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Development of the Student Perceptions of Writing Feedback Scale

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by

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Dedication

This work is dedicated to my parents, whose love and support knows no bounds. Thank you both for everything.

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Abstract

Students' perceptions of feedback can impact other writing constructs, such as motivation, self-efficacy, self-regulation, and achievement (Ekholm, Zumbrunn, & Conklin, 2015; Magno & Amarles, 2011; Zumbrunn, Marrs, & Mewborn, 2016; Zumbrunn, 2013). The goal of this study was to develop a valid and reliable instrument for measuring students' perceptions of writing feedback. Evidence for validity and reliability were gathered throughout the development of the Student Perceptions of Writing Feedback (PoWF) Scale, a self-report questionnaire that asks students how they perceive feedback they get on their writing from their teachers. Items on the PoWF reflected the extant literature on students' feedback perceptions. The PoWF was administered to 275 secondary students attending a suburban, mid-Atlantic high school. Exploratory factor analysis (EFA) yielded a four-factor structure of students' feedback perceptions that accounted for 55 percent of the variance. Given the important role feedback may have in improving student writing, it is important to understand students' perceptions of writing feedback, which is a relatively new construct. This measurement study was a critical first step toward a better understanding of students' writing feedback perceptions as well as related theoretical implications.

Chapter I – Introduction

Statement of the Problem

While we know that students' perceptions of feedback can impact other writing constructs, such as motivation, self-efficacy, self-regulation, and achievement (Ekholm, Zumbrunn, & Conklin, 2015; Magno & Amarles, 2011; Zumbrunn, Marrs, & Mewborn, 2016; Zumbrunn, 2013), we have not yet created a way to accurately measure students' perceptions of feedback. There are also many different conceptualizations of what constitutes students' perceptions of feedback. Additionally, little research has focused specifically on students' perceptions of feedback they get on written work. Much of the existing research focuses on feedback perceptions more broadly (e.g. Higgins, Hartley, & Skelton, 2002; Rowe & Wood, 2008). Understanding how students perceive feedback they get on writing specifically is important since feedback can be such a powerful tool for helping students' make writing improvements (Ferris, 1997; Lizzio & Wilson, 2008). To gain an increased understanding of student perceptions of writing feedback, a valid and reliable way of measuring writing feedback perceptions needs to be developed.

Statement of the Purpose

The purpose of the present study was to develop the Student Perceptions of Writing Feedback Scale (PoWF), a self-report questionnaire that measures how students perceive the feedback they get on their written work. In doing so, evidence for validity, as well as reliability of scores was gathered. Following the recommendations of the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education provided in *The Standards for Educational and Psychological Testing* (2014), validity evidence based on test content, internal structure, and relations to other variables was

gathered to support the use and resulting inferences made from using the PoWF. Evidence for internal consistency was also gathered to provide evidence for reliability of scores on the PoWF.

Rationale for the Study of the Problem

"because i [sic] don't like writing and they are really critical so I [sic] just say what ever and keep writing." – *seventh grader*

"i'm [sic] scared what they might say" – *seventh grader*

"because it means that i [sic] did good and I [sic] can keep up the great work and improve" – *eighth grader*

"Because it makes me feel special!" – *ninth grader*

As part of a recent mixed methods study, we asked secondary students if they liked to receive feedback about their writing from their teacher (Zumbrunn, Marrs, & Mewborn, 2016). The above quotes are the responses that four students provided, two who liked to receive feedback about their writing and two who did not. Their responses highlight the fact that students' feedback perceptions can be quite varied. For example, a ninth grade student recalled feelings of positive emotion, stating that feedback makes him or her feel special. An eighth grade student seemed to realize the usefulness feedback has for helping him or her grow as a writer and also insinuated that the feedback might serve as reassurance regarding one's writing ability. On the contrary, a seventh grade student feared receiving feedback on his or her writing. Another alluded to a history of receiving critical feedback but also noted that he/she does not like writing.

The differences in these four quotes alone point to the complexity of what comprises feedback perceptions. For a construct so seemingly complex, it is essential that the tools measuring feedback perceptions adequately capture this complexity and are comprehensive in

scope. This requires a careful review of literature to identify themes among findings that can then direct item development. How students perceive feedback they get on writing can influence other writing beliefs and attitudes, as well as growth as a writer in general. It is clear that students' perceptions are highly individualized and, in many cases, very negative (Marrs, Zumbrunn, Mewborn, & Stringer, 2016; Zumbrunn et al., 2016). Uncovering what might contribute to these perceptions and how they relate to other variables cannot begin to happen until there is an established and validated tool for measuring students' perceptions of writing feedback.

Significance of the Study

On most writing assignments, instructors generally provide some type of feedback to students. This feedback can be in the form of praise, constructive criticism, and/or suggestions for improvement and may be verbal (e.g., verbal praise or suggestions) or written (e.g., comments in the margins or at the end of an assignment). Three assumptions that follow from the provision of feedback are that the student will read the feedback, that the feedback is useful, and that students will use said feedback as a guide for improving performance on future work. However, little is known about students' perceptions of the feedback they get from instructors, though this topic has begun to gain attention in recent years (Weaver, 2006). To date, much of the work on this topic has been carried out using samples of college students (e.g., Agius & Wilkinson, 2013; Ekholm et al., 2015; Higgins, Hartley, & Skelton, 2002; King et al., 2009; Lizzio & Wilson, 2008; Rowe, Fitness, & Wood, 2013; Rowe & Wood, 2008; Weaver, 2006). Much of this work has taken place outside of the United States (Agius & Wilkinson, 2013) and a majority of the work on feedback perceptions is qualitative (e.g., Holmes & Papageorgiou, 2009; Poulos & Mahony, 2008). Typically, students are asked in interviews or focus groups to discuss

their expectations for feedback, the type of feedback they get, and how (or if) they are able to utilize the feedback they receive (e.g., Higgins et al., 2002; Holmes & Papageorgiou, 2009). Until recently, much of the work to date served as descriptive studies, and detailed what students' perspectives of the feedback they receive are, but did not attempt to then investigate how feedback perceptions related to other constructs. The impact students' perceptions of feedback might have on other variables has begun to receive increasing attention in the literature (e.g., Garcia-Sanchez & Fidalgo-Redondo, 2006; Pajares, 2003; Zimmerman, 2002).

Specific to writing, how students perceive writing feedback is believed to be related to both students' writing self-efficacy and writing self-regulatory behaviors (Ekholm et al., 2016, Zumbrunn et al., 2016). Self-regulatory behaviors that writers use include goal setting, planning, self-monitoring, self-instruction, revising, and help seeking (Zimmerman, 2002). These behaviors are a requisite of developing proficiency for writing (Garcia-Sanchez & Fidalgo-Redondo, 2006). Writing self-efficacy has also been shown to impact overall student writing success (Pajares, 2003; Schunk & Zimmerman, 2007) as well as grade in a writing course (Zimmerman & Bandura, 1994). Moreover, writing self-efficacy may be a more powerful predictor of writing success than writing aptitude or previous writing performance (Pajares, 2003).

Given the proposed relationships feedback perceptions have with other writing variables, Ekholm and colleagues (2015) sought to test the mediational role of writing feedback perceptions in linking writing self-efficacy and writing self-regulation of college students. They found that college students' perceptions of writing feedback partially mediated the relationship between self-efficacy for writing and writing self-regulation (Ekholm et al., 2015). That is, the

magnitude of the relationship between writing self-efficacy and writing self-regulation was significantly weaker when writing feedback perceptions was included in the model.

While research had suggested relationships between feedback perceptions and other writing variables, an important question had not been asked – *do students like to receive feedback on their writing?* To begin to address the lack in research at the K – 12 level, we asked elementary students if they liked to receive feedback on their writing from their teacher and to provide reasons for liking/disliking writing feedback (Marrs et al., 2016). Most students reported liking to receive feedback on their writing and cited reasons associated with mastery of writing and positive affect. A sizeable number of students did not like to receive feedback on their writing from their teacher and provided reasons related to avoidance and negative emotions that feedback elicited. Since elementary students are still mastering the skills necessary to write (Berninger, Cartwright, Yates, Swanson, & Abbott, 1994), it seemed feasible that older students, who have had more experience with writing, might provide different reasons for liking/disliking writing feedback.

Thus, the purpose of a follow-up, mixed methods study was twofold: to test the same mediation model proposed by Ekholm et al. (2015), and to uncover the reasons secondary students provide for liking or disliking feedback on their writing from their teacher. The results confirmed the mediation model; secondary students' writing feedback perceptions partially mediated the relationship between writing self-efficacy and writing self-regulation (Zumbrunn et al., 2016). Secondary students also provided many of the same reasons as elementary students for liking or disliking writing feedback. Again, a majority of students liked to receive feedback from their teachers on writing for reasons associated with mastery of writing and positive affect (Zumbrunn et al., 2016). Additionally, secondary students specifically cited using feedback on

future assignments, a finding that did not emerge from elementary student responses. Those who did not like to receive feedback on their writing provide reasons related to disregarding writing feedback and negative affect associated with feedback.

These two studies began to address the lack of research on K–12 students' writing feedback perceptions. Nevertheless, other issues in the feedback literature remain. At this point, a number of different conceptualizations of what constitutes feedback perceptions have been presented. Some view feedback perceptions as students' openness and affective responses to receiving feedback about their writing (Zumbrunn, Bruning, Kauffman, & Hayes, 2010). More often, feedback perceptions refer to how useful feedback is or the degree to which it meets students' expectations. For instance, Gamlem and Smith (2013) asked lower secondary students to describe situations in which they found feedback to be useful. In another study, Weaver (2006) asked students first, if they understood the feedback they receive and second, what their perceptions of the feedback were. Additionally, they asked students to give examples of feedback they believed was helpful versus feedback they viewed as unhelpful. Holmes & Papageorgiou (2009) added to the literature by asking students to express their expectations of feedback apart from simply their perceptions of what is and is not useful. A more comprehensive conceptualization of students' feedback perceptions may be a combination of the aforementioned individual facets of perceptions. Considering that, it is necessary to develop a scale that captures all of the possible different facets of students' perceptions of feedback on writing.

A valid and reliable scale for measuring students' perceptions of feedback they get on their writing is critical for understanding the construct itself as well as how it relates to other writing variables. Not only can researches use such a tool to gain increased knowledge of

students' writing beliefs and attitudes and the relationships among them, practitioners can also use such a tool to conveniently gauge the perceptions their students have of writing feedback. Since many students do not like to receive feedback on their writing (Marrs et al., 2016, Zumbrunn et al., 2016), understanding why they do not is essential to creating strategies for reversing these negative perceptions, which may lead to students using feedback more effectively and engaging with it positively.

Definition of Terms

Feedback refers to commentary, verbal or written, that a student receives about their performance.

Writing is defined as written work completed by a student. Writing may refer to a research paper, essay, creative writing paper, poem, lab report, or other written assignment.

Feedback perceptions have been defined as students' openness and affective response to receiving feedback (Zumbrunn et al., 2010). The current study also acknowledges how useful or helpful students perceive feedback to be, their expectations of feedback, and their view of feedback, broadly, as being part of students' feedback perceptions.

Chapter II – Review of Literature

Overview of Related Areas

The purpose of the current study is to develop a scale that measures secondary students' perceptions of feedback they get on their writing. Two bodies of literature, one that contributes to the development of this type of scale, and one concerning the theoretical framework guiding the work, will be presented. Additional literature pertaining to item development is also presented in the next chapter on methodology. Since writing is the focus of the scale, a brief review of writing research will be presented, focusing on the difficulty of writing and ways to foster writing improvement. Finally, a brief review of formative assessment and feedback, in general, will be presented. The research focusing specifically on feedback provided to students on their writing will be synthesized.

Writing

Several sources of evidence point to the difficulty students have with writing. Standardized writing test scores show us that most students taking the tests are less than proficient at writing. On the most recent administration of the National Assessment of Educational Progress (NAEP), only 24 percent of eighth graders nationally wrote at the proficient level (U.S. Department of Education, 2011). Even fewer, three percent, wrote at the advanced level. The nation's twelfth grade students performed identically, with 24 percent attaining a score of proficient and three percent earning an advanced score (U.S. Department of Education, 2011). Moreover, research shows that writing continues to challenge students into college and beyond (Kellogg & Whiteford, 2009). Both freshmen undergraduate students as well as graduate students' writing abilities have been described as insufficient (Kellogg & Whiteford, 2009). Doctoral candidates also struggle with scholarly writing, many of whom are

not exposed to scholarly writing until they begin working on their dissertations, at which point faculty consider instruction on how to properly write "too little, too late" (Caffarella & Barnett, 2000). While not everyone needs to be equipped with the necessary skills to become a scholarly writer, writing is still important and is not something students can easily avoid.

In school settings, writing is the primary means by which students express knowledge (Graham & Harris, 2004). More importantly, writing "provides a flexible tool for gathering, remembering, and sharing subject-matter knowledge as well as an instrument for helping children explore, organize, and refine their ideas about a specific subject" (Graham & Harris, 2005, p. 19). Writing ability has been linked to reading comprehension (Herbert, Gillespie, & Graham, 2013), reading ability (Graham, 2006; Graham & Herbert, 2011), and overall academic achievement (Bangert-Drowns, Hurley, & Wilkinson, 2004). However, writing can be quite challenging, even for skilled writers. One way to improve student writing is through the provision of feedback (Ferris, 1997; Lizzio & Wilson, 2008; Smith & Gorand, 2006; Vardi, 2009). When instructors or teachers provide their students with feedback, it is with the goal in mind that students will then use that feedback to improve their writing in the future. Unfortunately, the process is not that simple and there are barriers to the usefulness of feedback, such as how students perceive the feedback they get.

Formative Assessment and Feedback

Formative assessment has become a buzzword in the field of education, (McMillan, 2007) but the term can refer to different conceptualizations and uses of assessment. For instance, formative assessment can refer to benchmark tests that align to state educational standards (Wiliam & Leahy, 2007). In this sense, formative assessment comprises assignments completed by students to predict how a student will perform on a state-mandated standardized test (Wiliam

& Leahy, 2007). However, as Wiliam and Leahy (2007) assert, this type of "formative assessment" reflects more of an early-warning assessment for subsequent summative assessments than it does true formative assessment. They go on to point out that if we conceptualize formative versus summative assessment in this way, it seems that the assessments themselves are what distinguish the two types of assessment from one another. But, since the same assessment can be used for both formative and summative purposes, Wiliam and Leahy (2007) suggest that it is not merely the test itself that defines whether an assessment is formative or summative; the purpose for which the test is used qualifies it as summative or formative.

Formative assessment can also refer to classroom assessment, or "the collection, evaluation, and use of information to help teachers make decisions that improve student learning" (McMillan, 2007, p. 8). Classroom assessment is sometimes equated to feedback given to students, regardless of how the feedback is used (Wiliam & Leahy, 2007). An example of this would be informing students how many or which questions they got correct and incorrect on a test (Strobart & Gipps, 1997). In the United States, we commonly refer to this as giving students a grade. Nevertheless, simply telling students how well they did on something does not necessarily mean they will perform better on future assessments. Telling students they missed a question is a very different type of feedback than *explaining* why they missed the question. Strobart and Gipps (1997) argue that in order for students to improve their performance, they need to know exactly what is necessary to do in order to close the gap between their performance and the preferred performance (i.e., the goal) and that "the use of grades or 7/10 marking cannot do this" (p. 19). Additionally, Ramaprasad (1983) claims that a defining feature of feedback is its ability to impact performance and that if information cannot do this, then it is not feedback. In a sense, feedback should "feed-forward" (Hattie & Timperley, 2007).

Black and Wiliam (1998) define formative assessment as "All those activities undertaken by teachers, and by their students in assessing themselves, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged. Such assessment becomes 'formative assessment' when the evidence is actually used to adapt the teaching work to meet the needs" (Black & Wiliam, 1998, p. 2). The purpose of formative assessment, then, is to improve student learning through extending and encouraging learning (McMillan, 2008). While summative assessment can be thought of as assessment of *what* students have learned, formative assessment serves as assessment *for helping* students learn (McMillan, 2008). Thus, for assessment to truly be formative in nature, it must be used to improve performance (Wiliam & Leahy, 2007). Furthermore, formative assessment must "feed back into the teaching-learning process" (Strobart & Gipps, 1997, p. 18). In other words, changes or additions must be made in instruction to help guide students closer to the learning goals. One effective way of helping students make successive steps toward learning targets is through the provision of feedback (McMillan, 2007) which is arguably the most important piece of the formative assessment process (Price, Handley, Millar, & O'Donovan, 2010).

