen et al, 2015). The relationship with the performance-prove orientation is less clear, with one meta-analysis finding no relationship (Payne et al., 2007) and the other finding a positive relationship (VanYperen et al., 2015). Subsequent research (e.g., Bhargava &Pradhan, 2018; Domingues et al., 2017; Mehmood et al., 2016) further supports the positive impact of learning-goal orientation on performance as well as the negative impact of the performance-avoid orientation on performance.

The way students interact with feedback is also influenced by their goal orientation. It influences the way they respond to negative feedback (e.g., VandeWalle et al., 2001; Dahling & Ruppel, 2016; Donovan et al., 2018) as well as the extent to which they seek feedback. The view that students are active seekers of feedback is fairly new to the literature in higher education (c.f. Boud & Molloy, 2013; Leenknecht et al., 2019; Pitt et al., 2020) which has tended to view students as passive recipients of feedback and the feedback process as one-way communication from instructor to students (Pitt et al., 2020). The recent emphasis on student agency is consistent with research in management where feedback-seeking behavior has been studied extensively (c.f. Anseel et al., 2015). Scholars in higher education have suggested that this literature has the potential to inform research on feedback literacy among college students (e.g., Leenknecht et al., 2019; Joughin et al., 2020). This literature suggests that goal orientation affects feedback seeking by influencing perceptions of both the value (expectancy and appraisal) and costs (ego and self-presentation) associated with the feedback (VandeWalle & Cummings, 1997). VandeWalle and Cummings (1997), for example, found that a learning-goal orientation was positively related to perceptions of feedback value and negatively related to perceptions of feedback cost, which resulted in greater feedback seeking. The reverse was found for performance-goal orientation. Subsequent research has supported both the cost/benefit framework for feedback seeking (e.g., Tuckey et al., 2002; Park et al., 2007; Choi et al., 2014; Anseel et al., 2015) as well as the relationships between goal orientation and feedback-seeking (Anseel et al., 2015; Yan, 2018).

Not only does goal orientation influence the extent of feedback seeking, it has also been found to influence the type of feedback sought (e.g., Janssen & Prin, 2007). Several different feedback typologies have been examined. For example, Park, et al., (2007) found that learning-goal orientation was positively related to seeking both diagnostic feedback (feedback focused on corrective information) and normative feedback (feedback focused on how one's performance compares to that of peers). Performance-prove-goal orientation was positively related to seeking diagnostic and normative feedback but also assurance feedback (feedback on positive information and increasing student's self-esteem). Finally, a performance-avoid-goal orientation was only positively related to seeking assurance feedback or no feedback. Distinguishing feedback types in terms of the focus of the feedback (self or peers) and the nature of the feedback (positive or negative), Gong, Wang, Huang, & Cheung, (2017) found a positive relationship between learning-goal orientation and seeking self-

positive, self-negative, and other-positive feedback. A performance-goal orientation was only positively related to seeking self-positive and other-negative feedback.

There is a need to further understand how goal orientation affects the way students interact with feedback and how this interaction affects their academic performance. The literature cited above demonstrates that goal orientation affects performance and learning as well as the type of feedback sought. However, research has not yet examined how type of feedback received, in combination with the feedback recipient's goal orientation, affects student academic performance, as we do in this study. This is an important contribution because it allows a determination of whether students experience differential performance benefits based on the type of feedback they receive and especially, if some combinations of goal orientation and feedback type lead to greater (or lesser) performance improvement. Another contribution of this study relates to the way in which we distinguish types of feedback. Based on the distinction between feedback and feedforward discussed earlier, we compare past-focused feedback with future-focused feedback (i.e., feedforward) to see if feedback type interacts with goal orientation to influence student academic performance. This provides an extension of the previous research by Gjerde, et al., (2017) on the relative performance benefits of feedback vs. feedforward. The research question which we examined in this study was: Does student goal orientation influence the relationship between feedback type and academic performance?

Methods

Sample and Context

The participants were 86 students (52 males and 34 females) attending a private university during the 2015-2016 academic year. Students were either juniors or seniors randomly enrolled in two sections of a single upper-level economics elective. The same professor taught both sections of the course, such that the class structure, timing, activities, exams, texts, materials, pace, etc. were the same for both sections of the class. From an economics perspective, the goal of this particular elective was to utilize a set of economic models to understand various aspects of the employee-employer relationship (e.g., screening, compensation, promotion). On a broader level, however, the focus was on the development of students' critical-thinking skills, instead of memorization of certain facts and figures, as well as their writing skills. For each topic studied, the general methodology followed in this course was: (1) introduction of the relevant microeconomic theory in class and derivation of general principles; (2) illustration of these general principles using real-world situations from classic Harvard Business School cases; (3) application of these general principles to current human resource practices using recent newspaper, magazine, and journal articles.

Student learning was assessed through a combination of quizzes, exams, case reports, and case discussion grades. In particular, there were nine full-length cases which formed the cornerstone of the course. These cases were dispersed evenly throughout the semester, with a new case introduced every one-two weeks. For each of these cases, students completed a written quiz (described in more detail in the Intervention section which follows) and also received a discussion score, based on the quantity and quality of their comments during the course of the in-class case discussion. In addition, students submitted a formal case report for two of the nine cases. The case-related elements of the course constituted 50% of the course grade (i.e., case quizzes 20%, case discussions 10%, case reports 20%).

The remainder of the course grade was based on students' performance on a mid-term and a final exam, with both exams equally weighted. These exams consisted of multi-part essays and problems based on a set of current newspaper articles students were given access to one week prior to the date of the exam. Students were allowed to discuss the articles with each other but were not allowed to bring a copy of the articles to the exam. Instead, students were provided with a

clean/unmarked copy of the articles to reference during the exam. The exams were application based, requiring students to apply course concepts to real-world situations. In addition, each exam incorporated several case-related questions that required students to make connections between the cases discussed previously in class and the more current situations highlighted in the articles. All exams were graded by the same professor using a point-based rubric.

See Table 1 for statistics regarding the composition of the two sections. Note that t-tests comparing students in the two sections show that the two sections did not differ significantly in terms of students' gender, college, GPA or credits (both enrolled and completed). This is not surprising given the manner in which students enrolled in sections. The percentage of students who had previously taken a course with the same professor was approximately 19% across both sections.

Table 1. Section Composition.

	Section 1 Past-oriented Feedback (N=45)		**Section 2 Future-oriented Feedback (N=41)**	
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**
Female (%)	0.422	0.499	0.366	0.488
Semester GPA	3.293	0.430	3.182	0.516
Cumulative GPA	3.318	0.383	3.300	0.426
Number of Credits Enrolled	16.356	10.071	15.024	2.162
Number of Credits Completed	114.433	30.740	110.888	19.612
Liberal Arts & Science Major (%)	0.156	0.367	0.268	0.449
Business Major (%)	0.8440	0.366	0.732	0.449

Intervention

As highlighted in the previous section, a significant component of the course was a series of nine assigned cases. Prior to each case discussion, students were given a one-question, essay-based quiz in class. Students in both sections were given similar, although not identical, questions in order to prevent the later section from having an advantage over the earlier section. In both sections, students were instructed to spend five minutes brainstorming and organizing their thoughts in a box located at the top of the quiz. During this time, students were not allowed to write in the answer box located at the bottom of the quiz. After five minutes of brainstorming, students were given five minutes to write their answer. The quizzes in both sections followed the same pattern, as described above, and answers were graded on the same 10-point scale by the same instructor. All students were provided a numerical grade on each quiz, and this score did not depend on the type of feedback that was given.

The feedback intervention involved varying both the nature of the feedback comments provided as well as the part of the quiz that the comments addressed. Specifically, students in the future-oriented feedback group received comments that provided them suggestions for how to improve their answer in the future and these comments were provided based on what students wrote in the brainstorming box which they completed *before* writing their answer. Students in the past-oriented feedback group received comments that identified mistakes they had made and these comments were provided based on what students wrote for their final answer. The feedback provided in the two feedback treatment groups is illustrated in Figure 1. The left column of Figure 1 provides a sample quiz question, student response, and numeric score. The numeric score is based on the

student's response and, thus, would be the same whether the student received past-oriented or future-oriented feedback. The right column contains sample comments for the two treatment groups. The differences between the two treatments, while subtle, have the potential to shape students' perceptions and responses given the discursive nature of feedback (Torres & Ferry, 2019).

SAMPLE QUIZ	
Question: Stephen Connor, research director at RSH, is faced with the challenge of replacing a star semiconductor analyst, Peter Thompson. Each of the five potential candidates possesses certain critical skills, experiences, and relationships and lacks others. Would you recommend hiring David Hughes? Explain.	
Brainstorm and Organize Thoughts: • II ranked • already in Wall Street firm • worried about compensation • writing skills (good reports) • leadership abilities	**Future-oriented feedback** Includes several pros but important to think about how these pros are related and to provide specific supporting evidence for each. Do arguments represent same or similar idea? Include only distinctly different arguments in answer. Include cons in order to provide a more balanced discussion. Need to brainstorm multiple cons as well as pros in order to develop complete answer.
Answer: I would recommend hiring David Hughes, because he already has experience in a Wall Street firm. David is also II ranked which means that he is good at what he does. He has good writing skills because he writes good reports on different companies. Although he is worried about compensation, his abilities would allow him to succeed.	**Past-oriented feedback** Began with conclusion and then almost exclusively focused on arguments in support of conclusion. Did not address skills, experiences that David lacks. Missing key advantage --- leadership/mentoring ability. Did not identify specific skills associated with II ranking. Did not provide evidence to support claim that reports are well written. Why is worrying about compensation a bad thing?
Score: 6.5 out of 10	

Figure 1. Sample Quiz and Feedback.

Measures

Performance and learning. For the purposes of this pilot study, student performance was measured by scores received on the following graded components in the course: (1) scores on the nine quizzes administered over the semester (the average score across all nine quizzes was used); (2) score on the midterm exam; (3) score on the final exam; and (4) overall course grade. Given the statistically significant logarithmic trend exhibited by quiz scores over time, it appears that performance on quizzes

improved relatively quickly at the beginning of the semester, with progress gradually slowing or tapering off toward the end of the semester. Thus, as a proxy for student learning on quizzes, we used the difference between the scores received on the last quiz and the first quiz as a dependent variable in our analysis. Although the existence of only two exams (i.e., a midterm and final) did not allow us to estimate a similar trend line for exam-related learning or progress over the course of the semester, we adopted the same convention and used the difference between the final exam score and the midterm exam score to denote student learning in this context. See Table 2 for descriptive statistics pertaining to the performance-related variables used in our analysis.

Table 2. Descriptive Statistics.

Variable		Mean	Median	Minimum	Maximum	Standard Deviation
Quiz 1 Score (%)		77.907	80.000	0.000	100.000	14.235
Quiz 9 Score (%)		79.767	90.000	0.000	100.000	24.637
Mid-term Exam Score (%)		75.384	75.500	52.000	92.000	7.627
Final Exam Score (%)		73.872	74.000	39.000	92.000	10.313
Course Average (%)		82.785	83.450	57.136	94.136	6.430
Learning-goal Orientation Raw Score		3.966	4.000	3.000	5.000	0.478
Performance-prove Orientation Raw Score		3.277	3.375	1.750	5.000	0.704
Performance-avoid Orientation Raw Score		2.896	3.000	1.000	4.500	0.718
Active Feedback-seeking Orientation Raw Score		3.366	3.5	2.000	5.000	0.774
Passive Feedback-seeking Orientation Raw Score		2.878	3.000	1.000	4.667	0.727

Goal orientation. At the end of the semester, students completed a survey in which they indicated the degree to which they identified with three different goal orientations: (1) learning; (2) performance prove; and (3) performance avoid. Four items measured each type of goal orientation. The items were adapted from a goal-orientation measure developed by VandeWalle (2001). All items were measured using a 5-point rating scale, with the "1" being "strongly disagree" and "5" being "strongly agree." A sample item to measure learning-goal orientation (coefficient alpha reliability = .67) was, "I enjoy challenging and difficult tasks at school where I'll learn new skills." A sample item to measure performance-prove goal orientation (coefficient alpha reliability = .62) was, "I prefer it when others in my classes are aware of how well I am doing." A sample item to measure performance-avoid goal orientation (coefficient alpha reliability = .76) was, "I prefer to avoid situations where I might perform poorly."