Feedback is essential to learning and is a critical component of formative assessment (Wiliam & Black, 1996). Feedback has been recognized as a pivotal factor in the learning process (Agius & Wilkinson, 2013; Carless, 2006; Nicol & Macfarlane-Dick, 2006; Orell, 2006; Rowe, 2010), as having a critical role in the process of understanding (Agius & Wilkinson, 2013; Orell, 2006; Rowe, 2011), and can lead to increases in student learning across a variety of contexts (Hattie & Timperley, 2007). Not only is it a tool for guiding students towards learning targets, but feedback also serves as a form of academic interaction and encouragement (Rowe, 2011). According to Hattie and Timperley (2007), the purpose of feedback is "to reduce

discrepancies between current understandings and performance, and a goal" (p. 86). To do so, feedback must address three questions: 1) What is the goal? 2) What progress is being made toward the goal? and 3) What needs to happen to make further progress toward the goal? (Hattie & Timperley, 2007). Effective feedback also helps students identify their strengths and weaknesses (Black & Wiliam, 2001). Thus, feedback is most powerful when it addresses misinterpretations of material rather than simply points out a lack of understanding (Hattie & Timperley, 2007). Feedback that provides improvement strategies suggesting how to close the gap between current performance and goal performance is the core of formative assessment (Sadler, 1989). Given these conceptualizations of feedback, simply assigning a grade is not a sufficient or effective means of providing feedback.

In a recent review of several meta-analyses examining the effect feedback has on academic achievement, Hattie & Timperley (2007) found that the average effect size was .78, a very sizeable effect. When students were given specific information about how to do tasks more effectively, the effects of feedback were larger when compared to the effect sizes providing praise, rewards, or punishments yielded (Hattie & Timperley, 2007). The effect of feedback also improved when learning goals were clear (Kluger & DeNisi, 1996). Feedback has also been shown to regulate emotions, reduce anxiety, and show students that the person giving feedback cares for and respects them, thus "affecting the students' general wellbeing" (Rowe, 2011, p. 356). Clearly, feedback has the potential to be an invaluable tool for helping students to progress toward learning targets.

Feedback is most beneficial when students actively use the feedback they receive. Moreover, feedback is only effective when the learner is willing to accept and grow from it (Price, et al., 2010). If students feel that feedback is an end product rather than a dialogue, they

are less likely to utilize it on future work (Price et al., 2010). Unfortunately, providing students with feedback does not always result in improved performance. Feedback can have varied and unanticipated effects on students (Lizzio & Wilson, 2008); not all students are interested in feedback and some even reject or ignore feedback they are given (e.g., Marrs et al., 2015; Zumbrunn et al., 2015). Moreover, students' reactions to negative instructional feedback are complex and unique (Coleman, Jussim, & Abraham, 1987). If feedback is such a critical piece of learning and improvement, and a central part of formative assessment, it is imperative for us to understand students' feelings toward feedback. Furthermore, we need to recognize that not all students have similar perceptions of feedback and identify why students develop their perceptions of feedback. Doing so will help us gain a better understanding of how to ensure that more students have positive interactions with feedback and utilize it to improve their academic performance.

Feedback and Writing

Though feedback has been found to be a beneficial part of learning broadly, it has also been found to aid success in writing performance, specifically. For example, Ferris (1997) examined the effect of a teacher's comments on students' drafts of writing assignments. As part of a university composition course, students were assigned to write three drafts of each assignment. The first two drafts, as well as the feedback provided by the teacher, were analyzed and evaluated. Teacher feedback was categorized based on the type and length of comments (i.e., short, makes a grammar comment). Student drafts were compared to evaluate the amount of changes made between drafts as a result of the feedback provided on the initial draft. Overwhelmingly, the changes students made to their writing based on the feedback they were given improved the quality of their work; few changes were rated as negative. The types of

feedback having the greatest influence on student revisions were requests made in the margins and summary comments on grammar at the end of the assignment. When the teacher made statements providing information or general positive comments, it resulted in few changes on subsequent drafts. Overall, the written work of students in this composition course improved after they received feedback from their teacher. These findings highlight the importance of providing formative feedback on early drafts rather than solely summative feedback after an assignment is complete. However, the results of an experimental study suggest that engaging with and reflecting on feedback may be more important than the content of the feedback (Duijnhouwer, Prins, & Stokking, 2011).

In their study, Duijnhouwer and colleagues (2011) randomly assigned graduate students to one of four groups to examine the difference in final draft writing quality, self-efficacy, and motivation based on what type of feedback students received. Some students received feedback that specifically included improvement strategies while others received feedback, but no specific improvement strategies. Additionally, some students completed a reflection assignment which asked them to reflect on both the feedback they received from their instructor as well as on plans for revising their writing, including how they intended to use the feedback. While a main effect for feedback type was not significant, (whether feedback included strategies for improvement or not) there was a significant interaction. That is, the effect of feedback type on the quality of the final draft of a writing assignment differed based on whether students also received the reflection assignment. The findings from Duijnhouwer and colleagues (2011) support the notion that feedback is most useful when students are willing to interact with it positively (Price et al., 2010). Thus, how students perceive the feedback they get on writing may serve as a barrier to a positive interaction with feedback and, subsequently, a barrier to improving writing performance.

Feedback Perceptions of Students

Much of the work on feedback perceptions to date does not focus solely on feedback students get on their written work. Rather, the focus is on asking students to reflect on feedback they have received more generally (e.g., Higgins et al., 2002; Holmes & Papageorgiou, 2009; Poulos & Mahony, 2008; Rowe, 2011; Weaver, 2006). Studies in this area have explored the differences in perceptions of feedback between instructors and students (e.g., Carless, 2006; Holmes & Papageorgiou, 2009; Price et al., 2010), barriers to the utility of feedback (e.g., Higgins et al., 2002; Poulos & Mahony, 2008), how students use feedback (Poulos & Mahony, 2008), and students' preferences for receiving feedback (Rowe, 2011). A recurring theme from the findings of these studies is that students often find feedback to be unhelpful (e.g., Carless, 2006; Higgins et al., 2002; Holmes & Papageorgiou, 2009; Price et al., 2010) and that what instructors perceive as helpful feedback differs from students' ideas of helpful feedback (Carless, 2006). For instance, when asked about feedback they typically receive, college students have described feedback as being illegible, too vague, impersonal, and, overall, not helpful (Higgins et al., 2002). Other students describe feedback as lacking in guidance or being too focused on negative aspects of student work (e.g., Weaver, 2006). Elementary and secondary students also believe that feedback can sometimes be too critical and rarely contains positive comments (Marrs et al., 2015; Zumbrunn et al., 2015). It is not surprising, then, that what college students view as effective is feedback that is encouraging, demonstrates instructor engagement, and has clear suggestions for helping students reach learning targets (Lizzio & Wilson, 2008). Younger students also attribute many of the same ideas to why they like or do not like to receive feedback on their writing (Marrs et al., 2015; Zumbrunn et al., 2015). When elementary and secondary students were asked why they liked to receive feedback on their writing from their teacher, one

of the primary themes emerging from their responses was "mastery" (Marrs et al., 2015; Zumbrunn et al., 2015). Specifically, they believed feedback can help improve their writing by pointing out mistakes and positive aspects of student work, and by encouraging students to think ahead to future assignments.

Research has shown that students in higher education have developed expectations of what feedback should be comprised of and what function it should serve. For instance, several studies have pointed out that students wanted feedback to justify the grade they receive on assignments (e.g., Higgins et al., 2002; Holmes & Papageorgiou, 2009; Rae & Cochrane, 2008). Others believed they should receive feedback from teachers as a form of reciprocation of the effort they gave on an assignment (Higgins et al., 2002). Research has shown that undergraduate students do not fully utilize the feedback they receive (Li & De Luca, 2012). While students acknowledge reading feedback they receive (Higgins et al., 2002; Orsmond et al., 2005), how or if they use feedback is unclear (Higgins et al., 2002). One of the barriers to the usefulness of feedback may be related to students' tendency to focus on grades rather than on comments (e.g., Carless, 2006). Other feedback may be so specific to a particular assignment that it is not easily applicable to other assignments (Carless, 2006). While it seemed many students recognized feedback as a means for improving learning (e.g., Holmes & Papageorgiou, 2009), the feedback students actually received is not always perceived as helping students to that end at the college level. At the elementary and secondary levels, many students liked to receive feedback on their writing specifically because of its ability to help them become better writers (Marrs et al., 2015; Zumbrunn et al., 2015). However, a significant number of students also showed general disinterest in receiving feedback from their teachers (Marrs et al., 2015; Zumbrunn et al., 2015).

The vast majority of the work on feedback perceptions has utilized convenience samples consisting of college students (e.g., Carless, 2006; Ekholm et al., 2015; Higgins et al., 2002; Holmes & Papageorgiou, 2009; King et al., 2009; Poulos & Mahony, 2008; Rae & Cochrane, 2008; Rowe & Wood, 2008; Weaver, 2006). Students certainly are required to write and have experienced receiving feedback long before they reach post-secondary education. Additionally, and as mentioned in an earlier section, K – 12 students have apparent difficulties with writing. Furthermore, the process of receiving feedback can be difficult and can elicit strong emotional reactions among students, ranging from feelings of pride and happiness to feelings of frustration, anger, and sadness (e.g., Marrs et al., 2016; Rowe, Fitness, & Wood, 2013; Zumbrunn et al., 2016). Emotions have a focal role in feedback situations because they have the power to influence students' future motivation and self-esteem (Värlander, 2008). Värlander (2008) contends that emotions should not be considered as a hindrance to learning. In her review, she argues that instead of trying to avoid or control students' emotions, emotions should be acknowledged for the important role they have in learning. Again, given the impact feedback can have on student learning and achievement, it is essential that we understand not only student views of the feedback they receive, but also how they respond to feedback (King et al., 2009). Thus, the study of perceptions of feedback should include not only students' cognitive beliefs regarding effective and helpful feedback, but, also of their affective associations with feedback. The role of emotions in the feedback process, in addition to other instances of assessment, has recently begun to gain attention (e.g., Pekrun & Bühner, 2014).

Feedback and Emotions/Affect. Rowe and colleagues (2013) asked undergraduate students about the emotions they experience when receiving feedback. Their results indicated that students associated a wide variety of emotions with feedback, both positive and negative. In

terms of positive emotions, students reported feeling joy, relief, excitement, and even love when they received feedback. Negative emotions students associated with feedback included anger, fear, sadness, boredom, and disgust. One category of emotions that emerged was comprised of both positively and negatively valences of emotions. Emotions falling into this category were related to feelings of self-consciousness, specifically feelings of embarrassment, guilt, pride, and shame.

In two recent studies of K – 12 students' perceptions of writing feedback, elementary and secondary students responded in ways suggesting the feedback process can elicit or be associated with strong emotional responses even without prompting the students to recall emotions they associated with feedback. The first study, a qualitative study, explored elementary students' perceptions of writing feedback (Marrs et al., 2015). Specifically, elementary students in grades three through five attending four different elementary schools were asked "Do you like to receive feedback about your writing from your teacher?" to which students chose either "yes" or "no". Based on their response, students were asked to elaborate further on why they do or do not like to receive feedback about their writing from their teacher.

A main category of reasons for liking feedback was positive affect. For these students, either feedback evoked positive emotions or students recalled receiving feedback as being a positive experience. Many of the students said that feedback they received made them "feel good" or proud. Other students said feedback made them feel special or showed them that their teacher liked their writing. In several instances, students also noted feeling motivated to write because of feedback they got from their teacher. Student reasons for not liking feedback on their writing primarily related to negative affect. For these students, feedback evoked negative emotions or memories. A majority of student responses in this category suggested that feedback

induced feelings of sadness. Other responses noted feelings of timidity, nervousness, and fear. In some cases, students said feedback made them feel like they were a bad writer.

In a subsequent mixed methods study, Zumbrunn and colleagues (2015) asked the same qualitative question to secondary students in grades six through ten. When students indicated a liking of feedback from their teacher, many of their reasons as to why echoed those of younger students. For instance, secondary students also reported feeling happy, more confident as a writer, encouraged, and motivated to write better next time when asked why they liked feedback on their writing. Similar to younger students, some secondary students also associated rather negative emotions with receiving feedback from their teacher. One student even said feedback they received made them feel like they were stupid. Other students mentioned feelings of anxiousness, embarrassment, strong anger toward teachers, and general unhappiness as a reason for disliking feedback on their writing.

Measuring Feedback Perceptions. Much of the work exploring students' feedback perceptions has been qualitative (e.g., Gamlem & Smith, 2013; Holmes & Papageorgiou, 2009; Poulos & Mahony, 2008; Rae & Cochrane, 2008; Rowe, Fitness, & Wood, 2013). However, three groups of researchers have carried out scale development studies to develop a quantitative scale for measuring students' perceptions of feedback; one such study focused on feedback students get on writing (Lizzio & Wilson, 2008). Lizzio and Wilson (2008) sought to answer three questions regarding student feedback: 1) What do students perceive as the components of effective feedback on written assignments? 2) What is the underlying structure of students' perceptions of feedback? 3) How do identified feedback components relate to students' evaluations of how effective feedback is? To answer these questions, Lizzio and Wilson (2008) first collected qualitative data from students to identify the domains of criteria students use to

evaluate the quality of effective feedback. Fifty-seven (42 female) university psychology, law, and arts students participated in the qualitative portion of this study. The students were asked to answer open-ended questions related to feedback. Students were first asked to reflect on the number and type of assessments they had completed as part of their degree programs. Then, the students were asked to describe the types of feedback they had received on their writing and to comment on the quality of said feedback. More specifically, students were to address components they found particularly helpful in feedback as well as those they found unhelpful or ineffective. Each student provided an average of four written answers to the questions, resulting in a total of 238 written comments on feedback. Two raters coded the comments, achieving an inter-rater reliability of 0.94, indicating that the raters coded comments quite similarly.

The overall themes that emerged from student comments about how they evaluated feedback were developmental focus of feedback, engagement with student work, encouragement of feedback, and fairness of feedback. In general, students appeared to acknowledge the importance of feedback for learning and endorsed feedback that gave specific strategies to help students reach learning targets. This was a central component of comments about feedback having a developmental focus. Students also appreciated feedback that showed their instructor was interested in or engaged with the students' work; the greater apparent level of engagement, the more effective students perceived feedback. Lizzio and Wilson (2008) noted the perceived level of engagement an instructor has with submitted work might also relate to how fair students perceived the grade they received to be. Students also endorsed encouraging feedback that acknowledged achievements, recognized effort, or was considerate as being effective. Lastly, students believed fair feedback was effective.

Using the themes identified in the qualitative study as a guide, Lizzio and Wilson's (2008) follow-up quantitative study collected data to examine the underlying structure of students' perceptions of feedback. They collected data from 277 (197 female) university students enrolled in psychology, criminology, science, and engineering degree programs. Participating students were approximately 22 years old and had been attending the university for about two years, on average. The researchers drafted a pool of items from the results of the qualitative study, using the original wording of students when possible. The initial pool of items was reviewed by a group of 12 people for clarity, after which changes to the scale were made, leaving 24 items that comprised the Assignment Feedback Questionnaire (Lizzio & Wilson, 2008). As part of the directions, students were asked to answer the questions about feedback as it pertained to their written work (i.e., papers, lab reports, essays) using a 7-point Likert scale ranging from "not at all" to "very". In addition to the Assignment Feedback Questionnaire, students also answered three questions related to feedback effectiveness. The three effectiveness questions asked students to rate the effectiveness of feedback they had received in their degree programs in facilitating their learning, their competence as a learner, and their confidence as a learner on a 7-point Likert scale. Together, the Feedback Effective Scale items demonstrated good internal consistency ($\alpha = .91$).

Principal axis factor analysis with oblique rotation was used to analyze the underlying structure of the Assignment Feedback Questionnaire items. Prior to data analysis, response variability and range were inspected; all response options were endorsed for all items. The researchers also assessed the assumption of sampling adequacy by calculating the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy; the calculated KMO of .88 indicated that factor analytic procedures were appropriate for the data. Other assumptions of factor analysis, such as

sphericity, were either not assessed or were not mentioned. Seven factors were initially extracted. Upon inspection of the scree plot and eigenvalues, Lizzio and Wilson (2008) decided feedback perceptions were best measured using three factors, which reduced the scale to 15 items. A second factor analysis was conducted on the reduced scale and a three-factor solution that explained 46.3 percent of the variance was obtained.