For each type of goal orientation, the average score across relevant questions was calculated (see Table 2 for descriptive statistics pertaining to raw goal-orientation scores). In this exploratory analysis, given our small sample size and the potential non-linear nature between goal orientation and performance or learning, we converted the continuous raw goal-orientation scores to a binary variable. In particular, students with a raw score of greater than one standard deviation above the mean score

were categorized as being "high" in that particular goal orientation. This resulted in approximately 20% of students being categorized as "high" for each goal orientation. The goal-orientation categories are not mutually exclusive, so it was possible for a student to be categorized as "high" on more than one goal orientation.

Feedback orientation. We included a measure of feedback-seeking on the questionnaire because research has found a relationship between it and goal orientation. Five items (adapted from a measure developed by Ashford, 1986) measured feedback-seeking behavior. All feedback-seeking items were measured using a 5-point rating scale, with "1" being "strongly disagree" and "5" being "strongly agree." Based on factor analysis, these questions were divided into two distinct factors which differed in terms of the degree of initiative involved: (1) active efforts to solicit feedback and (2) general receptivity to having feedback. Two items measured active feedback-seeking orientation (coefficient alpha reliability = .61). A sample item was, "If my assignments required me to complete a task on a regular basis, I would seek additional information from my instructor to help me perform better." Three items measured passive feedback-seeking orientation (coefficient alpha reliability = .75). A sample item was, "I would like to receive more feedback on how well I perform on my assignments." See Table 2 for descriptive statistics relating to the feedback-seeking behavior raw scores.

Following prior research, in our initial analyses of the data, we treated feedback-seeking behavior as a dependent variable but found that neither feedback type nor goal orientation was significantly related to it. In the analyses reported here, we re-conceptualized feedback-seeking behavior as a feedback recipient characteristic that captured the orientation the student has toward feedback (i.e., how likely they are to actively seek, or desire to receive, feedback). As with the goal-orientation measures, the raw active- and passive-feedback-seeking scores were used to categorize students as "high" in terms of their general orientation toward active- and passive-feedback-seeking behavior based on whether or not their raw score was greater than one standard deviation above the mean. Again, this approach resulted in approximately 20% of students being denoted as high in their orientation toward active- or passive-feedback-seeking behavior.

Data Analysis

To examine the relationship between feedback and academic performance and its potential interaction with goal orientation and feedback orientation, we estimated a series of regression models. Focusing on the measures of performance improvement, we regressed the difference between quiz 1 and quiz 9, the difference between the midterm exam and final exam, as well as overall course average against a set of independent variables which controlled for the type of feedback received, the goal orientation of the student, and the feedback orientation of the student. We also incorporated variables which controlled for the interaction between type of feedback, goal orientation, and feedback orientation (see Table 3 for variable definitions). We note that out dataset satisfies the key assumptions underlying the multiple linear regression model. In particular, residuals plots were used to confirm the normality of residuals. Coupled with statistically insignificant White's tests and calculated Variance Inflation Factors of 4 or less, the dataset does not appear to suffer from significant issues of non-normality of residuals, heteroscedasticity, or multicollinearity, confirming the appropriateness of our model choice.

Table 3. Independent Variable Definition.

Variable	Definition
Type of Feedback	
FUTURE	Dummy variable with value of 1 if student receives future-oriented feedback; value of 0 otherwise.
Goal Orientation	
LEARN	Dummy variable with value of 1 if student's learning orientation score is "high" (greater than one standard deviation above mean); value of 0 otherwise.
AVOID	Dummy variable with value of 1 if student's performance avoid score is "high" (greater than one standard deviation above mean); value of 0 otherwise.
PROVE	Dummy variable with value of 1 if student's performance prove score is "high" (greater than one standard deviation above mean); value of 0 otherwise.
Feedback Orientation	
ACTIVE	Dummy variable with value of 1 if student's active feedback-seeking score is "high" (greater than one standard deviation above mean); value of 0 otherwise.
PASSIVE	Dummy variable with value of 1 if student's passive feedback seeking score is "high" (greater than one standard deviation above mean); value of 0 otherwise.
Interaction Terms	
*LEARN*FUTURE*	Dummy variable with value of 1 if student has "high" learning orientation score (greater than one standard deviation above mean) and receives future-oriented feedback; value of 0 otherwise.
*AVOID*FUTURE*	Dummy variable with value of 1 if student has "high" performance avoid score (greater than one standard deviation above mean) and receives future-oriented feedback; value of 0 otherwise.
*PROVE*FUTURE*	Dummy variable with value of 1 if student has "high" performance prove score (greater than one standard deviation above mean) and receives future-oriented feedback; value of 0 otherwise.
*ACTIVE *FUTURE*	Dummy variable with value of 1 if student has "high" active feedback seeking score (greater than one standard deviation above mean) and receives future-oriented feedback; value of 0 otherwise.
*PASSIVE *FUTURE*	Dummy variable with value of 1 if student has "high" passive feedback seeking score (greater than one standard deviation above mean) and receives future-oriented feedback; value of 0 otherwise.

Results

Preliminary analyses revealed a statistically significant difference between the performance on the first quiz of those in the future-oriented-treatment group versus those in the past-oriented treatment group ($t=2.4$, $p=.018$). In particular, those in the past-oriented treatment group had a significantly higher score ($\bar{x}=81.33$) than those in the future-oriented treatment group ($x=74.15$). A similar pattern, however, was not observed for subsequent quizzes, and there was not a statistically significant difference between the future-oriented and past-oriented feedback groups for the average quiz score

across all nine quizzes (t=1.02, p=.54). Although there was no statistically significant difference between future-oriented and past-oriented feedback on the midterm score (t=1.36, p=.41), those receiving future-oriented feedback had a significantly lower score on the final exam ($\bar{x}$=71.66) than those receiving past-oriented feedback (x=75.89).

Performance Improvement on Quizzes

In general, students receiving future-oriented feedback showed greater improvement in their quiz scores over the course of the semester than students receiving past-oriented feedback. However, the degree to which future-oriented feedback improved quiz performance was found to be a function of both students' goal orientation and their feedback orientation. In particular, when controlling for high learning-goal orientation, as well as the interaction between high learning-goal orientation and feedback type, results suggest that students with a high learning-goal orientation who received future-oriented feedback exhibited significantly greater improvement in their quiz scores than other students (column 1, Table 4). In contrast, students with a high performance-prove-goal orientation who received future-oriented feedback exhibited significantly less improvement in their quiz scores than other students (column 3, Table 4). We found no evidence of a statistically significant relationship between high performance-avoid-goal orientation and quiz score improvement (column 2, Table 4).

Turning to feedback orientation, a high active-feedback-seeking orientation was positively correlated with quiz score improvement, a result which was not contingent on type of feedback received (column 4, Table 4). However, we found a significant interaction between passive-feedback-seeking orientation and future-oriented feedback, such that students with a high passive- feedback-seeking orientation who received future-oriented feedback exhibited significantly less improvement in their quiz scores than other students (column 5, Table 4).

Table 4: Performance Improvement on Quizzes.

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Coefficient (p-value)	**Coefficient (p-value)**	**Coefficient (p-value)**	**Coefficient (p-value)**	**Coefficient (p-value)**
Constant	0.857 (0.836)	-1.081 (0.794)	-3.529 (0.401)	-5.926 (0.215)	-1.290 (0.770)
FUTURE	4.304 (0.477)	**10.778* (0.077)**	**16.029*** (0.009)**	**13.167** (0.049)**	**13.349** (0.031)**
LEARN	-10.857 (0.260)				
*LEARN*FUTURE*	**29.446** (0.034)**				
AVOID		-0.586 (0.958)			
*AVOID*FUTURE*		-4.111 (0.794)			
PROVE			11.307 (0.219)		
*PROVE*FUTURE*			**-30.950** (0.026)**		
ACTIVE				**12.801* (0.104)**	

*ACTIVE*FUTURE*				-6.042 (0.614)	
PASSIVE					0.457 (0.956)
*PASSIVE*FUTURE*					**-24.516* (0.093)**
R^2	0.098	0.043	0.102	0.079	0.090

*** p < .01; ** p < .05; * p < .1

Performance Improvement on Exams

To examine whether the relationship between feedback type and goal orientation observed in the context of quizzes extended to other assessment instruments, we used improvement between the midterm exam and the final exam as a dependent variable. These results are reported in Table 5. In terms of feedback type, the receipt of future-oriented feedback on quizzes was significantly and negatively correlated with performance improvement on exams, regardless of goal or feedback orientation. In particular, the performance improvement on exams for students who received future-oriented feedback on the quizzes was approximately 4% less than for students who received past-oriented feedback. This deterioration in performance would translate into a one-level decrease in grade, e.g., from B+ to B.

Overall course performance

Given that students receiving future-oriented feedback exhibited greater improvement in their quiz scores but less improvement in their exam scores compared to students receiving past-oriented feedback, the question remains as to whether the gain outweighs the loss. Regressing overall course average against feedback type, goal orientation, and feedback orientation, our results suggest that the gain and loss were roughly equivalent. As reported in Table 6, we found no evidence of a statistically significant direct effect of future-oriented feedback on overall course performance. Similarly, we found no evidence of a direct relationship between goal orientation and course performance, nor were the interaction terms between feedback type and goal orientation statistically significant.

Although feedback type and goal orientation were not directly linked to overall course performance, we found a connection between feedback orientation and overall course performance. In particular, students with an active-feedback-seeking orientation exhibited an approximately 3% greater course average than other students, and this result held regardless of the type of feedback received (column 4, Table 6). In contrast, the course average of students with a high passive-feedback-seeking orientation who received future-oriented feedback was approximately 8% less than that of other students (column 5, Table 6).

Table 5. Performance Improvement on Exams.

	(1)	(2)	(3)	(4)	(5)
	Coefficient (p-value)	**Coefficient (p-value)**	**Coefficient (p-value)**	**Coefficient (p-value)**	**Coefficient (p-value)**
Constant	0.371 (0.805)	1.162 (0.419)	0.206 (0.893)	0.259 (0.880)	1.129 (0.482)
FUTURE	**-4.113* (0.064)**	**-4.283** (0.043)**	**-3.831* (0.083)**	**-4.777** (0.048)**	**-5.158** (0.022)**
LEARN	1.754 (0.616)				
*LEARN*FUTURE*	-4.012 (0.421)				
AVOID		-3.329 (0.387)			
*AVOID*FUTURE*		-3.717 (0.496)			
PROVE			2.350 (0.481)		
*PROVE*FUTURE*			-5.582 (0.265)		
ACTIVE				1.178 (0.676)	
*ACTIVE*FUTURE*				0.039 (0.993)	
PASSIVE					-1.546 (0.611)
*PASSIVE*FUTURE*					0.175 (0.973)
R^2	0.081	0.119	0.088	0.077	0.078

*** p < .01; ** p < .05; * p < .1

Discussion

The purpose of this study was to explore the impact of student goal orientation, in combination with feedback type, on academic performance. We examined two types of feedback, past-oriented and future-oriented. Past-oriented feedback was provided on students' completed answers and identified mistakes made in the answer. Future-oriented feedback, or feedforward, was provided on the brainstorming that students did prior to writing their answer and provided suggestions for how to improve future responses. The aim was to explore whether goal orientation interacted with type of feedback received to influence performance improvement.

For feedback type, our results suggest that future-oriented feedback led to greater performance improvement than past-oriented feedback but only on assessment tasks/activities which are highly similar to those where the feedback was provided (i.e., other quizzes). Specifically, we found that students who received future-oriented feedback on the quizzes had significantly greater performance improvement on subsequent quizzes than did students who received past-oriented feedback. The benefit of future-oriented feedback may have occurred because it is easier for students to apply to similar assignments in the future since it was presented as specific recommendations for how students

could improve their answers in the future. Future-oriented feedback also conveys a more positive message to students about their personal identity (Torres & Anguiano, 2016), a message that the instructor cares about their learning and believes they can do better in the future, which may enhance motivation to use the feedback provided.