The first factor was labeled "Developmental Feedback" and reflected the role of feedback as providing performance-gap information (Baron, 1990) or as scaffolding students to achieve beyond what they may be able to do without feedback (Orsmond, Merry, & Reiling, 2005). The second factor was labeled "Encouraging Feedback". These items reflected various positive aspects of feedback that were likely to enhance student motivation. The third factor was labeled "Fair Feedback" and was comprised of items that reflected perceived fairness of the feedback students received, such as being consistent, student friendly and clearly articulated.

Students' feedback perceptions, as measured by Lizzio and Wilson's (2008) scale was not related to students' age, gender, academic achievement, or overall satisfaction with their degree program. Feedback perceptions were correlated with year of enrollment, which may mean students become less lenient in their evaluations of instructor feedback as they progress through their degree programs (Lizzio & Wilson, 2008). All three factors of feedback perceptions were also moderately and positively correlated with students' overall perceptions of the effectiveness of feedback they received.

Though their study provided information about students' perceptions of feedback and began to identify possible correlates of feedback perceptions, Lizzio & Wilson did not make an adequate case for the validity of the inferences they made. For instance, no psychometric properties of their feedback scale were provided. Second, they did not provide evidence for

validity of the test content. While their quantitative study was guided by their qualitative results, the qualitative comments on feedback they analyzed came from primarily female students, who have been shown to have different perceptions of feedback than male students (Rowe & Wood, 2008). Thus, their results may not generalize beyond female students. Finally, it is not clear whether the qualitative questions asked students to answer related to feedback on writing specifically or feedback in general.

In a similar fashion to Lizzio and Wilson (2008), Rowe and Wood (2008) first conducted a qualitative study which informed the procedures for a subsequent quantitative study. In their qualitative study, both undergraduate and postgraduate economics and finance students participated in focus groups, the purpose of which was to explore students' perceptions of feedback. Results of the qualitative study revealed that students valued feedback and understood its importance in the learning process. As for preferences of feedback, those were more diverse. Some students preferred general, verbal feedback given to the whole class while others preferred specific feedback on their individual assignments or exams. However, the students noted that the provision of feedback from their instructors was inconsistent. Feedback that was particularly vague or untimely was not viewed as helpful. Some students referred to the emotional aspects of feedback by pointing to its role as a motivator or reassurance of their ability. Overall, the students expressed a need to receive more feedback from their instructors, though they recognized the time and resource constraints instructors face for providing such personalized and detailed feedback.

The purpose of Rowe and Wood's (2008) quantitative study was to investigate student perceptions and preferences for feedback and to do preliminary explorations into the role of emotions in the feedback process. They also sought to explore the relationship between

students' preferences of feedback and their perceptions of feedback. In other words, they wanted to know if students who valued feedback perceived it differently and, subsequently, if it affected their preferences of feedback. Participants in the quantitative study were 883 undergraduate students and 83 postgraduate students enrolled in a variety of disciplines, the majority of which were business related, at two Australian universities. Most students were between 21 and 30 years old.

Using their qualitative data, Rowe and Wood (2008) developed a questionnaire from themes extracted from the focus groups in conjunction with themes from the literature. The questionnaire was comprised of six sections: demographic data, type of feedback, perceptions of feedback, value of feedback, preferences for feedback, and suggestions for feedback. Students rated their agreement with questions in each section on a five-point Likert scale ranging from "strongly disagree" to "strongly agree" except for perceptions of feedback and suggestions for feedback, which were open-ended questions. Students completed the surveys during a seven - week period of a semester, allowing time for the researchers to collect data from a large number of students.

Items on the questionnaire were entered into a principal components analysis (PCA). The results suggested that all groups of questions could be defined by one dimension except preferences for feedback, which was two-dimensional. One group of students preferred feedback that allowed them to think deeply about the material and encouraged independent learning while the other group preferred feedback that gave them the correct answers or explained their grade. Results of the PCA were not incredibly clear and the researchers did not discuss whether the assumptions of PCA were assessed prior to conducting the analysis. They mentioned that emotion items "failed to appear as a separate dimension" (Rowe & Wood, 2008, p. 81). Again, it

was unclear what that meant exactly. Lastly, psychometric properties for the questionnaire and subscales were not provided.

Most recently, King, Schrodt, & Weisel (2009) took steps toward developing a valid and reliable tool for measuring students' perceptions of feedback in a two-part study. In the first stage of their study, they developed and pilot tested their items. Initially, King and colleagues (2009) developed over 180 items that reflected the existing literature on feedback. These items were then reviewed for clarity by a group of eight graduate students and three faculty members from their university's Communication Studies Department. Because of redundancy or lack of clarity, 56 items were removed, leaving 124 items for pilot testing.

Apart from simply using the readily available sample of students in the Communication Studies department, King et al. (2009) also recruited students from a nearby community college to pilot their instrument to increase the external validity of their findings. A sample of 277 students completed the questionnaire. Of those, 212 were undergraduate students from a large, private university, and 65 were students from a suburban community college. All students, regardless of the school they attended, were enrolled in basic communication courses and were about 20 years old, on average. The students in the sample were primarily Caucasian (74%) but represented a variety of majors; they did not provide a list of majors represented or the frequency of each major. It is assumed that all 124 items were administered in the same order for all participants because students were instructed to take breaks as needed while they completed the questionnaire to prevent fatigue. Students completed the questionnaire online and provided demographic information, as well as informed consent.

The researchers justified employing exploratory factor analytic (EFA) procedures since they did not have *a priori* hypotheses about underlying factors present among their items. After

making a case for the appropriateness of EFA, the researchers went on to say that the items were submitted to a principal components analysis (PCA), specifically. Before interpreting the results of the PCA, two of the assumptions of PCA were examined. To assess sampling adequacy, they calculated a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which was .78 and well above the recommended cut-off of .6, indicating that their sample size was sufficient for the analysis. They also conducted Bartlett's test of sphericity, which was significant, χ^2 (7381) = 17,356.14, $p < .001$, indicating that the correlation matrix among the 124 items was not an identity matrix. Based on these two indicators, it was deemed appropriate to interpret the PCA results.

The PCA actually resulted in an eight-factor solution but the researchers dropped the items in factors four through eight since they explained less than five percent of the variance combined. Thus, a four-factor solution that consisted of 33 of the 124 pilot tested items was retained. The first factor (16 items) accounted for 23.7 percent of the variance and was labeled "feedback utility". Questions associated with this factor were characterized by students' perceptions of teacher feedback as valuable or useful for improving future performance. Cronbach's alpha for these items was .88. The second factor (9 items; $\alpha = .86$) was labeled "feedback sensitivity" and accounted for 13.6 percent of the variance. Items for this factor reflected how intimidating or threatening students found corrective feedback. The third factor (5 items; $\alpha = .74$), which accounted for 5.7 percent of the variance, was labeled "feedback confidentiality". This factor related to students' concerns about contexts in which feedback was provided (i.e., how private or how public feedback is). The final factor (3 items; $\alpha = .69$) accounted for 5.1 percent of the variance and was labeled "feedback retention". Items that loaded onto this factor reflected the degree to which students retained the feedback they

received. The resulting 33-item instrument was labeled the Instructional Feedback Orientation Scale (IFOS). Reliability estimates were acceptable and tended to be higher for factors with more items loading onto it, which is typical.

The second stage of King and colleagues' (2009) study was devoted to confirming the four-factor solution of the IFOS, as well as to gathering evidence of concurrent and discriminant validity. The participants (n = 245) for this portion of the study were undergraduate students enrolled in a basic communication studies course at a private, southwestern university and were about 20 years old, on average. A majority of the sample was female. Unlike part one of the study, a sample of students from a community college was not recruited to participate in the second portion of the study. While at first this may seem like a threat to validity because the two groups are different, this actually increased external validity of the findings; if the four-factor structure were reproduced, it would then have been tested on two different samples, technically. Furthermore, concurrent and discriminant validity evidence was not compared across the two samples; only the second sample was used to collect validity evidence, so selection did not threaten the validity of the findings.

Based on the literature, King and colleagues (2009) developed hypotheses and selected constructs to use to gather evidence for concurrent and discriminant validity. Thus, in addition to the IFOS, participants completed measures of communication competence, self-efficacy, informal reception apprehension, affect for classroom feedback, and perceived homophily. They described informal reception apprehension as a cognitive, trait-like anxiety that can impair an individual's ability to properly manage information. The informal reception apprehension measure consisted of several subscales. From this measure, they developed two hypotheses, one for the reading and listening anxiety subscales and one for the intellectual flexibility subscale.

Perceived homophily was defined as the extent to which students believe they share similar attitudes and backgrounds with their professors. The students completed the IFOS and five other instruments in one sitting during a designated, outside-of-class time. The order in which students completed the instruments was not specified, which could mean that participant effects in the form of survey fatigue could challenge the validity. The five hypotheses were as follows:

1. Students self-reported communication competency would be positively correlated with feedback utility and retention, and negatively correlated with feedback sensitivity and confidentiality.
2. Student self-efficacy would be positively correlated with feedback utility and retention and negatively correlated with feedback sensitivity and confidentiality.
3. Students' listening and reading anxieties would be negatively correlated with feedback utility and retention, and positively correlated with feedback sensitivity and confidentiality.
4. Students' intellectual flexibility would be positively correlated with feedback utility and retention, and inversely correlated with feedback sensitivity and confidentiality.
5. Students' affect for classroom feedback would be positively correlated with feedback utility and retention and negatively correlated with feedback sensitivity and confidentiality.
6. Students perceived homophily would be unrelated to all four feedback scales.

To confirm the four-factor structure of the IFOS, the 33 items were entered into a confirmatory factor analysis (CFA). Contrary to PCA, which is appropriate when there are no *a priori* hypotheses regarding underlying factors (components), CFA is appropriate when researchers *do* have *a priori* hypotheses about underlying factors. Results of the CFA confirmed

the four-factor structure of the IFOS and most of the items loaded well onto their hypothesized factor, though some had low factor loadings. Those with low factor loadings were dropped, yielding a final 27-item IFOS. Cronbach's alphas for each subscale were almost identical to those found for the pilot test: .69 for retention, .74 for confidentiality, .85 for utility, and .86 for sensitivity. The researchers did not specify whether assumptions of CFA were checked data analysis.

Once the structure of the IFOS was confirmed, correlations of the IFOS subscales with the other constructs were interpreted. Most of the hypotheses were supported with only a few exceptions, which provided evidence for discriminant and concurrent validity. However, replication of these findings and more evidence for divergent and convergent validity should be gathered. It is likely that feedback perceptions is related or inversely related to other variables. Furthermore, future research should investigate whether other potential dimensions of feedback perceptions exist. Perhaps there are other dimensions of feedback perceptions missing from this proposed model, such as affect, which would suggest a lack in construct validity. Finally, perceptions of feedback may be different for different subjects. These findings reflected students' perceptions of feedback in communication courses; student feedback perceptions might differ in other courses or topics. Additionally, knowing how students view feedback on something more general, such as writing, might be more beneficial, especially since writing is so prevalent in both college and K-12 education and a necessary skill for many fields.

Both the Lizzio and Wilson (2008) and Rowe and Wood (2008) studies were, essentially, mixed methods studies with initial qualitative work informing subsequent quantitative work. While this is a legitimate design and a logical approach to scale development, the qualitative data gathered was inherently narrow in scope because small numbers of students from limited degree

programs participated in the qualitative strands of those studies. The responses to questions of feedback depended on the sample of students who participated. This is illustrated in the differences in themes that emerged from the two studies with emotional responses to feedback being the primary difference. Based on Rowe's (2008) study and a later study by Rowe and colleagues (2013), emotions can play a key role in the feedback process for some students. This is true not only of feedback, but also for assessment more broadly; assessment and feedback can both elicit strong emotional reactions from students (e.g., Marrs, Zumbrunn, Mewborn, & Stringer, 2016; Pekrun & Buhner, 2014; Zumbrunn, Marrs, & Mewborn, 2015). By first conducting a systematic review of the literature, a more encompassing view of feedback perceptions can be identified, which would increase the validity evidence based on test content of a scale that is developed.

King and colleagues (2009) used the extant literature to drive their scale development study. However, they did not provide a detailed review of the literature from which the items were derived. For instance, they did not mention search terms used to identify studies. The only details regarding alignment of items to the literature is that "items gleaned from an examination of research and pedagogical literature with a degree of redundancy [were] included" (King et al., 2009, p. 239). They also did not clearly describe the literature from which their hypotheses for discriminant and concurrent validity were derived.

The current study built upon each of these studies to develop a comprehensive and valid scale to measure feedback perceptions. A systematic literature review guided item construction rather than data from qualitative data to increase external validity of the scale, as well as increase validity based on the content of the scale. Furthermore, the current study included emotional reactions to feedback in the investigation of feedback perceptions since it has recently been

identified as a key component to students' perceptions. Once data were collected, all assumptions of the chosen statistical procedure were assessed and psychometric properties of the resulting scale were reported. Finally, ample evidence for validity and reliability were gathered and reported.

Chapter III – Methodology

This chapter contains an overview of the methodology employed in the current study. Following a description of the study design, the sample is discussed. Next, the process of scale development is detailed, including a discussion of validity and reliability. After discussing the procedures for data collection, the chapter closes with a presentation of the methods for data analysis.

Since it was a scale development and validation project, the current study was non-experimental; there was no attempt to influence an outcome variable. According to Creswell (2015), one of the major characteristics of quantitative research is that numeric data are collected from a large number of people using instruments with a predetermined set of questions and response options. The purpose of the current study was to develop a scale that measures students' perceptions of feedback they get on writing. That is, numeric data was collected from a large number of students to evaluate an instrument comprised of preset questions and responses, making this study quantitative in nature.

Participants

Participants were identified and recruited using a nonprobability convenience sampling procedure. Nonprobability sampling is sampling that is not random but, rather, based on judgments of the researcher (McMillan, 2015). A convenience sample is one that is accessible to the researcher (McMillan, 2015). Secondary students (grades 6 through 12) were recruited from English classes in two suburban, mid-Atlantic, public school systems.

The researcher began by contacting the research office for two counties' public school systems, at which time the purpose and goals of the study were described. In each county, the researcher and the research offices agreed on a list of schools to target for recruitment. Upon

receipt of permission to recruit from the school systems, principals at these schools were contacted directly concerning their interest in having a sample of their students participate in the study. Volunteering principals then identified a representative sample of English classes from which to collect data. Principals informed teachers of selected classes that they would be contacted directly by the researcher. All teachers who volunteered classes for participation in the study received a packet containing a list of questionnaire items, a set of instructions for data collection, and letters to send home to students' parents/guardians. One week after letters went home, teachers could collect data in their classroom at their convenience. Student data was collected using an online survey form (see Data Collection) and were collected anonymously.

The final sample consisted of 275 high school students, of which 55 percent were female. Eleventh grade students in these school districts take a state-mandated writing assessment, which inhibited recruitment of this group of students for participation in the study. Thus, the sample was comprised of ninth, tenth, and twelfth grade students. Approximately 63 percent of the students identified as White/Caucasian and 11 percent as Black/African American. Less than five percent identified as either Hispanic/Latino(a), Middle Eastern, or Caribbean. Approximately seven percent of students identified with two or more ethnicities and seven percent of students chose not to disclose their ethnicity. Students primarily reported receiving A's (40 percent) or B's (44 percent) in writing, though 14 percent reported receiving C's. Less than one percent of students reported receiving D's or F's in writing.

Procedure

This section outlines the procedures implemented to develop the Student Perceptions of Writing Feedback Scale (PoWF), a self-report questionnaire that measures how students perceive the feedback they get on their writing. First, an overview of the conceptual framework that led

to item development will be outlined. Second, the process of item development will be detailed, followed by procedures for pilot testing items before data collection. Third, procedures for gathering evidence for validity and reliability will be presented. This section will conclude with a description of methods used for data collection.