Students receiving past-oriented feedback on the quizzes actually showed a small decline in performance from the first quiz to the final quiz. Past-oriented feedback, by focusing on mistakes made in the student's answer, would likely be viewed by students primarily as a justification for the grade received rather than as something that could be used to improve future performance. It would also be more likely to negatively impact the student's personal identity, making it less likely to be applied in the future.

Table 6. Overall Course Performance.

	(1)	(2)	(3)	(4)	(5)
	Coefficient (p-value)	**Coefficient (p-value)**	**Coefficient (p-value)**	**Coefficient (p-value)**	**Coefficient (p-value)**
Constant	**83.138*** (<.0001)**	**83.539*** (<.0001)**	**83.046*** (<.0001)**	**82.234*** (<.0001)**	**83.789*** (<.0001)**
FUTURE	-1.077 (0.503)	0.044 (0.977)	0.408 (0.798)	-0.496 (0.772)	0.233 (0.878)
LEARN	0.997 (0.696)				
*LEARN*FUTURE*	2.261 (0.534)				
AVOID		-1.549 (0.584)			
*AVOID*FUTURE*		-4.007 (0.320)			
PROVE			1.322 (0.587)		
*PROVE*FUTURE*			-5.367 (0.143)		
ACTIVE				**2.927* (0.101)**	
*ACTIVE*FUTURE*				0.935 (0.763)	
PASSIVE					-1.670 (0.423)
*PASSIVE*FUTURE*					**-8.422** (0.021)**
R^2	0.024	0.052	0.034	0.061	0.141

*** p < .01; ** p < .05; * p < .10

An alternative, but related, explanation for the benefit of future-oriented feedback over past-oriented feedback stems from the interrelated nature of feedback, interpersonal dynamics, and trust. In particular, in a group setting, it has been shown that early negative performance feedback leads to increased task and relationship conflict within the group, although this negative impact is mitigated when groups have a high level of intragroup trust (Peterson & Behfar, 2003). Extending this idea to

the context of a classroom in which students work not in groups but individually, it is likely that a similar relationship exists between the nature of the feedback received by the student and the subsequent dynamics and level of trust between student and instructor. Recall that students receiving future-oriented feedback performed worse than those receiving past-oriented feedback on the first quiz, suggesting they likely received more objectively negative feedback on the first quiz than their peers. The improvement on subsequent quizzes for students receiving future-oriented feedback, however, suggests that this early feedback, although objectively negative, may have been perceived in a positive way by the students. For instance, perhaps students interpreted future-oriented feedback as signal of the instructor's personal interest in them and their long-term learning. As such, this feedback may have increased the level of trust between student and instructor. Overall, it appears that students who received future-oriented feedback on the quizzes were more able than those receiving past-oriented feedback to use the feedback they received to help them on future quizzes.

We found no evidence that goal orientation by itself impacted student performance or learning. This finding is inconsistent with prior research, which has found a positive relationship between learning-goal orientation and performance and a negative relationship between the performance-avoid-goal orientation and performance (e.g., Payne et al., 2007; VanYperen et al., 2015). It is not clear why our results differed from previous research. However, we did find evidence that goal orientation interacted with feedback type to influence performance and learning. Specifically, we found that high learning-goal orientation students who received future-oriented feedback had significantly greater performance improvement on the quizzes than did other students. Additionally, students with a high performance-prove-goal orientation who received future-oriented feedback had significantly less performance improvement on the quizzes than other students, indicating that they would have benefited more from past-oriented feedback.

The differing goals of the learning and performance orientations may explain these findings. Specifically, those with a high learning-goal orientation are motivated to develop their competence. It is possible that these students were able to derive greater benefit from future-oriented feedback because they viewed the specific suggestions provided as helpful to them in improving their performance and developing competence. Future-oriented feedback may also promote active engagement with feedback and thus, create 'proactive recipience' (Winstone et al., 2017) which has been found to be a significant factor in performance improvement (Zimbardi et al., 2017). Past-oriented feedback, which is provided on the quiz answer is inherently backward looking and thus, less likely to be seen as having value in improving performance. In fact, some research suggests that past-oriented feedback may actually decrease the positive impact that a learning-goal orientation has on task achievement (Merriman et al., 2012).

In contrast, a performance-prove orientation involves the goal of demonstrating competence to others. Past-oriented feedback provides high performance-prove students with information about how well they have accomplished a specific task and, thus, allows them to determine if they have demonstrated their competence. Consequently, this type of feedback may be preferred and lead to greater performance improvement than would future-oriented feedback. We did not find that the performance-avoid-goal orientation interacted with feedback type to influence either performance or learning. This is not surprising because people with a high performance-avoid-goal orientation likely perceive any and all feedback as threatening and as a negative evaluation of their competence and, thus, do not use it to enhance their performance (VandeWalle, 2001; VandeWalle et al., 2001; Park et al., 2007).

We found several interesting, but unexpected, results with respect to feedback-seeking. Following most prior research on feedback-seeking (c.f. Anseel, et al., 2015), we originally conceptualized feedback-seeking as a dependent variable. However, we found no significant relationships between feedback-seeking and either feedback type or goal orientation. Because the

measure of feedback-seeking we used was not a behavioral measure capturing actual feedback sought, but rather a measure of attitudes or beliefs about seeking feedback, we re-conceptualized feedback-seeking as a recipient characteristic, consistent with the individual difference constructs of external feedback propensity (Herold et al., 1996), feedback beliefs (Han, 2017), and feedback orientation (Linderbaum & Levy, 2010; Winstone et al., 2019). Our measure assessed two different perspectives about feedback: (1) active-feedback-seeking orientation, which involves having a positive attitude toward proactively seeking feedback from others to help in performance improvement; and (2) a passive-feedback-seeking orientation, which reflects a positive attitude toward having feedback but not necessarily a willingness to proactively seek the feedback that is desired. This distinction is similar to the distinction between inquiry and monitoring feedback-seeking (Ashford et al., 2003) and our shift in focus from examining antecedents of feedback-seeking to the consequences of feedback-seeking mirrors recent research (De Stobbeleir et al., 2020). Our results showed that students with an active-feedback-seeking orientation had significantly greater performance improvement on the quizzes and higher overall course performance than other students regardless of their goal orientation. This may have occurred because those students with an active-feedback-seeking orientation are not only interested in improving their future performance but are willing to take action (i.e., seek feedback) to bring about this improvement. The proactive nature of the active-feedback-seeking orientation suggests that these students will likely have more feedback to use for performance improvement and greater feedback volume has been associated with greater performance improvement (Gjerde et al., 2018).

Additionally, our results showed that passive-feedback-seeking orientation interacted with feedback type to influence both quiz performance improvement and overall course performance. Students with a high passive-feedback-seeking orientation who received future-oriented feedback had significantly lower quiz performance improvement and lower overall course performance than other students, indicating that they would have benefited more from past-oriented feedback. It is not clear why those who have a high passive-feedback orientation (i.e., a desire to be provided feedback but not to actively seek it) and receive future-oriented feedback have lower performance. Perhaps their passive orientation toward feedback extends to other aspects of their academic work. In other words, while they might like to have higher performance, they are unwilling to invest time and energy in actually trying to improve their performance (e.g., by using feedback they receive). This reasoning, however, would suggest a lack of willingness to use *any* feedback received rather than just future-oriented feedback.

Conclusions

Although our results are suggestive regarding the impact of goal orientation and feedback type on performance improvement, several limitations in our research methodology need to be acknowledged. First, this study was exploratory in nature and had a small sample size, resulting in several model simplifications (e.g., use of binary versus continuous independent variables). It was also carried out in one discipline (economics), with undergraduate students, and in one institution and one country/culture. As both teaching and the provision of feedback vary across disciplines, level, and country/culture, future work is needed to see if these results can be generalized to other samples, disciplines, and settings. Second, we cannot say definitively that the performance improvement on the quizzes we observed was due to the type of feedback students received. Other factors could have affected their performance, including whether the student was a graduating senior, the number of courses the student might have had previously with the same instructor, or the interest level of the student in taking the course. Finally, we did not include a condition where students received both future-oriented and past-oriented feedback. Research including a condition where students receive

both types of feedback would allow us to determine the impact of receiving both kinds of feedback. It is possible that the two types of feedback might complement each other such that receiving both produces greater performance improvement than either type by itself. Future research should examine this possibility. Recognizing that people can possess differing levels of the learning, performance-prove- and performance-avoid-goal orientations, future research could also examine goal orientation profiles to see if different combinations of the three goal orientations have different performance impacts from future-oriented and past-oriented feedback (cf. Fortunato & Goldblatt, 2006; Merriman et al., 2012). To the extent that this occurs, it might allow instructors to more effectively match feedback with student needs so that the feedback could have a more substantial impact on student performance.

Despite these limitations, our results provide some potential suggestions for instructors. First, our finding that students differed in the type of feedback that produced the greatest performance improvement suggests that it may be beneficial for instructors to provide students with a variety of types of feedback in order to ensure that they are providing some feedback that will be perceived as helpful to all students. Alternatively, instructors could choose to assess students' goal orientations early in the semester and then use this information to tailor the feedback provided to students. The goal-orientation measure is short and thus, would only take a few minutes for students to complete and for instructors to score, making pre-assessment of students' goal orientation easy to do. However, before using goal-orientation scores to determine the type of feedback to provide students, future research confirming our results is necessary. Additionally, a better understanding of goal-orientation profiles (as discussed above) would be important in deciding the type(s) of feedback students will benefit from the most. Second, the fact that students seemed unable to transfer learning from feedback on the quizzes to exams in the class indicates that instructors may need to give more attention to helping students learn how to use the feedback they are provided. Although students may appreciate receiving feedback, they may not be equipped to translate that feedback into effective strategies to improve performance (Furnborough & Truman, 2009). As noted by Sadler, 'it cannot simply be assumed that when students are 'given feedback' they will know what to do with it' (Sadler, 1989 p. 78). This is consistent with recent calls to increase feedback literacy among students (Sutton, 2012; Carless & Boud, 2018) and more generally, to enhance student engagement in the feedback process (e.g., Winstone et al., 2017).

Taken together, the results from this study suggest that student/feedback recipient characteristics, such as their goal orientation and feedback orientation, may impact the extent to which students are able to benefit, in terms of improved performance, from different types of feedback. Although rudimentary in nature, our model highlights the need for further research into other student characteristics that might influence how students interact with and respond to feedback. A better understanding of the role of students in the feedback process will help to ensure that the feedback instructors provide will actually be used and result in improved student academic performance and closing the performance gap.

References

Adams, S., Wilson, H., Money, J., Palmer-Conn, S., and Fearn, J. (2020). Student engagement with feedback: The role of academic self efficacy. *Assessment and Evaluation in Higher Education*, 45 (2), 317-329. https://doi.org/10.1080/02602938.2019.1640184.

Amua-Sekyi, E.T. (2016). Assessment, Student Learning and Classroom Practice: A Review. *Journal Education and Practice*, 7 (21), 1-6. https://www.iiste.org/Journals/index.php/JEP/article/view/31965.

Anseel, F., Beatty, A. S., Shen, W., Lievens, F., and Sackett, P.R. (2015). How are we doing after 30 years? A meta-analytic review of the antededents and outcomes of feedback-seeking behavior. *Journal of Management,* 41 (1), 318-348. https://doi.org/10.1177/0149206313484521.

Ashford, S. J. (1986). Feedback-Seeking in Individual Adaptation: A Resource Perspective. *The Academy of Management Journal,* 29 (3), 465-487. https://doi.org/10.2307/256219.

Ashford, S.J., Blatt, R., and VandeWalle, D. (2003). Reflections on the looking glass: A review of research on feedback-seeking behavior in organizations. *Journal of Management,* 29 (6), 773-799. https://doi.org/10.1016/S0149-2063_03_00079-5.

Bhargava, S. and Pradhan, H. (2018). The effect of goal orientation on job performance: Moderating effect of situational strength at work. *Journal of Management Research,* 18 (2), 90-101. https://doi.org/10.1177/0972150918803833.

Black, P. and Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice,* 5 (1), 7-74. https://doi.org/10.1080/0969595980050102.

Boud, D. and Molloy, E. (2013). Rethinking models of feedback for learning: The challenge of design. *Assessment and Evaluation in Higher Education*, 38 (6), 698-712. https://doi.org/10.1080/02602938.2012.691462.