Conceptual Framework. The process of developing the PoWF began with a systematic literature search, the purpose of which was to identify studies focusing on students' perceptions of feedback, ideally with a focus on writing feedback. The systematic literature search took place during the winter of 2015. Three databases were searched – PsycINFO, Education Research Complete (EBSCO), and ERIC (ProQuest). The following table shows search terms that were used to identify studies and the number of studies yielded with each term in the databases searched.

Table 1.

Search Terms and Results for Systematic Literature Review

Search Term	EBSCO	PsycINFO	ProQuest
Students' perceptions of feedback			1,798
"Students' perceptions of feedback"			6
"feedback perceptions"	18	30	11
"student feedback perceptions"	1	1	1
"feedback perceptions" AND writing	5	2	2
"writing feedback"	33	22	17

Of the identified studies, the abstracts of those published in peer-reviewed journals were reviewed during the spring of 2015 to identify their relevance and scope regarding students' perceptions of feedback. The number of studies that focused specifically on writing was quite limited. Thus, studies that included any type of feedback given to students on academic assignments were included regardless of subject or content area. More often than not, research projects were carried out using samples of college students. Thus, studies were not excluded

based on the age of their sample since most of what has been uncovered regarding student perceptions lies in those studies and excluding based on age of participants would have severely reduced the number of studies to be reviewed.

Sixteen studies published since 2002 were identified that focused on how students perceive feedback they are given from their teachers, instructors, or professors. The studies were primarily qualitative (n = 5) or mixed methods (n = 5); only three studies were quantitative studies. One of the quantitative studies was a scale development study based on the literature (King et al., 2009) and another was based on a previous conducted qualitative study (Rowe & Wood, 2008). A mixed method study also conducted a qualitative study first and used the results of the qualitative study to conduct a scale development study (Lizzio & Wilson, 2008). The remaining three studies were literature reviews. Three studies focused specifically on feedback students get on written work (Ekholm et al., 2015; Lizzio & Wilson, 2008; Zumbrunn et al., 2016). An under review, qualitative study also focused on feedback students received on written work and was included in the review that guided item development. Table 2 below presents a list of each study, the method utilized and the major findings.

Table 2.

Studies Included in Item Development

Author(s), Year	Method	Major Findings
Agius & Wilkinson, 2013	Literature review	Students valued positive comments, focused and specific feedback, detailed feedback with explanations and tips on how to improve, and timely feedback. Students often have trouble reading/understanding feedback.
Carless, 2006	Mixed methods	Students valued feedback on early drafts more than final versions. Students often did not understand feedback. Students felt instructors were biased and gave feedback in ways that reflected those biases. Both students and instructors recognized emotions are part of the feedback process.
Ekholm, Zumbrunn, & Conklin, 2015	Quantitative	Students felt relatively positively about feedback they get from instructors and classmates. Openness to feedback partially mediated relationship between writing self-efficacy and writing self-regulation
Gamlem & Smith, 2013	Qualitative	Three themes emerged from qualitative interviews asking students what feedback they viewed as useful: feedback valence, relations and honest feedback, and feedback types. Positive and honest feedback was valued. Feedback was also valued more when there was a good relationship between teacher/instructor and student.
Higgins, Hartley, & Skelton, 2002	Mixed methods	Students found feedback too impersonal, not helpful, vague, and illegible. Almost all students read feedback but time spent reading varied. Many students keep comments in mind for future assignments. Students want feedback to explain their grade but also discuss generic skill ability.
Holmes & Papageorgiou, 2009	Qualitative	Students want comments to justify grades but recognize feedback can help improve performance on tasks. A better relationship with the lecturer resulted in more positive interpretation of feedback.
King, Schrodt, &	Quantitative	Feedback perceptions comprised of four factors: Feedback Utility, Feedback

Weisel, 2009		Sensitivity, Feedback Confidentiality, & Feedback Retention.
Li & De Luca, 2012	Literature review	Students do not fully utilize feedback. Students find timely, personal, criterion-referenced, feedback that can be used to make improvements most helpful. Teachers and students have differing views of what is effective feedback.
Lizzio & Wilson, 2008	Mixed methods	Qualitative: Students evaluated quality of feedback based on developmental focus, engagement, encouragement, and fairness. Students endorsed feedback that supported transferable learning, identified learning goals and strategies, and reflected a high level of engagement with students' work. Students also found socio-emotional piece of feedback important and believed feedback should acknowledge achievements, recognize efforts, and use a considerate tone. Quantitative: Feedback perceptions comprised of three factors; Developmental Feedback, Encouraging Feedback, and Fair Feedback.
Marrs, Zumbrunn, Mewborn, & Stringer, 2016	Qualitative	Students primarily liked to receive feedback about their writing from their teacher. Students who liked feedback primarily cited reasons related to mastery and positive affect. Students who disliked feedback primarily cited reasons related to avoidance and negative affect.
Poulos & Mahony, 2008	Qualitative	Identified three key dimensions related to effectiveness of feedback: Perceptions of feedback, impact of feedback, and credibility of feedback.
Rae & Cochrane, 2008	Qualitative	Three themes emerged: Learning from the feedback – Some students actively used and learned from feedback. Others seemed to lack motivation to learn and only wanted to achieve passing marks. Process of receiving feedback on written assessments – Students mostly wanted timely feedback. Students also wanted grades and essays with comments returned. They preferred typed feedback but found written feedback more personal. Making sense of feedback – Students wanted clear, constructive, and informative feedback with positive encouragement and explanations/examples.

Rowe & Wood, 2008	Quantitative	Feedback perceptions comprised of one factor; emotion items did not yield separate factor.
Rowe, Fitness, & Wood, 2013	Qualitative	Students associated a wide range of both positive and negative emotions with the feedback process (e.g., joy, love, happiness, anger, fear, sadness, and shame).
Värlander, 2008	Literature review	Emotions should not be considered as hindering learning. Instead, emotions should be considered as a natural part of the learning process. Suggested that feedback preparation activities of feedback dialogues may be helpful for helping students receive and utilize feedback.
Weaver, 2006	Mixed methods	Four main themes of what unhelpful feedback is emerged: vague feedback, feedback that lacks guidance, feedback that focuses on negative, feedback that is unrelated to assessment criteria. Students may need advice on understanding and using feedback before they can engage with it.
Zumbrunn, Marrs, & Mewborn, 2016	Mixed methods	Openness to feedback partially mediated writing self-efficacy and writing self-regulation. Students primarily liked to receive feedback on their writing from their teacher. Students who liked feedback primarily cited reasons related to mastery and positive affect. Students who disliked feedback primarily cited reasons related to Disregard and negative affect.

Students in these studies expected feedback to be timely (Agius, & Wilkinson, 2013; Carless, 2006; Li & De Luca, 2012; Rae & Cochrane, 2008), specific (Agius, & Wilkinson, 2013; Higgins et al., 2002; Li & De Luca, 2012; Lizzio & Wilson, 2008; Rae & Cochrane, 2008; Weaver, 2006), personal (Li & De Luca, 2012; Lizzio & Wilson, 2008; Rae & Cochrane, 2008), and encouraging (Gamlem & Smith, 2013; Li & De Luca, 2012; Lizzio & Wilson, 2008; Rae & Cochrane, 2008; Weaver, 2006) . They also expected feedback to provide explanations (Rae & Cochrane, 2008), justifications of grades (Higgins et al., 2002; Holmes & Papageorgiou, 2009), and include tips on how to improve (Agius & Wilkinson, 2013; Gamlem & Smith, 2013; Rae & Cochrane, 2008; Weaver, 2006). Though two studies found that students primarily liked to receive feedback (Marrs et al., 2016; Zumbrunn et al., 2016), the feedback students appeared to get did not meet their expectations. Instead, they found feedback to be vague (Higgins et al., 2002), difficult to understand (Carless, 2006), and not helpful for making improvements (Higgins et al., 2002). Students also associated a wide range of emotions with the process of receiving feedback (Carless, 2006; Lizzio & Wilson, 2008; Marrs, et al., 2016; Rowe et al., 2013; Zumbrunn et al., 2016). Qualitative themes identified across these studies spanned four general components of feedback perceptions: views/expectations of feedback, experiences with feedback, usefulness/value of feedback, and emotions/affect associated with feedback. These themes guided the process of item drafting, which is detailed in the section on Item Development that follows.

Item Development. Based on the reviewed studies, a pool of 70 items were drafted in the late spring of 2015. The items related to four facets of feedback – how students view feedback and what their expectations of feedback are, students' experiences with feedback, how students use and/or value feedback, and affect students associate with receiving feedback. After the

initial items were written, they were reviewed by the researcher and a faculty member during the summer of 2015. Based on redundancy or lack of relevance specifically to perceptions of writing feedback, 24 items were eliminated. For example, the initial set of items included very similar items such as "Feedback on my writing is useful" and "I do not think feedback on my writing is useful". In instances such as this, only one item that reflected a single aspect of feedback was retained (e.g., usefulness). Other items were removed because they did not specifically pertain to students' perceptions of feedback. One such item, "I ask for clarification of feedback" was removed because it addressed a follow-up procedure to receiving feedback rather than an initial reaction to, perception, or expectation of feedback.

The remaining 46 items were distributed to a research team of graduate students and one faculty member during the late summer of 2015 for review. Much of this research team's work focuses on students' views of writing and their motivation for writing. Thus, this audience was familiar with work regarding student perceptions of feedback. Based on suggestions from the research team, 14 items were removed, leaving 31 items. One suggestion was to change the item "Feedback hurts my feelings" to separate items identifying specific emotions. Table 3 below presents the four themes and associated items.

Table 3.

Themes Identified in Literature Review and Associated Items

Theme	Items
Views/Expectations of Feedback	1. Feedback makes me feel like I am a good writer 2. I think I should get feedback even if I don't try very hard in my writing* 3. Feedback is not important if I get a good grade* 4. I look forward to feedback on my writing 5. Feedback I get on writing makes me want to become a better writer 6. Feedback on my writing encourages me to do better next time 7. Feedback on my writing makes me feel like I am a bad writer* 8. Feedback on my writing is important 9. Feedback on my writing should explain my grade*
Experiences with Feedback	1. I get feedback on my writing 2. Feedback I get on my writing is too critical* 3. Feedback is very specific 4. Feedback on my writing is positive 5. Feedback on my writing is confusing 6. Feedback explains what I did wrong in my writing 7. Feedback tells me what I did well in my writing 8. I receive feedback soon after I turn in a writing assignment
Usefulness/Value of Feedback	1. Feedback helps me write better next time 2. Feedback on my writing is useful 3. Feedback makes me a better writer 4. I read the feedback I get on my writing 5. I use feedback to help me write better next time 6. Feedback on my writing is helpful 7. Feedback tells me how to make my writing better
Affect/Emotions Associated with Feedback	1. Feedback on my writing makes me want to give up* 2. Feedback on my writing makes me feel hopeless* 3. Feedback on my writing makes me feel nervous* 4. Feedback on my writing makes me feel frustrated* 5. Feedback on my writing makes me feel proud 6. Feedback on my writing makes me feel confident 7. Feedback on my writing makes me feel happy

*Note. Items marked with an * were reverse coded.*

These 31 items were then sent to published authors in the field of feedback perceptions to obtain further feedback as well as to gather evidence of validity based on test content (see section on Validity) and were pilot tested with one classroom; procedures for pilot testing are discussed in the subsequent section.

Pilot Testing. The first teacher agreeing to allow her students to participate served as the pilot class for this study. The purpose of the pilot test was threefold: to assess the clarity and wording of items and instructions (both for students and teachers), to ensure no technological problems were associated with the online questionnaire, and to inspect the variability of answers using a 7-point Likert scale. The 31 items comprising the PoWF were distributed to fifteen high school students in twelfth grade. Students were asked to respond to the items using a 1 (Strongly Disagree) to 7 (Strongly Agree) Likert scale. The items were completed online in the students' classroom. The teacher of the class was asked to make a note of any items that students' found confusing and to share feedback with the researcher. The students did not find any of the items confusing or difficult to interpret. The teacher also did not have any difficulty interpreting her instructions or in administering the questionnaire to her students. Responses to each of the items were also quite variable and students utilized each of the seven response options. Thus, the 7-point Likert scale was used during subsequent data collection.

Validity. According to *The Standards for Educational and Psychological Testing* (2014), validity is defined as "the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests" (p. 11). Standard 1.0 of *The Standards* (AERA et al., 2014) is as follows: "Clear articulation of each intended test score interpretation for a specified use should be set forth, and appropriate validity evidence in support of each intended interpretation should be provided" (p. 23).

Evidence Based on Test Content. The relationship between test content and the construct it is intended to measure provides important evidence for validity (AERA et al., 2014). The content of the PoWF was determined by examining the literature on feedback perceptions. The literature revealed three different themes related to what comprises students' feedback perceptions: experiences with and expectations of feedback, uses of feedback, and emotional/affective responses to feedback. Using these three dimensions of feedback perceptions as a guide, items represented all aspects of students' feedback perceptions. The full list of items is in Appendix B.

The *Standards* (2014) also suggest obtaining evidence based on test content from expert judgment. In other words, experts in a field can judge the representativeness of a set of items for a chosen content. In the fall of 2015, the PoWF items were emailed to well-published researchers in the field of feedback perceptions to ask their professional judgment on the representativeness and appropriateness of the items that were drafted. The experts each read and returned feedback on the items and all agreed that the items represented students' perceptions of writing feedback. Each scholar also noted that the list of items was promising for creating a new, valid, and reliable way of measuring students' perceptions of writing feedback.

Evidence Based on Internal Structure. Analyzing the internal structure of a scale or test indicates the degree items and test components conform to the construct the scale is based on (AERA et al., 2014). For instance, the conceptual framework for an instrument might suggest a unidimensional structure or it may suggest there are several facets of a construct and "the extent to which item interrelationships bear out the presumptions of the framework" are relevant to the validity of the instrument (AERA, APA, & NCME, 2014, p. 16). The feedback perceptions theoretical framework suggests that different subgroups of items may function differently for

different test-takers, which suggests that feedback perceptions may be a multidimensional construct. In order to identify whether this is true for the PoWF, it was necessary to subject the items to a statistical data reduction analysis.

There are several different methods available for data reduction purposes or identifying factors within data (Field, 2013; Huck, 2012; Tabachnick & Fidell, 2007). Principal components analysis (PCA) and factor analysis (FA) are two such techniques that allow us to identify subsets of variables in a single dataset that are relatively independent of one another (Tabachnick & Fidell, 2007). The two major types of FA are exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Each method has specific purposes as well as assumptions that must be met in order for its use to be appropriate and yield reliable results.

Determining which data reduction technique is most appropriate depends primarily on two considerations: the purpose of the analysis is and whether findings will be generalized from a sample to a population (Field, 2013). For instance, EFA is appropriate when a researcher's purpose is to *explore* factor structures in data, (Field, 2013; Tabachnick & Fidell, 2007) with no *a priori* hypotheses about the number of factors or components the analysis will yield (Huck, 2012). Typically, these methods are employed in the early stages of research (Tabachnick & Fidell, 2007). PCA is a *type* of exploratory method. The other major type of FA, CFA, is used to test *a priori* hypotheses of structures of latent variables and their relationships to each other (Field, 2013). Where EFA can be used to develop theories, CFA is typically used to test or validate theories. The business of testing hypotheses of latent variable factor structures and their relationships to other variables is quite complex (Field, 2013) and is often conducted using structural equation modeling (SEM; Tabachnick & Fidell, 2007).

Regarding exploratory methods for identifying relationships among items, it is a common misconception that PCA and EFA may be used interchangeably (Field, 2013). Though PCA and EFA can both be used for exploratory data reduction purposes, the two techniques differ both mathematically and theoretically. PCA produces components while EFA produces factors. Factors are believed to "cause" variables and have a theoretical underpinning (Tabachnick, & Fidell, 2007). However, the resulting components of a PCA represent empirical associations that are not theory-driven. Thus, PCA produces a unique empirical summary of the data (Tabachnick & Fidell, 2007).

The second factor to consider when choosing a data reduction method is whether findings are intended to be generalized to a larger population. Since PCA produces a unique empirical and mathematical summary of the data, the results of PCA cannot be generalized to a broader population. PCA also assumes that the sample used in the analysis *is* the population, meaning findings cannot be extrapolated beyond the sample (Field, 2013). However, if findings from a PCA are replicated using different samples, generalization of the results is acceptable (Field, 2013).