Brown, E. and Glover, C. (2006). Evaluating written feedback. In Bryan C and Cleggs K (eds) *Innovative Assessment in Higher Education*. London: Routledge, 81-91.

Carless, D. (2007). Learning-oriented assessment: Conceptual bases and practical implications. *Innovations in Education and Teaching International*, 44 (1), 57-66. https://doi.org/10.1080/14703290601081332.

Carless, D. and Boud, D. (2018). The development of student feedback literacy: Enabling uptake of feedback. *Assessment and Evaluation in Higher Education,* 43 (8), 1315-1325. https://doi.org/10.1080/02602938.2018.1463354.

Choi, B.K., Moon, H.K. and Nae, E.Y. (2014). Cognition- and affect-based trust and feedback-seeking behavior: The roles of value, cost and goal orientations. *The Journal of Psychology,* 148 (5), 603-20. https://doi.org/10.1080/00223980.2013.818928.

Connors, R. J. and Lunsford, A. A. (1993). Teachers' Rhetorical Comments of Student Papers. *College Composition and Communication,* 44 (2), 200-23. https://doi.org/10.2307/358839.

Dahling, J.J. and Ruppel, C.L. (2016). Learning goal orientation buffers the effects of negative normative feedback on test self-efficacy and reattempt interest. *Learning and Individual Differences*, 50, 296-301. https://doi.org/10.1016/j.lindif.2016.08.022.

De Stobbeleir, K., Ashford, S., and Zhang, C. (2020). Shifting focus: Antecedents and outcomes of proactive feedback-seeking from peers. *Human Relations*, 73 (3), 303-325. https://doi.org/10.1177/0018726719828448.

Dixson, D.D. and Worrell, F.C. (2016). Formative and summative assessment in the classroom. *Theory into Practice*, 55 (2), 153-159. https://doi.org/10.1080/00405841.2016.1148989.

Domingues, J., Vieira, V., and Agnihotri, R. (2017). The interactive effects of goal orientation and leadership style on sales performance. *Marketing Letters,* 28 (4), 637-649. https://doi.org/10.1007/s11002-017-9436-3.

Donovan, J., Lorenzet, S., Dwight, S., and Schneider, D. (2018). The impact of goal progress and individual differences on self-regulation in training. *Journal of Applied Social Psychology,* 48 (12), 661-674. https://doi.org/10.1111/jasp.12556.

Dweck, C.S. (1986). Motivational processes affecting learning. *American Psychologist,* 41 (10), 1040-1048. https://doi.org/10.1037/0003-066X.41.10.1040.

Dweck, C.S. and Leggett, E.L. (1988). Social-cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256-273. https://doi.org/10.1037/0033-295X.95.2.256.

Evans, C. (2013). Making sense of assessment feedback in higher education. *Review of Educational Research,* 83 (1), 70-120. https://doi.org/10.3102/0034654312474350.

Fortunato, V.J. and Goldblatt, A.M. (2006). An examination of goal orientation profiles using cluster analysis and their relationships with dispositional characteristics and motivational response patterns. *Journal of Applied Social Psychology,* 36 (9), 2150-2183. https://doi.org/10.1111/j.0021-9029.2006.00099.x.

Furnborough, C. and Truman, M. (2009). Adult beginner distance learner perceptions and use of assignment feedback. *Distance Education,* 30 (3), 399-418. https://doi.org/10.1080/01587910903236544.

Gjerde, K.P., Padgett, M.Y. and Skinner, D. (2017). The impact of process vs. outcome feedback on student performance and perceptions. *Journal of Learning in Higher Education,* 13 (1), 73-82. https://files.eric.ed.gov/fulltext/EJ1139724.pdf.

Gjerde, K.P., Skinner, D. and Padgett, M.Y. (2018). Feedback effectiveness: Is it what you say or how much you say it? *Higher Education Theory and Practice*, 18 (3), 26-43. https://doi.org/10.33423/jhetp.v18i3.556.

Gong, Y., Wang, M., Huang, J., and Cheung, S. (2017). Toward a goal orientation-based feedback-seeking typology: Implications for employee performance outcomes. *Journal of Management*, 43 (4), 1234-60. https://doi.org/10.1177/0149206314551797.

Han, Y. (2017). Mediating and being Mediated: Learner beliefs and learner engagement with written corrective feedback. *System*, 69, 133-142. https://doi:10.1016/j.system2017.07.003.

Hattie, J. and Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77 (1), 81-112. https://doi.org/10.3102/003465430298487.

Herold, D.M., Parson, C.K., and Rensvold, R.B. (1996). Individual differences in the generation and processing of performance feedback. *Educational and Psychological Measurement*, 56, 5-25. https://doi.org/10.1177/0013164496056001001.

Houston, D., and Thompson, J.N. (2017). Blending formative and summative assessment in a capstone subject:' It's not your tools, it's how you use them. *Journal of University Teaching & Learning Practice*, 14 (3). http://ro.uow.edu.au/jutlp/vol14/iss3/2

Janssen, O. and Prins, J. (2007). Goal orientations and the seeking of different types of feedback information. *Journal of Occupational and Organizational Psychology,* 80 (2), 235-249. https://doi.org/10.1348/096317906X103410.

Joughin, G., Boud, D., Dawson, P., and Tai, J. (2020). What can higher education learn from feedback-seeking behavior in organisations: Implications for feedback literacy. *Assessment and Evaluation in Higher Education*, 46 (1), 80-91. https://doi.org/10.1080/02602938.2020.1733491.

Kluger, A.N. and DeNisi, A. (1996). The effects of feedback interventions on performance: Historical review, a meta-analysis and a preliminary feedback intervention theory. *Psychological Bulletin,* 119 (2), 254-284. https://doi.org/10.1037/0033-2909.119.2.254.

Leenknecht, M., Hompus, P., and van der Schaaf, M. (2019). Feedback-seeking behavior in higher education: The association with students' goal orientation and deep learning approach. *Assessment and Evaluation in Higher Education,* 44 (7), 1069-1078. https://doi.org/10.1016/j.hrmr.2003.11.004.

Linderbaum, B.A and Levy, P.E. (2010). The development and validation of the feedback orientation scale (FOS). *Journal of Management,* 36 (6), 1372-1405. https://doi.org/10.1177/0149206310373145.