Another primary difference between PCA and EFA is what specifically is being analyzed with each method. EFA analyzes *shared* variance only, or the variance each observed variable shares with the other observed variables (Tabachnick & Fidell, 2007). Thus, the goal of EFA is to reproduce the correlation matrix for included variables using a small number of factors. In other words, one should be able to predict what possible factors might exist by looking at the correlation matrix among variables and identifying which ones seem to "hang together". With PCA, *all* variance is analyzed, including unique variable variance and error variance (Tabachnick & Fidell, 2007). The goal of PCA, then, is to maximize the amount of

total variance that can be accounted for by a subset of variables in a dataset, not just the *shared* variance.

There are assumptions that must be met in order to utilize either method. There are a number of "rules of thumb" for required sample sizes necessary for both PCA and FA. According to Tabachnick and Fidell (2007), a sample size of at least 300 is ideal and likely to yield stable results. Kass and Tinsley (1979) recommend sampling 5 to 10 participants per variable up to 300 participants, asserting that beyond 300, parameters tend to be stable regardless of the participant-to-variable ratio. Comrey and Lee (1992) have recommended that a sample size of 1,000 is excellent, 300 is good, and 100 is poor. In addition to these suggested guidelines, we can also calculate a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Field, 2013; Huck, 2012). As a rule, if this value is greater than .60, then the sample size is adequate for conducting both PCA and FA (Huck, 2012; Tabachnick & Fidell, 2007).

Apart from having a sufficiently large sample size, there are other assumptions that must be met before conducting a PCA and FA. Since the goal of both PCA and FA is to identify clusters of variables in a set, Bartlett's (1954) test of sphericity must be conducted to ensure that the correlation matrix among variables is not an identity matrix (Field, 2013; Huck, 2012). An identity matrix is one is which all correlations are close to zero, indicating that our variables are all independent of one another. Thus, having an identity matrix is problematic for the purposes of PCA and FA because the analysis would yield no clusters. Bartlett's test of sphericity tests the hypothesis that the correlations in a matrix are zero; if the test is significant, then the correlations are significantly different from zero. Unfortunately, Bartlett's test is quite sensitive to sample size and is likely to be significant regardless of the presence of low correlations when sample size is substantial (Tabachnick & Fidell, 2007).

Conversely, variables should not be *too* correlated with one another, a problem known as multicollinearity. Multicollinearity can be checked by simply looking at the correlation matrix of the variables, with correlations close to one indicating that multicollinearity may be a problem (Field, 2013; Tabachnick & Fidell, 2007). For PCA, multicollinearity is not a problem but it should be checked prior to running a FA (Tabachnick & Fidell, 2007).

Most statistical tests assume the data are normally distributed. If PCA or FA is used strictly for descriptive purposes to summarize a set of variables, the distributions of the variables do not need to be normal (Tabachnick & Fidell, 2007). However, if PCA or FA is being used to make inferences, then multivariate normality is assumed (Tabachnick & Fidell, 2007). Examining descriptive statistics, specifically, skewness and kurtosis values, can indicate if the assumption of multivariate normality has been violated. Multivariate normality also assumes that the variables have linear relationships with one another. Obtaining scatterplots of variables and checking for linear relationships among variables in a dataset can check this.

Given the purposes of the current study, data were analyzed using EFA. Although themes were identified in the feedback perceptions literature, these themes served as guidelines to guide item drafting and were not intended to serve as *a priori* hypotheses regarding the factor structure that may exist among items, which is why an exploratory data reduction technique was employed. Furthermore, it is not appropriate to perform a CFA without first conducting an EFA. It is the researcher's hope that these findings might generalize to other populations of secondary students which is why EFA was chosen instead of PCA. Additionally, EFA was chosen over PCA because the interest is in measuring perceptions students have of writing feedback, assuming that feedback perceptions determines the ways students respond to the items included

on the scale. Thus, this work is driven by theory and seeks more than a mathematical summary of the data being collected.

Data Analysis Procedures. Before conducting the EFA, the assumptions of normality, multicollinearity, and sphericity were assessed. To assess normality, a histograms and the distribution of data on each question were investigated. Descriptive statistics, specifically, skewness and kurtosis values, were also inspected. Multicollinearity was assessed by examining the correlation matrix of items to be included in the analysis. Lastly, Bartlett's (1954) test of sphericity was conducted to ensure that the correlation matrix among variables was not an identity matrix (Field, 2013; Huck, 2012).

Once the assumptions were assessed and items were removed based on non-normality, items were subjected to an EFA using oblique rotation to allow factors to correlate with one another (Tabachnick & Fidell, 2007). Using oblique rotation yielded a pattern matrix of the relationships between each item and each factor that is uncontaminated by the overlap that existed among the factors (Tabachnick & Fidell, 2007). The pattern matrix is used to determine the meaning of factors when oblique rotation is used. To determine how many factors were extracted from the data, a scree plot, eigenvalues, and communalities after extraction were inspected. An eigenvalue indicates the relative importance of a variable to the factor it loads on (Field, 2013). A scree plot is a graph of eigenvalues against the factor with which it is associated (Field, 2013). Both were used to make a decision regarding the number of factors extracted from the set of items.

Evidence Based on Relationships to Other Variables. The analysis of the relationship between test scores and other variables external to the test provide evidence based on relationships to other variables (AERA et al., 2014). "Relationships between test scores and

other measures intended to assess the same or similar constructs provide convergent validity evidence…" (AERA et al., 2014, p. 16-17). To provide convergent and discriminant validity evidence of the PoWF, scores were correlated with scores on a previously existing measure of feedback perceptions, the Writing Feedback Attitudes Scale (WFA; Zumbrunn et al., 2010). This scale asks students to rate their overall opinion about the feedback they receive on their writing from others on a 4-point Likert scale where 1 is "Never" and 4 is "Always". The items on the five-item Writing Feedback Attitudes scale are developmentally appropriate for K-12 writers and yielded a Cronbach's alpha of .72 when first administered to a sample of fourth graders in a study that sought to explain determinants of students' confidence and success in elementary writing classrooms. Sample items from this scale include "I feel good about teachers' comments about my writing" and "I like it when classmates comment on my writing". All five items are provided in Appendix B. Scores on the WFA strongly correlated to students' scores on scales measuring writing attitudes, writing environment perceptions, and writing self-efficacy (Zumbrunn et al., 2010). WFA scores had a weaker relationship with students' writing grades (Zumbrunn et al., 2010). Ekholm and colleagues (2015) modified the scale (i.e., instances of the word "teacher" were replaced with "instructor"), used it with a college student sample to and examined the mediational relationship between writing feedback attitudes, writing self-efficacy, and writing self-regulation. When administered to a sample of college students, Cronbach's alpha was .81, which demonstrated acceptable internal consistency. Most recently, the original WFA was used in a study sampling from secondary classrooms to again examine the mediational relationship feedback attitudes had with writing self-efficacy and writing self-regulation; Cronbach's alpha was once again acceptable (α = .83). Thus, among repeated

administrations, these five items have demonstrated they produce reliable scores. As such, the WFA was administered along with the PoWF to provide convergent and discriminant validity.

Reliability. Standard 2.0 of *The Standards for Educational and Psychological Testing* states that "Appropriate evidence of reliability/precision should be provided for the interpretation for each intended score use" (AERA et al., 2014, p. 42). Reliability refers to a notion of consistency or of scores across testing instances (AERA, et al., 2014). The reliability of scores depends on how much scores vary across replications of test administration (AERA et al., 2014). How reliable scores on a test are is directly related to the generalizability of the scores (AERA et al., 2014). Thus, the reliability of scores also influences the validity of the score interpretations. The type of reliability evidence one produces for a test depends on the kind of variability in scores that is allowed as well as the interpretation of scores (AERA et al., 2014). For example, if one assumes that the construct a test measures is stable over time, any variation in test scores across test administrations is likely due to measurement error.

Internal Consistency. Reliability evidence based on internal consistency can be calculated from one administration of a test, making it the most common type of reliability evidence (McMillan & Schumacher, 2010). Cronbach's alpha is one type of indicator of internal consistency that "determines the agreement of answers on questions targeted to a specific trait" (McMillan & Schumacher, 2010, p. 182). Since the data analysis of the PoWF suggested a four-factor structure of feedback perceptions, Cronbach's alpha was calculate for each subscale of the PoWF.

Data Collection. The PoWF and the WFA (Zumbrunn et al., 2010) were both administered to the identified sample of secondary students. The principals who agreed to let their teachers participate in the study identified a representative sample of English classes for

participation. Those English teachers agreeing to allow their students to participate in the study received a letter of instructions (see Appendix C) as well as letters to send home with students. The letters for parents described the study and asked that if parents prefer their child not participate in the study that they return the letter to the child's English teacher (see Appendix D). These letters were delivered to teachers by the researcher and were sent home one week before data collection. The instruction letter for teachers included a link to the questionnaire that teachers then shared with their students by writing the link on the board or posting it to the course website. Once students arrived at the questionnaire webpage, they were instructed to read each item and rate their level of agreement or disagreement with each item (for a full list of questionnaire items, see Appendix B). Students responded to all items in one sitting but were not required to answer all questions. The questions were divided into three sections: the PoWF, the WFA (Zumbrunn et al., 2010) and demographics. No identifying information was collected from students. Items on the two questionnaires were counter-balanced to limit the impact of testing effects.

Chapter IV – Results

This chapter details the results from the data analyses conducted as part of the current study. Similar to the methodology, this chapter discusses each piece of validity and reliability evidence collected as part of the development of the Student Perceptions of Writing Feedback Scale (PoWF). The chapter begins with a discussion of descriptive statistics and an evaluation of assumptions necessary for statistical analysis. Following, validity evidence based on internal structure and relationships to other variables are detailed. The chapter closes with a discussion of reliability evidence for PoWF scores.

Descriptive Statistics and Analysis of Assumptions

Before conducting an exploratory factor analysis (EFA), an outlier analysis was conducted and descriptive statistics of the PoWF items were inspected. The assumptions of normality, multicollinearity, and sphericity were also assessed, and the dataset was inspected to check for missing data. No responses were outside of the 7-point and 4-point Likert scales used for each of the two questionnaires, indicating no outliers were present in the data, and there was no missing data. Frequencies of responses to individual items (see Table 4) showed that students utilized all of the Likert response options available to them on all but two of the items, items 8 and 22. This highlighted that there was variability in responses to PoWF items but also suggested the possibility of skewed distributions for those two items. Students responded to most items with a variety of Likert answer choices though there were instances where a large percentage of students either “agreed” or “strongly” agreed with items, such as items 4, 6, 8, 10, 15, 16, 19, and 21. Descriptive statistics (see Table 5) and histograms for each individual item, confirmed threats to the assumption of normality. Specifically, items 8, 10, 15, and 21 yielded skewness or kurtosis values greater than the absolute value of two, a cut-off typically used to

indicate non-normality. Since normality is an assumption of EFA, items 8, 10, 15, and 21 were not included in subsequent analyses.

Table 4.

Frequencies and Percentages of Responses to PoWF Items

Item	Frequency (Percentage)						
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
1. Feedback makes me feel like I am a good writer	9 (3.3)	32 (11.6)	27 (9.8)	79 (28.7)	70 (25.5)	35 (12.7)	9 (3.3)
2. I think I should get feedback even if I don't try very hard in my writing	7 (2.5)	41 (14.9)	19 (6.9)	20 (7.3)	42 (15.3)	95 (34.5)	50 (18.2)
3. Feedback is not important if I get a good grade	72 (26.2)	110 (40)	29 (10.5)	11 (4.0)	22 (8.0)	20 (7.3)	8 (2.9)
4. I look forward to feedback on my writing	11 (4.0)	22 (8.0)	13 (4.7)	17 (6.2)	50 (18.2)	93 (33.8)	69 (25.1)
5. Feedback I get on my writing makes me want to become a better writer	6 (2.2)	27 (9.8)	22 (8.0)	45 (16.4)	57 (20.7)	83 (30.2)	34 (12.4)
6. Feedback on my writing encourages me to do better next time	2 (.7)	15 (5.5)	14 (5.1)	37 (13.5)	61 (22.2)	108 (39.3)	38 (13.8)
7. Feedback on my writing makes me feel like I am a bad writer	39 (14.2)	82 (29.8)	38 (13.8)	41 (14.9)	48 (17.5)	16 (5.8)	11 (4.0)
*8. Feedback on my writing is important	0 (0.0)	8 (2.9)	1 (.4)	17 (6.2)	40 (14.5)	107 (38.9)	87 (31.6)
9. Feedback on my writing explains my grade	2 (.7)	15 (5.5)	24 (8.7)	9 (3.3)	67 (24.4)	90 (32.7)	67 (24.4)
*10. I get feedback on my writing	3 (1.1)	5 (1.8)	11 (4.0)	9 (3.3)	56 (20.4)	120 (43.6)	71 (25.8)
11. Feedback I get on my writing is too critical	25 (9.1)	119 (43.3)	39 (14.2)	46 (16.7)	31 (11.3)	12 (4.4)	2 (.7)
12. Feedback is very specific	11 (4.0)	33 (12.0)	35 (12.7)	14 (5.1)	96 (34.9)	64 (23.3)	20 (7.3)
13. Feedback on my writing is positive	4 (1.5)	18 (6.5)	21 (7.6)	79 (28.7)	79 (28.7)	63 (22.9)	8 (2.9)
14. Feedback on my writing is confusing	7 (2.5)	70 (25.5)	44 (16.0)	50 (18.2)	63 (22.9)	29 (10.5)	11 (4.0)
*15. Feedback explains what I did wrong in my writing	2 (.7)	5 (1.8)	7 (2.5)	3 (1.1)	60 (21.8)	130 (47.3)	68 (24.7)
16. Feedback tells me what I did well in my	5 (1.8)	9 (3.3)	15 (5.5)	7 (2.5)	65 (23.6)	114 (41.5)	59 (21.5)

writing							
17. I receive feedback soon after I turn in a writing assignment	25 (9.1)	54 (19.6)	30 (10.9)	23 (8.4)	61 (22.2)	61 (22.2)	19 (6.9)
18. Feedback helps me write better next time	2 (.7)	13 (4.7)	21 (7.6)	22 (8.0)	56 (20.4)	117 (42.5)	43 (15.6)
19. Feedback on my writing is useful	3 (1.1)	8 (2.9)	12 (4.4)	20 (7.3)	51 (18.5)	121 (44)	59 (21.5)
20. Feedback makes me a better writer	3 (1.1)	6 (2.2)	16 (5.8)	36 (13.1)	63 (22.9)	109 (39.6)	38 (13.8)
*21. I read the feedback I get on my writing	4 (1.5)	2 (.7)	3 (1.1)	13 (4.7)	20 (7.3)	110 (40)	123 (44.7)
22. I use feedback to help me write better next time	0 (0.0)	10 (3.6)	14 (5.1)	23 (8.4)	54 (19.6)	98 (35.6)	61 (22.2)
23. Feedback on my writing is helpful	1 (.4)	2 (.7)	11 (4.0)	18 (6.5)	60 (21.8)	102 (37.1)	81 (29.5)
24. Feedback tells me how to make my writing better	4 (1.5)	20 (7.3)	21 (7.6)	7 (2.5)	61 (22.2)	118 (42.9)	42 (15.3)
25. Feedback on my writing makes me want to give up	63 (22.9)	131 (47.6)	20 (7.3)	30 (10.9)	23 (8.4)	6 (2.2)	2 (.7)
26. Feedback on my writing makes me feel hopeless	47 (17.1)	92 (33.5)	39 (14.2)	50 (18.2)	18 (6.5)	13 (4.7)	2 (.7)
27. Feedback on my writing makes me feel nervous	34 (12.4)	68 (24.7)	32 (11.6)	32 (11.6)	72 (26.2)	24 (8.7)	13 (4.7)
28. Feedback on my writing makes me feel frustrated	25 (9.1)	59 (21.5)	55 (20.0)	45 (16.4)	50 (18.2)	17 (6.2)	10 (3.6)
29. Feedback on my writing makes me feel proud	5 (1.8)	33 (12.0)	33 (12.0)	88 (32.0)	73 (26.5)	36 (13.1)	6 (2.2)
30. Feedback on my writing makes me feel confident	6 (2.2)	34 (12.4)	36 (13.1)	86 (31.3)	76 (27.6)	30 (10.9)	7 (2.5)
31. Feedback on my writing makes me feel happy	4 (1.5)	37 (13.5)	30 (10.9)	90 (32.7)	69 (25.1)	34 (12.4)	10 (3.6)

*Note. Items marked with an * were not included in subsequent analyses*

Table 5.

Descriptive Statistics for PoWF Items.

Item	Mean (*SD*)	Skewness	Kurtosis
1. Feedback makes me feel like I am a good writer	4.19 (*1.41*)	-.31	-.37
2. I think I should get feedback even if I don't try very hard in my writing	4.95 (*1.79*)	-.71	-.79
3.Feedback is not important if I get a good grade	2.61 (*1.68*)	1.16	.25
4. I look forward to feedback on my writing	5.28 (*1.70*)	-1.09	.24
5. Feedback I get on writing makes me want to become a better writer	4.84 (*1.58*)	-.61	-.51
6. Feedback on my writing encourages me to do better next time	5.24 (*1.36*)	-.94	.43
7. Feedback on my writing makes me feel like I am a bad writer	3.25 (*1.68*)	.45	-.81
*8. Feedback on my writing is important	5.92 (*1.13*)	-1.47	2.63
9. Feedback on my writing explains my grade	5.42 (*1.46*)	-1.01	.33
*10. I get feedback on my writing	5.74 (*1.21*)	-1.54	2.95
11. Feedback I get on my writing is too critical	2.94 (*1.39*)	.72	-.37
12. Feedback is very specific	4.55 (*1.62*)	-.58	-.67
13. Feedback on my writing is positive	4.59 (*1.27*)	-.55	.05
14. Feedback on my writing is confusing	3.81 (*1.55*)	.17	-1.00
*15. Feedback explains what I did wrong in my writing	5.82 (*1.08*)	-1.71	4.38
16. Feedback tells me what I did well in my writing	5.54 (*1.35*)	-1.43	2.00
17. I receive feedback soon after I turn in a writing assignment	4.10 (*1.86*)	-.20	-1.29
18. Feedback helps me write better next time	5.34 (*1.37*)	-1.05	.53
19. Feedback on my writing is useful	5.58 (*1.29*)	-1.34	1.79
20. Feedback makes me a better writer	5.32 (*1.27*)	-.97	.87
*21. I read the feedback I get on my writing	6.15 (*1.08*)	-2.21	6.36
22. I use feedback to help me write better next time	5.53 (*1.30*)	-.99	.52
23. Feedback on my writing is helpful	5.78 (*1.14*)	-1.08	1.33
24. Feedback tells me how to make my writing better	5.28 (*1.48*)	-1.17	.57
25. Feedback on my writing makes me want to give up	2.44 (*1.36*)	-1.14	.59
26. Feedback on my writing makes me feel hopeless	2.80 (*1.44*)	.69	-.26
27. Feedback on my writing makes me feel nervous	3.60 (*1.76*)	.11	-1.17
28. Feedback on my writing makes me feel frustrated	3.49 (*1.59*)	.29	-.73
29. Feedback on my writing makes me feel proud	4.18 (*1.32*)	-.27	-.37
30. Feedback on my writing makes me feel confident	4.13 (*1.32*)	-.24	-.34
31. Feedback on my writing makes me feel happy	4.19 (*1.35*)	-.16	-.41

*Note. Items marked with an * were not included in subsequent analyses.*

The correlation matrix (see Table 6) of the remaining items to be included in the EFA was examined to assess the assumption of multicollinearity. No item correlations were greater than .9, thus, the assumption of multicollinearity was satisfied (Field, 2013). Bartlett's (1954) test of sphericity was significant (χ^2 (351) = 3492.68, $p < .01$), which indicated that the correlation matrix among the items was not an identity matrix and the assumption of sphericity was not violated (Huck, 2012; Field, 2013). Finally, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .89, indicating the sample size was adequate for EFA (Field, 2013).

Table 6.

Correlation Matrix of PoWF Items

Item	1	2	3	4	5	6	7	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	29	30	31
1	-																										
2	.81	-																									
3	-.12	-.13	-																								
4	.23	.10	-.33	-																							
5	.38	.09	-.35	.52	-																						
6	.40	.10	-.33	.51	.67	-																					
7	-.18	-.05	.16	-.17	-.18	-.16	-																				
9	.15	.09	-.14	.19	.19	.24	.00	-																			
11	-.07	.05	.25	-.22	-.12	-.15	.28	-.13	-																		
12	.21	.05	-.14	.06	.21	.26	-.14	.40	-.09	-																	
13	.32	-.00	-.07	.14	.24	.20	-.23	.10	-.00	.23	-																
14	-.04	.04	.16	-.13	-.13	-.15	.37	-.11	.25	-.25	-.17	-															
16	.24	.06	-.19	.15	.28	.33	-.22	.32	-.24	.36	.30	-.18	-														
17	.17	.13	-.05	.22	.19	.26	-.12	-.19	-.11	.36	.21	-.24	.30	-													
18	.33	.07	-.37	.47	.52	.65	-.27	-.27	-.28	.32	.26	-.17	.37	.32	-												
19	.17	-.06	-.35	.47	.44	.53	-.29	-.28	-.32	.32	.23	-.23	.33	.36	.67	-											
20	.35	.12	-.33	.39	.49	.60	-.24	-.24	-.21	.32	.29	-.15	.35	.22	.65	.64	-										
22	.21	.15	-.38	.38	.41	.51	-.20	-.21	-.25	.23	.21	-.21	.24	.13	.53	.42	.53	-									
23	.22	.02	-.32	.43	.48	.59	-.25	.32	-.32	.26	.20	-.18	.35	.32	.68	.69	.62	.53	-								
24	.24	.07	-.21	.23	.31	.38	-.17	.25	-.10	.39	.19	-.13	.34	.31	.40	.39	.38	.26	.39	-							
25	-.05	-.06	.30	-.25	-.25	-.22	.58	-.11	.37	-.08	-.10	.34	-.15	-.14	-.37	-.37	-.29	-.26	-.40	-.18	-						

26	-.09	.01	.22	-.16	-.21	-.22	.52	-.07	.35	-.15	-.14	.32	-.18	-.24	-.28	-.37	-.27	-.19	-.34	-.25	.61	-						
27	-.08	-.06	.03	-.18	-.06	-.11	.59	-.04	.26	-.04	-.13	.46	-.13	-.24	-.21	-.17	-.10	-.16	-.19	-.12	.49	.41	-					
28	-.25	-.02	.09	-.13	-.16	-.13	.48	-.10	.21	-.20	-.16	.35	-.08	-.21	-.24	-.34	-.28	-.08	-.21	-.20	.47	.66	.43	-				
29	.72	.05	-.13	.22	.37	.38	-.12	.20	.01	.26	.33	-.04	.23	.15	.26	.20	.34	.20	.21	.19	.02	-.06	.00	-.16	-			
30	.77	.06	-.11	.24	.35	.34	-.21	.19	-.07	.29	.34	-.07	.24	.14	.28	.20	.32	.15	.25	.22	-.08	-.10	-.07	-.20	-.82	-		
31	.79	.05	-.13	.30	.42	.40	-.17	.17	-.06	.21	.36	-.07	.22	.22	.29	.23	.31	.19	.27	.26	-.06	-.11	-.09	-.21	-.80	.83	-	

Validity

Evidence Based on Internal Structure. To evaluate validity evidence based on internal structure, the remaining 27 PoWF items were subjected to an EFA using oblique rotation and principal axis factoring extraction, which allowed the factors to correlate with one another (Tabachnick & Fidell, 2007). Initially, 27 factors were identified. Only factors with an eigenvalue greater than one were retained (Field, 2013). Six factors having an eigenvalue greater than one were extracted. Together, these six factors accounted for 52.99 percent of the variance in responses. However, the scree plot (see Figure 1) suggested a five-factor model might represent the data better than a six-factor model. To further explore the factor structure of the PoWF items, the pattern matrix (see Table 7) and communalities (see Table 8) were examined. The pattern matrix revealed that nine items loaded onto the first factor, five items to the second factor, seven items to the third factor, and four items onto the fourth factor. Two of the PoWF items (items 26 and 28) loaded onto the fifth factor, but loaded more strongly onto the third factor. Only one item (item 3) loaded onto the sixth factor; this item also loaded onto factor one. Item 2 did not load onto any of the extracted factors.

Figure 1.

Scree Plot of PoWF Items

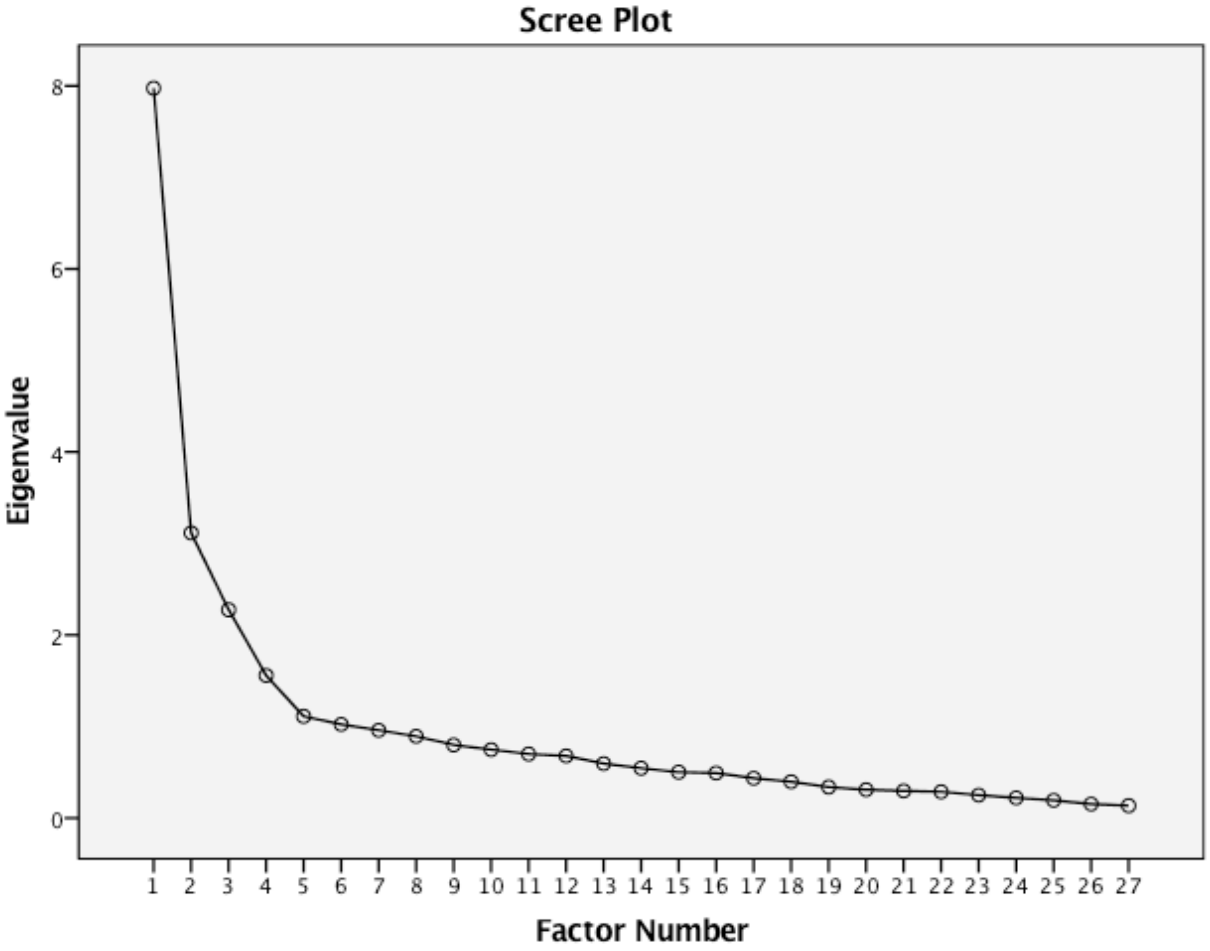

Table 7.

Pattern Matrix of PoWF Items

Item	Factor					
	1	2	3	4	5	6
4. I look forward to feedback on my writing	**.66**	.06	.05	-.18	.12	-.02
5. Feedback I get on writing makes me want to become a better writer	**.64**	-.22	-.04	-.07	.05	.04
6. Feedback on my writing encourages me to do better next time	**.79**	-.14	-.09	-.01	.08	-.04
18. Feedback helps me write better next time	**.73**	.00	.05	.14	.00	-.00
19. Feedback on my writing is useful	**.74**	.10	.07	.17	-.23	-.04
20. Feedback makes me a better writer	**.64**	-.10	-.01	.16	-.09	.07
22. I use feedback to help me write better next time	**.50**	.03	.08	.11	.22	.18
23. Feedback on my writing is helpful	**.72**	.06	.06	.15	-.06	.03
3. Feedback is not important if I get a good grade	**.31**	.01	.10	.08	.10	.37
1. Feedback makes me feel like I am a good writer	.07	**-.82**	.01	-.03	.00	-.01
13. Feedback on my writing is positive	.07	**-.29**	.10	.17	.03	-.11
29. Feedback on my writing makes me feel proud	.00	**-.87**	-.08	.07	.00	.04
30. Feedback on my writing makes me feel confident	-.09	**-.92**	.04	.08	.00	.08
31. Feedback on my writing makes me feel happy	.09	**-.89**	.01	-.05	.01	-.06
7. Feedback on my writing makes me feel like I am a bad writer	-.03	-.14	**.74**	-.04	.01	.05
11. Feedback I get on my writing is too critical	.11	.07	**.36**	.10	.01	.23
14. Feedback on my writing is confusing	-.05	.04	**.51**	.19	.10	-.06
25. Feedback on my writing makes me want to give up	.18	.06	**.68**	-.05	-.10	.22
26. Feedback on my writing makes me feel hopeless	.12	-.02	**.63**	.03	-.40	.10
27. Feedback on my writing makes me feel nervous	-.02	.03	**.86**	-.13	.25	-.31
28. Feedback on my writing makes me feel frustrated	.03	-.19	**.59**	.00	-.43	-.07
9. Feedback on my writing explains my grade	.06	-.03	-.05	**.47**	.05	.05
12. Feedback is very specific	-.12	-.09	-.00	**.78**	-.03	-.02
16. Feedback tells me what I did well in my writing	.09	-.08	.08	**.48**	.11	.01
17. I receive feedback soon after I turn in a writing assignment	.23	.03	.11	**.32**	-.03	-.37
24. Feedback tells me how to make my writing better	.29	-.05	.01	**.36**	-.08	-.08
26. Feedback on my writing makes me feel hopeless*	.12	-.02	.63	.03	**-.40**	.10
28. Feedback on my writing makes me feel frustrated*	.03	-.19	.59	.00	**-.43**	-.7
3. Feedback is not important if I get a good grade*	.31	.01	.10	.08	.10	**.37**

2. I think I should get feedback even if I don't try very hard in my writing	-.04	.03	-.02	-.04	-.15	-.02

**Note. These items also loaded onto other factors*

Table 8.

Communalities of PoWF Items after Extraction

Item	Communality After Extraction
1. Feedback makes me feel like I am a good writer	.72
2. I think I should get feedback even if I don't try very hard in my writing	.04
3. Feedback is not important if I get a good grade	.35
4. I look forward to feedback on my writing	.44
5. Feedback I get on writing makes me want to become a better writer	.52
6. Feedback on my writing encourages me to do better next time	.67
7. Feedback on my writing makes me feel like I am a bad writer	.56
9. Feedback on my writing explains my grade	.26
11. Feedback I get on my writing is too critical	.26
12. Feedback is very specific	.58
13. Feedback on my writing is positive	.21
14. Feedback on my writing is confusing	.32
16. Feedback tells me what I did well in my writing	.36
17. I receive feedback soon after I turn in a writing assignment	.38
18. Feedback helps me write better next time	.68
19. Feedback on my writing is useful	.69
20. Feedback makes me a better writer	.59
22. I use feedback to help me write better next time	.48
23. Feedback on my writing is helpful	.64
24. Feedback tells me how to make my writing better	.33
25. Feedback on my writing makes me want to give up	.63
26. Feedback on my writing makes me feel hopeless	.69
27. Feedback on my writing makes me feel nervous	.80
28. Feedback on my writing makes me feel frustrated	.63
29. Feedback on my writing makes me feel proud	.78
30. Feedback on my writing makes me feel confident	.84
31. Feedback on my writing makes me feel happy	.84

Note. Method of extraction was Principal Axis Factoring.