Lunsford, A. A., and Lunsford, K. J. (2008). 'Mistakes are a Fact of Life': A National Comparative Study." *College Composition and Communication,* 59 (4), 781- 806. https://www.jstor.org/stable/20457033.

Mehmood, Q., Hamistra, M., Nawab, S., and Vriend, T. (2016). Authentic leadership and followers in-role and extra-role performance: The mediating role of followers' goal orientation. *Journal of Occupational and Organizational Psychology*, 89 (4), 877-883. https://doi.org/10.1111/joop.12153.

Merriman, K.K., Clariana, R.B., and Bernardi, R.J. (2012). Goal orientation and feedback congruence: Effects on discretionary effort and achievement. *Journal of Applied Social Psychology,* 42 (11), 2776-2796. http://dx.doi.org/10.2139/ssrn.1687866.

Park, G., Schmidt, A., Scheu, C. and DeShon, R. (2007). A process model of goal orientation and feedback seeking. *Human Performance,* 20 (2), 119-45. https://doi.org/10.1080/08959280701332042.

Payne, S.C., Youngcourt, S.S., Beaubien, J.M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology*, 92 (1), 128-150. https://doi.org/10.1037/0021-9010.92.1.128.

Peterson, S.P. and Behfar, K.J. (2003). The dynamic relationship between performance feedback, trust, and conflict in groups: a longitudinal study. *Organizational Behavior and Human Decision Processes,* 92 (1-2), 102-112. http://doi:10.1016/S0749-5978(03)00090-6.

Pitt, E., Bearman, M. and Esterhazy, R. (2020). The conundrum of low achievement and feedback for learning. *Assessment and Evaluation in Higher Education,* 45 (2), 239-250. https://doi.org/10.1080/02602938.2019.1630363.

Rakoczy, K., Pinger, P., Hochweber, J., Klieme, E., Schütze, B., and Besser, M. (2019). Formative assessment in mathematics: Mediated by feedback's perceived usefulness and students' self-efficacy. *Learning and Instruction,* 60, 154-165. https://doi.org/10.1016/j.learninstruc.2018.01.004.

Rysdam, S., and Johnson-Shull, L. (2015). Introducing feedforward: Renaming and reframing our repertoire for written response. *The Journal of the Assembly for Expanded Perspectives on Learning.* 21 (1), 9. https://trace.tennessee.edu/jaepl/vol21/iss1/9.

Sadler, D.R. (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18 (2), 119-144. https://doi.org/10.1007/BF00117714.

Shafi, A., Hatley, J., Middleton, T., Millican, R., and Templeton, S. (2018). The role of assessment feedback in developing academic buoyancy. *Assessment and Evaluation in Higher Education*, 43 (3), 415-427. https://doi.org/10.1080/02602938.2017.1356265.

Shute, V. (2008). Focus on formative feedback. *Review of Educational Research*, 78 (1), 153-189. https://doi10.3102/0034654307313795.

Stern,L. and Solomon, A. (2006). Effective faculty feedback: The road less traveled. *Assessing Writing,* 11 (1), 22-41. http://doi:10.1016/asw2005.12.001.

Sutton, P. (2012). Conceptualizing feedback literacy: Knowing, being and acting. *Innovations in Education and Teaching International,* 49 (1), 31-40.

https://doi.org/10.1080/14703297.2012.647781.

Torres, J. T. and Anguiano, C. J. (2016). Interpreting feedback: A discourse analysis of teacher feedback and student identity. *Practitioner Research in Higher Education*, 10 (2), 2-11. http://insight.cumbria.ac.uk/id/eprint/2570/.

Tuckey, M, Brewer, N, and Williamson, P (2002). The influence of motives and goal orientation on feedback seeking. *Journal of Occupational and Organizational Psychology,* 75 (2), 195-216. https://doi.org/10.1348/09631790260098677.

VandeWalle, D. (2001). Goal orientation: Why wanting to look successful doesn't always lead to success. *Organizational Dynamics,* 30 (2), 162-71. https://doi.org/10.1016/S0090-2616(01)00050-X.

VandeWalle, D., Cron, W.L. and Slocum, J.W. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology,* 86 (4), 629-40. https://doi.org/10.1037/0021-9010.86.4.629.

VandeWalle, D. and Cummings, L.L. (1997). A test of the influence of goal orientation on the feedback seeking process. *Journal of Applied Psychology,* 82 (3), 390-400. https://doi.org/10.1037/0021-9010.82.3.390.

Van Heerden, M. (2020). It has a purpose beyond justifying a mark: Examining alignment between the purpose and practice of feedback. *Assessment and Evaluation in Higher Education*, 45 (3), 359-371. https://doi.org/10.1080/02602938.2019.1644602.

VanYperen, N.W., Blaga, M., and Postmes,T. (2015). A meta-analysis of the impact of situationally induced achievement goals on task performance. *Human Performance*, 28 (2), 165-182. https://doi.org/10.1080/08959285.2015.1006772.

Winstone, N.E., Nash, R.A., Parker, M., and Rowntree, J. (2017). Supporting learners' agentic engagement with feedback: A systematic review and taxonomy of recipience processes. *Educational Psychologist,* 52 (1), 17-37. https://doi.org/10.1080/00461520.2016.1207538.

Winstone, N.E., Hepper, E.G., Nash, R.A. (2019). Individual differences in self-reported use of assessment feedback: The mediating role of feedback beliefs. *Educational Psychology,* 41 (7), 1-19.https://doi.org/10.1080/01443410.2019.1693510.

Yan, Z. (2018). Student self-assessment practices: The role of gender, school level, and goal orientation. *Assessment in Education: Principles, Policy & Practice,* 25 (2),183-199. https://doi.org/10.1080/0969594X.2016.1218324.

Zimbardi, K., Colthorpe, K., Dekker, A., Engstrom, C., Bugarcic, A., Worthy, P., Victor, R., Chunduri, P., Lluka, L., and Long, P. (2017). Are they using my feedback? The extent of students' feedback use has a large impact on subsequent academic performance. *Assessment and Evaluation in Higher Education,* 42 (4), 625-644. https://doi.org/10.1080/02602938.2016.1174187.