The first factor was labeled Writing Improvement because these items focused on ways feedback can help students improve their writing and grow as a writer. These items also reflected the value and usefulness students place on feedback for helping them improve their writing. Example items from the Writing Improvement subscale include "Feedback helps me write better next time" and "Feedback on my writing is helpful." Nine items originally loaded onto the first factor. Item three, "Feedback is not important if I get a good grade" had the weakest loading and low communality after extraction, in addition to not theoretically aligning with the rest of the items. Dropping this item resulted in an increase in Cronbach's alpha for the Writing Improvement subscale from .89 to .90. Thus, item three was removed from the PoWF.

The second factor was labeled Positive Affect and was comprised of four items related to positive emotional reactions students have had as a result of receiving feedback on their writing. Sample items from the Positive Affect subscale include "Feedback makes me feel confident" and "Feedback makes me feel proud." A fifth item, item 13, "Feedback on my writing is positive" originally loaded onto the Positive Affect subscale, as well. Both the loading and the communality for this item were substantially lower than that of the other four items. Item 13 also did not align well with the other items as it did not address a specific affective response to writing. Thus, item 13 was dropped, which resulted in an increase in Cronbach's alpha from .89 to .94 for the Positive Affect subscale.

Opposite of the Positive Affect subscale, factor three was made of five items that reflected negative emotional responses students have had with receiving writing feedback. This subscale was labeled Negative Affect and example items include "Feedback on my writing makes me feel like I am a bad writer" and "Feedback makes me feel nervous." Item 11, "Feedback I get on my writing is too critical" and Item 14, "Feedback on my writing is

confusing", were originally part of the Negative Affect subscale but were dropped since they did not align well with the other items, resulting in lower factor loadings. Cronbach's alpha for the Negative Affect subscale increased marginally from .83 to .84 upon dropping items 11 and 14. These items also had low communalities, further supporting the removal of item 11 and item 14.

The fourth factor was labeled Feedback Message because the three items that loaded onto this factor described the specific message feedback conveyed to students such as "Feedback explains my grade" and "Feedback tells me what I did well in my writing." A fourth item, item 17, initially loaded onto this factor but was dropped because it did not align well with the other items. Item 17, "I receive feedback soon after I turn in a writing assignment", focused on how quickly students get feedback rather than a specific message feedback conveyed to students. Cronbach's alpha dropped slightly (from .64 to .63) when item 17 was removed. However, the value of alpha both with and without item 17 is not above .70, the recommended cut off. Furthermore, the communality of item 17 was low, which suggested the variance of the item was not explained by the extracted factors.

Two items loaded moderately onto the fifth factor. Both of these items, item 26 and 28, loaded more strongly onto the Negative Affect subscale. Items 26 and 28 stated that feedback on writing made students feel hopeless or frustrated, respectively. Theoretically, this cross loading might suggest that feelings of hopelessness or frustration are prompted by receiving feedback for a very specific group of students who answer this item a certain way. The other negative affective items did not strongly load onto a fifth factor with the hopeless and frustrated items. Thus, students in general may be nervous to receive feedback on their writing but only students who have had particular experiences with feedback also feel frustrated and/or hopeless. Only one item, item three, loaded onto the sixth factor. This item also loaded onto the Writing

Improvement subscale but was removed due to a low factor loading. Item three's loading onto the sixth factor was low as well. Collectively, the fifth and sixth factors only accounted for an additional 3.6% of the variance. Thus, these final two factors were removed from the PoWF, leaving a four-factor structure. A final list of items included in each of the four factors as well as eigenvalues for each factor is provided in Table 9.

Table 9.

Factor Loadings and Eigenvalues of Final PoWF Factors

Item	Factor			
	1	2	3	4
4. I look forward to feedback on my writing	**.66**	.06	.05	-.18
5. Feedback I get on writing makes me want to become a better writer	**.64**	-.22	-.04	-.07
6. Feedback on my writing encourages me to do better next time	**.79**	-.14	-.09	-.01
18. Feedback helps me write better next time	**.73**	.00	.05	.14
19. Feedback on my writing is useful	**.74**	.10	.07	.17
20. Feedback makes me a better writer	**.64**	-.10	-.01	.16
22. I use feedback to help me write better next time	**.50**	.03	.08	.11
23. Feedback on my writing is helpful	**.72**	.06	.06	.15
1. Feedback makes me feel like I am a good writer	.07	**-.82**	.01	-.03
29. Feedback on my writing makes me feel proud	.00	**-.87**	-.08	.07
30. Feedback on my writing makes me feel confident	-.09	**-.92**	.04	.08
31. Feedback on my writing makes me feel happy	.09	**-.89**	.01	-.05
7. Feedback on my writing makes me feel like I am a bad writer	-.03	-.14	**.74**	-.04
25. Feedback on my writing makes me want to give up	.18	.06	**.68**	-.05
26. Feedback on my writing makes me feel hopeless	.12	-.02	**.63**	.03
27. Feedback on my writing makes me feel nervous	-.02	.03	**.86**	-.13
28. Feedback on my writing makes me feel frustrated	.03	-.19	**.59**	.00
9. Feedback on my writing explains my grade	.06	-.03	-.05	**.47**
12. Feedback is very specific	-.12	-.09	-.00	**.78**
16. Feedback tells me what I did well in my writing	.09	-.08	.08	**.48**
Eigenvalue	7.98	3.12	2.28	1.56

Note. Method of extraction was Principal Axis Factoring.

Evidence Based on Relationships to Other Variables. To obtain validity evidence based on relationships to other variables, scores on the PoWF were correlated with students' scores on the Writing Feedback Attitudes Scale (Zumbrunn et al., 2010). Specifically, subscale scores were created for each of the four PoWF factors. These subscale scores were then correlated with a total scale score for the Writing Feedback Attitudes Scale (α = .77; see Table 10). Scores on the PoWF subscales correlated positively with scores on the Writing Feedback Attitudes Scale and ranged from weak (r = .27) to moderately strong (r = .57).

Table 10.

Correlation of PoWF Scores with Writing Feedback Attitudes Scores

Score	(1)	(2)	(3)	(4)	(5)
(1)Feedback Attitudes	1.0				
(2)Improvement	.57	1.0			
(3)Positive Affect	.28	.42	1.0		
(4)Negative Affect	.37	.37	.17	1.0	
(5)Feedback Message	.27	.46	.30	.20	1.0

A moderately strong, positive correlation among the Writing Feedback Attitudes Scale and the PoWF Writing Improvement subscale provided evidence for convergent validity. This is because there is overlap among this group of items. Both sets of items address students liking to receive feedback, particularly PoWF item "I look forward to feedback on my writing" and WFA item "I like it when my teachers comment on my writing". The weaker relationships between the WFA and the Positive Affect, Negative Affect, and Feedback Message subscales provided discriminant validity evidence. This is because the remaining PoWF subscales and the WFA are measuring different facets of feedback perceptions. While two of the WFA items contain the

words “I feel”, these are referring to feelings about feedback specifically and not about emotional responses to receiving writing feedback. Furthermore, none of the WFA items address specific content or messages sent by feedback, such as the items comprising the Feedback Message subscale of the PowF. Thus, a different pattern of responses would be expected.

Reliability

Internal Consistency. Cronbach’s alpha was calculated for each of the four PoWF subscales to assess internal consistency of items, or, the degree of agreement on items (McMillan & Schumacher, 2010). The reliabilities of each subscale can be found in Table 11. Reliabilities of factors one, two, and three were quite high while the reliability of factor four was less than what is typically acceptable.

For each subscale, the Cronbach’s alpha if item deleted was also calculated. The reliability of scores on the eight Writing Improvement subscale items was .90. Deleting any one of the eight items would have resulted in either a decrease or no change in the value of alpha. Positive Affect subscale items yielded an alpha of .94. Deleting any of the four Positive Affect items would have result in a lowering of alpha. Similarly, deleting any of the five Negative Affect items would also result in a lowering of Cronbach’s alpha for that subscale from .84. The lowest alpha value of the four subscales was that of the Feedback Message subscale at .63. Removing any of the three items comprising this subscale would result in an even lower alpha value.

Resulting Instrument

A systematic literature review, item construction and expert review, and data reduction procedures led to the development of the Student Perceptions of Writing Feedback scale

(PoWF). The resulting PoWF was a 20 item questionnaire comprised of four subscales: Writing Improvement, Positive Affect, Negative Affect, and Feedback Message. A final list subscales, items, and reliabilities is provided in Table 11.

Table 11.

Final PoWF Items and Subscales and Reliabilities

Factor	*n* items	Items	Cronbach's alpha (α)
Writing Improvement	8	I look forward to feedback on my writing Feedback I get on writing makes me want to become a better writer Feedback on my writing encourages me to do better next time Feedback helps me write better next time Feedback on my writing is useful Feedback makes me a better writer I use feedback to help me write better next time Feedback on my writing is helpful	.90
Positive Affect	4	Feedback makes me feel like I am a good writer Feedback on my writing makes me feel proud Feedback on my writing makes me feel confident Feedback on my writing makes me feel happy	.94
Negative Affect	5	Feedback on my writing makes me feel like I am a bad writer Feedback on my writing makes me want to give up Feedback on my writing makes me feel hopeless Feedback on my writing makes me feel nervous Feedback on my writing makes me feel frustrated	.84
Feedback Message	3	Feedback on my writing explains my grade Feedback is very specific Feedback tells me what I did well in my writing	.63

Chapter V – Discussion

This chapter serves as the final chapter detailing the current study. Major findings will be briefly restated and connections will be made to the extant literature on writing feedback perceptions. The chapter will close with a discussion of limitations to the study and recommendations for future research and concluding thoughts.

Discussion of Major Findings

This study sought to develop a scale for measuring students' perceptions of feedback they get on their writing. Using a systematic process guided by the recommendations put forth by APA, AERA, and NCME in *The Standards* (2014), items were developed and, subsequently, subjected to exploratory factor analysis (EFA). Once the initial set of items was drafted, they were shared with three different scholars who have published research on feedback perceptions. These scholars were asked to conduct an expert review of the items. Each scholar gave positive feedback and indicated that the items and proposed methodology seemed quite promising for producing a new, valid, and reliable measure of students' perceptions of writing feedback. After data collection, descriptive statistics suggested that four items should be removed from the PoWF prior to conducting the EFA due to non-normality. The items having skewed distributions were items that we would generally expect most students to agree with. For instance, 89.8 percent and 92.0 percent of students responded with one of the agree options to "I get feedback on my writing" and "I read the feedback I get on my writing", respectively. All of the students in a study by Higgins and colleagues (2002) reported reading feedback, though the time spent reading the feedback varied. Moreover, 82 percent of the students participating in the study reported paying close attention to the feedback they get (Higgins et al., 2002).

Data analysis procedures suggested that a four-factor structure underlies the items that comprise the Student Perceptions of Writing Feedback Scale (PoWF). That is, the PoWF consisted of four subscales that capture different facets of students' perceptions of writing feedback. The factor loadings for items on the Feedback Message subscale were not as strong as loadings for other subscales; this subscale produced the lowest alpha, also. It may be difficult to create a unified measure of Feedback Messages since feedback is typically very individualized to students work and differs from teacher to teacher. It may be more appropriate to treat these items as separate items rather than a scale and to use them as a way to gather information about what kind of feedback students are receiving from their teacher. Alternatively, with the addition of more items that focus specifically on the type of message feedback can convey to students, a better set of items might result in increased reliability of scores the Feedback Message scale produces.

Interestingly, the positively and negatively worded affective items loaded onto different scales rather than creating an affect continuum where students may fall either at the positive or negative end. The purpose of factor analysis is to detect patterns based on how students respond to the items being analyzed (Field, 2013). Thus, students who strongly endorse positively worded items, such as "Feedback makes me feel proud" may not endorse negatively worded items such as "Feedback makes me feel hopeless". It seems unlikely that students for whom feedback is frustrating would also be students for whom feedback elicits feelings of confidence or pride. Not only are the two separate factors highlighting differences among students views of feedback, it also suggests that students are likely receiving very different kinds of feedback. For instance, it is unlikely that feedback that makes one student feel confident would make another student feel hopeless.

To assess validity evidence based on relationships to other variables, scores on each of the four PoWF subscales were correlated with scores on the Writing Feedback Attitudes Scale (WFA; Zumbrunn et al., 2010). A research team who routinely publishes research on students' writing beliefs and attitudes created the WFA. During the item construct phase for the WFA, the team met regularly to discuss the construct of writing feedback perceptions and corresponding theories, develop the items, and identify good and poor items (Zumbrunn et al., 2010). The final set of items focused primarily on students' openness to receiving feedback while the PoWF focused on how students feel about feedback they have previously received as well as how helpful and valuable previous feedback was to them. The PoWF also includes students' affective responses to feedback, a major component of students' feedback perceptions that has largely been absent from the extant literature (Rowe, 2011; Rowe & Wood, 2008), particularly from scales that measure students' writing feedback perceptions (e.g., King et al., 2009).

Scores on the Writing Improvement subscale had a moderately strong, positive relationship with WFA scores. Considering the individual sets of items that contribute to these scores, it makes sense that students who view feedback as encouraging, useful, and helpful for making improvements would also be more open to receiving feedback on their writing. Furthermore, WFA scores correlated strongly with students' attitudes toward writing in a previous study (Zumbrunn et al., 2010). Thus, students who have positive attitudes toward writing seem to have positive attitudes toward writing feedback, and are more open to receiving feedback on their writing. Relationships between WFA scores and the Feedback Message, Positive Affect, and Negative Affect subscales were weak. The Feedback Message subscale addresses very specific pieces of feedback, which likely prevents it from having strong relationships with other, more general, measures of writing feedback perceptions. It would be

beneficial for future research to investigate the results of expanding this subscale. Moreover, it might also be worthwhile to use an expanded Feedback Message subscale as an indicator of the types of feedback students are receiving. That would allow researchers to tease apart writing feedback perceptions based on types of feedback students are receiving.

The scores on the Negative Affect scale did not correlate with WFA scores. Again, this makes sense when we consider the items and think about how students might respond to them. Students who are not as open to receiving feedback are likely the same students for whom feedback prompts feelings of nervousness, frustration, and hopelessness. The weak relationship between the Positive Affect subscale and the WFA scale was somewhat surprising since we would expect that students who are open to receiving feedback from others would be students for whom writing feedback elicits a positive emotional response. While the correlation between these two was positive, it was weak-to-moderate, at best. Perhaps being open to receiving feedback does not necessarily mean these students always feel positively upon receiving feedback. It is also possible that being open to receiving feedback may mean that one simply is open to receiving it because s/he values it or sees its worth without necessarily having emotional responses to the feedback you received.

Rowe and Wood (2008) initially began exploring the role of emotions in receiving feedback by including items related to emotions on their questionnaire measuring students' perceptions of and preferences for feedback. However, their principal components analysis did not yield a separate component consisting of affective items. They note including a small number of items related to emotions, which may why there was not a separate component. The wording of their emotion items does not mention specific affective responses, such as pride or frustration. It is possible that the items created to represent emotions captured a different aspect

of feedback, causing them to load onto other components rather than form an independent one. The PoWF affective items included very specific reactions to feedback and, in many instances, were words students included as reasons for liking and disliking feedback on their writing from teachers in two recent studies by Zumbrunn and colleagues (2016) and Marrs and colleagues (2016).

Lizzio and Wilson (2008) did not specifically address emotions related to feedback. They did, however, include items on their feedback perceptions scale that were related to encouragement. In fact, Encouraging Feedback emerged as a separate factor in their analysis. Sample items from this factor include "(feedback) Acknowledged my good points or ideas" and "Positive comments were made". Though these items are not tied specifically to emotions, it is possible that these items make students think of emotional reactions they have had with feedback previously. King et al. (2009) did not purposefully focus on emotions, either. However, some of their items contain the word "feelings". For instance, "My feelings can easily be hurt by corrective feedback from a teacher" is a sample item that loaded onto their Feedback Sensitivity factor; which seems similar to the PoWF's Negative Affect subscale.

Similar to the PoWF's Writing Improvement subscale, Lizzio and Wilson's (2008) analysis yielded a factor labeled Developmental Feedback. Items on this factor related to the role feedback plays in scaffolding students to improve their writing ability. Both subscales include items that refer to usefulness and value of feedback for helping students become better writers. The first-factor extracted from King and colleague's (2009) set of items was similar, as well. They labeled this factor Feedback Utility, as items reflected the value and usefulness of feedback in helping them make academic improvements.

Items related to fairness and clarity of feedback emerged as a separate factor in Lizzio & Wilson's study (2008). Only two items (Feedback I get is too critical and Feedback I get is confusing) were included on the PoWF that related to fairness or clarity and both items were removed because they had weak loadings. These items are also related to the content or message feedback conveys to students. Again, items such as these may serve as a good indicator of the kinds of feedback students are receiving rather than serve as a separate dimension of students' feedback perceptions.

Implications for Practice

Once the functionality and psychometric properties of the PoWF are well established, practitioners and researchers alike can utilize the instrument. Researchers will be able to use the PoWF as a way to reliably measure students' perceptions of writing feedback. Scores on the subscales can then be used in complicated models that can investigate theoretical relationships of feedback perceptions to other variables. For instance, does a more complete and theoretically based measure of feedback perceptions yield the same mediation model between feedback perceptions, writing self-regulation, and writing self-efficacy?

Teachers will now have access to a short set of items that they can administer to their students to get a quick sense of their students' views of writing feedback. The most important piece of this for teachers might be the positive and negative affective subscales. Administering these items alone to students would give teachers a sense of the types of interactions their students have had in the past with receiving writing feedback. If teachers find many of their students report feeling nervous or hopeless as a result of receiving writing feedback, this could signify to teachers that perhaps conversations around the uses of feedback and benefits it can provide for students should take place in the classroom.

Implications for Future Research

Using the data collected as part of the current study, a number of other questions can be investigated that were beyond the scope of this study. For instance, the final sample consisted of ninth and twelfth grade students, the beginning and end of high school. An important question to ask is whether the PoWF demonstrates invariance, or equivalence, across the two groups of students. If not, then the PoWF could me measuring different things in each group. Similarly, it is possible that ninth and twelfth grade students differ in their feedback perceptions; independent samples *t*-tests comparing ninth and twelfth graders on PoWF subscale scores could be used to test whether this is true. Previous research has yielded mix findings related to gender differences in feedback perceptions; similar analyses could examine if gender differences exist in the PoWF data.

More exploratory work is needed before the structure of the PoWF can be confirmed. Specifically, the Feedback Message subscale should either be expanded or removed, and, instead be used as a way to capture types of feedback students are receiving on their written work. Furthermore, it might also be worthwhile to include the items from the WFA scale as part of the PoWF to see if the items load onto a separate factor or load onto other factors with PoWF items. While the PoWF did ask students if they look forward to feedback on their writing, no other items specifically addressed openness to receiving feedback. By combining these two scales, it could produce an even more comprehensive and holistic measure of the writing feedback perceptions of students. It would be beneficial to ask additional experts in the field to review the items and make suggestions to provide additional evidence for validity based on content. Scores on the PoWF should also be correlated with scores on other scales, both those that measure similar constructs and those that do not to provide increased evidence for convergent and

discriminant validity. This is important for ensuring that the PoWF is measuring feedback perceptions and not other constructs.

Following additional exploratory work, the next essential step would be to confirm the factor structure of the PoWF using confirmatory factor analysis (CFA) and a different sample of students. The sample of students that participated in the current study was rather homogenous, particularly in terms of self-reported writing grades, despite efforts to recruit a diverse sample of students. Future work should strive to sample from different populations. Not only should future research strive for representativeness across ability levels, but across ethnicities and English language learner status. Once the factor structure of the PoWF is confirmed, the language of PoWF items should be adapted for younger populations, since we know students have experience with writing and receiving feedback well before reaching high school and that even elementary students report having very negative reactions to writing feedback (Marrs et al., 2016, Zumbrunn et al., 2016). Finally, previous research has suggested that students' openness to feedback partially mediates the relationship between their writing self-efficacy and writing self-regulation (Ekholm et al., 2015; Zumbrunn et al., 2016). It is important to know if this model stands when including a more comprehensive measure of students' writing feedback perceptions. Perhaps, different facets of writing feedback perceptions have differential relationships with writing self-efficacy, writing self-regulation, and writing attitudes. Understanding fully the relationships of these different writing attitudes and beliefs is important to not only add to the existing literature on these constructs, but in understanding students as writers. A better understanding of what contributes to a students' views of themselves as writers will help researchers and practitioners create interventions for helping students have positive views of themselves as writers and their writing abilities.

The aforementioned future research suggestions are primarily quantitative studies. While conducting this quantitative work is important and pivotal for understanding feedback perceptions and its relationships to other writing constructs, it is important to remember that the relationship between a student and their teacher is a critical piece of the feedback process. Both writing and receiving feedback on writing are also very personal matters, which likely contributes to the individuality students demonstrate in liking to or not liking to receive feedback (i.e., Marrs, et al., 2016; Zumbrunn et al., 2016). Thus, there is a great deal of power in collecting qualitative data to triangulate with quantitative data related to these constructs so that we may truly understand students' perceptions of writing feedback and what factors may contribute to the development of their perceptions.

Limitations

Since the sampling method for this study was non-random sampling, the external validity of the findings may be limited. In other words, the findings from this study may not be generalizable to the population of secondary or even high school students broadly. Furthermore, the researcher was prohibited from recruiting students in eleventh grade due to a state-mandated writing assessment, leaving a sample of primarily ninth and twelfth graders. While ninth and twelfth grade students are both at the high school level, it is possible that twelfth grade students and ninth grade students may have different overall perceptions of writing feedback due to different classroom experiences with writing, as well as increased expectations for their writing as they progress through school. Though students identified with a range of racial ethnicities, the students primarily identified as White/Caucasian. Finally, over 80 percent of students reported earning mostly A's or B's in writing, which suggests that these students were all of similar academic ability. Future research should strive to increase representativeness of the sample by

utilizing random sampling when possible. It would also be beneficial to have teacher reported grades for students rather than having students self-report their writing grades. Additionally, while internal consistency was evaluated, it would be helpful to also have an indicator of stability to provide further evidence for the reliability of scores produced by the PoWF.

Another limitation to the current study is that students' teachers administered the questionnaire in their classrooms. Thus, the researcher had no control over the delivery of instructions to the participating students. Instructions were provided in writing to all students at the beginning of the online survey. However, it is possible that the teachers did not follow the script provided to them exactly as it was printed, resulting in a change of delivery of instructions to students. Furthermore, students were asked to think about feedback they receive on their writing from their teachers in general, but it is possible that students responded to the items with the teacher giving them instructions in mind rather than teachers, broadly, meaning that a students' relationship with their current English teacher may have biased how they responded to the items. Sole reliance on self-report is another limitation to this study. Even though students were told that their answers would be anonymous and would not be shared with anyone, the students may have still responded to the PoWF items in a way that would be favorably viewed by a teacher or researcher. Finally, we do not have a means for controlling for the type(s) of feedback these students are actually receiving or how they interpret feedback.

Even though students were prompted to think about feedback they get on their writing, it is possible that students responded to the items thinking only about the activity of writing. In essence, students may like or dislike writing and responded to the PoWF items as if they were asking about writing rather than writing feedback. It might be worthwhile to revisit the phrasing of the directions provided to students to be sure it is clear that they respond thinking about

feedback on their writing in general, which could include writing outside of their English class, and not on the activity of writing.

Conclusion

Writing feedback perceptions is a relatively new construct. The creation of the PoWF was a critical first step toward a better understanding of students' perceptions of writing feedback, which will lead to a better understanding of the theoretical implications of students' perceptions of writing feedback. The PoWF was designed to validly and comprehensively measure the complexity of students' feedback perceptions. Steps have been taken to ensure that the use of the PoWF will produce reliable scores and that inferences made from its use are valid. More work is needed to validate the PoWF.

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APPENDIX A

Scales

*Indicates items that need to be reverse coded

STEM: When I think about receiving feedback about my writing…
Students will respond using a 1 – 7 Likert Scale (1-Strongly Disagree to 7-Strongly Agree) with a neutral option

Views/Expectations of FB (What students think about feedback, what they expect feedback to be, what purpose they believe feedback serves)

10. Feedback makes me feel like I am a good writer
11. I think I should get feedback even if I don't try very hard in my writing*
12. Feedback is not important if I get a good grade*
13. I look forward to feedback on my writing
14. Feedback I get on writing makes me want to become a better writer
15. Feedback on my writing encourages me to do better next time
16. Feedback on my writing makes me feel like I am a bad writer*
17. Feedback on my writing is important
18. Feedback on my writing should explain my grade*

Experiences with FB (what are students experiences with feedback)

9. I get feedback on my writing
10. Feedback I get on my writing is too critical*
11. Feedback is very specific
12. Feedback on my writing is positive
13. Feedback on my writing is confusing
14. Feedback explains what I did wrong in my writing
15. Feedback tells me what I did well in my writing
16. I receive feedback soon after I turn in a writing assignment

Use/Value of FB (how do students use the feedback they get on their writing?)

8. Feedback helps me write better next time
9. Feedback on my writing is useful
10. Feedback makes me a better writer
11. I read the feedback I get on my writing
12. I use feedback to help me write better next time
13. Feedback on my writing is helpful
14. Feedback tells me how to make my writing better

Affect associated with FB (what emotion do students attach to receiving feedback on their writing? Does feedback elicit certain emotional responses?)

8. Feedback on my writing makes me want to give up*
9. Feedback on my writing makes me feel hopeless*
10. Feedback on my writing makes me feel nervous*
11. Feedback on my writing makes me feel frustrated*
12. Feedback on my writing makes me feel proud
13. Feedback on my writing makes me feel confident
14. Feedback on my writing makes me feel happy

Writing Feedback Attitudes Scale

1. I like talking with my teachers about my writing.
2. I like it when my classmates comment on my writing.
3. I like it when teachers comment on my writing.
4. I feel good about teachers' comments about my writing.
5. I feel good about my classmates' comments about my writing.

APPENDIX B

Teacher Instructions

Dear [county] teacher,

Thank you so much for allowing your students to participate in our project!

The link to the questionnaire your students will complete is below:

http://www.surveygizmo.com/s3/2604437/Examining-Middle-and-High-School-Students-Writing-Beliefs

All you need to do is provide this link to your students either by writing the link on the board, emailing it to them, or posting it on their class website. It should take the students about 10 to 15 minutes to answer all of the questions. As a reminder, the answers your students provide will remain anonymous-no identifying information will be collected from the students.

Once the link is available to students, please have your students complete the questionnaire at the same time and in one sitting. Ask your students to open the questionnaire via the link. Once they arrive at the questionnaire, they will be asked to think about the feedback they receive on their writing from teachers as they answer the questions. The full list of questions is included in this letter for you. Please do not help your students answer the questions and do not allow them to talk to each other while they answer the questions.

Again, thank you very much for your help on this project! Please let me know if you have any questions!

Thank you,

Sarah Marrs
marrssa@vcu.edu
304-320-1647

APPENDIX C

Parent Letter-Passive Consent

Monroe Park Campus

Virginia Commonwealth University

School of Education
Department of Foundations

PO Box 842020
Richmond, VA 23284

Dear Parents and Guardians,

Your child's school has been chosen to participate in a research study entitled, "Development of the Student Perceptions of Writing Scale." This study is being conducted as part of a collaborative partnership between Virginia Commonwealth University and Henrico County Public Schools. The study is being conducted by Sarah Marrs as a doctoral dissertation under the supervision of Dr. Jim McMillan and Dr. Sharon Zumbrunn. The purpose of this study is to examine how students' feel about feedback they get on their writing in school.

Before we begin this study, your child's teacher will ask if he or she is willing to participate. Students who agree to participate will complete an online inventory about their experiences with writing. They will spend about 10-15 minutes completing the inventory in their classroom. Information gathered from this study will be used to inform teachers of best instructional practices for students throughout the Henrico County Public School district. This information will also inform future research in this area.

If you have questions or would like more information, you may call Sarah Marrs at (304) 320-1647 or email at marrssa@vvcu.edu or Dr. Jim McMillan at jhmcmill@vcu.edu. If you have questions or concerns about your student's rights as a research participant, you may contact the VCU Institutional Review Board at (804) 827-2157.

Your child's participation in this study is voluntary. Participation in this study will have no effect on your child's grade in any subject area or his or her relationship with any teachers, the school, or Virginia Commonwealth University.

ONLY sign and return the form below (within one week of receipt of this letter) if you **DO NOT** want your child to participate in this study.

Sincerely,

Sarah A Marrs, M.A.
Jim McMillan, Ph.D.

I **DO NOT** want my child to participate in the Development of the Student Perceptions of Writing Feedback Scale study.

Name of child (please print) _____

Name of Parent or Guardian (please print) _____

Signature of Parent or Guardian _____ Date _____

APPENDIX D

Principal Email

(date)

Dear [principal name]:

Your students are invited to participate in a study that is being conducted as a doctoral dissertation by Sarah Marrs (804-827-2621) under the supervision of Dr. Jim McMillan and Dr. Sharon Zumbrunn. I am writing to ask for your help on this project. [for Chester participating schools only: This project builds upon the recent longitudinal study Dr. Zumbrunn conducted in your school on student writing perceptions, motivation, and self-regulation]. [for Henrico: This project builds upon previous work that will help us understand how students feel about writing]. Below is some more specific information regarding the purpose of the current study as well as what would be needed from you to help me with this project.

I. The purpose of this study is to develop a student self-report questionnaire that can be used to measure how students feel about feedback they get on their writing. While there is evidence that suggests feedback perceptions can impact motivation, self-efficacy, self-regulation, and writing achievement and performance, there is no measure that accurately assesses students' perceptions of feedback. Feedback can have a profound effect on student learning, and being able to assess perceptions of feedback will provide an improved understanding how students actually internalize and use feedback.

II. The benefit from participation in this study is being able to learn about how 6th through 12th grade students feel about feedback they get on writing, and to contribute to a larger study on children's view of writing feedback. Once the study is completed, I am willing to share the results with [county], you and your teachers.

III. Students will answer a series of questions using an online survey form that ask them about feedback they get on their writing from their teachers. I will not interact directly with students. Answering the questions should only take about 10 to 15 minutes of class time. The students do not have to answer all of the questions and they may stop participating in the study at any point. None of the questions ask about a specific teacher. The questions students will answer are attached to this email.

IV. The research is not expected to cause any harm or discomfort to students.

V. Student participation will be anonymous and will not be released in any individually identifiable form.

VI. The researchers are available to answer any questions about the research and contact information is provided below.

VII. To facilitate the study you will need to identify a group of English teachers from which a sample will be selected. The teachers you select should have classes of students of varying abilities.

VIII. We hope to collect data during the month of February before students begin SOL testing.

IX. If you are interested in allowing your students to participate, please contact me (contact information provided below) no later than **[enter date]**. This will allow us time to identify a list of teachers I may contact.

X. I will deliver a packet of materials to teachers agreeing to allow their students to participate. The packet will include letters to be sent home to parents describing the study and serving as passive consent as well as instructions for data collection procedures (including a link to the survey). These documents are also attached to this email.

I look forward to hearing from you and to working with you on this project! Please do not hesitate to contact me if you have any questions.

Best,

Sarah Marrs
School of Education
Virginia Commonwealth University
marrsa@vcu.edu
304-320-1647

Dr. Jim McMillan
Interim Associate Dean for Academic Affairs
Professor, Department of Foundations of Education
jhmcmill@vcu.edu

APPENDIX E

Teacher Email

(date)

Dear [teacher name]:

Your students are invited to participate in a study that is being conducted as a doctoral dissertation by Sarah Marrs (304-320-1647) under the supervision of Dr. Jim McMillan and Dr. Sharon Zumbrunn. I am writing to ask for your help on this project. [for Chester participating schools only: This project builds upon the recent longitudinal study Dr. Zumbrunn conducted in your school on student writing perceptions, motivation, and self-regulation]. [for Henrico: This project builds upon previous work that will help us understand how students feel about writing]. Below is some more specific information regarding the purpose of the current study as well as what would be needed from you to help me with this project.

I. The purpose of this study is to develop a student self-report questionnaire that can be used to measure how students feel about feedback they get on their writing. While there is evidence that suggests feedback perceptions can impact motivation, self-efficacy, self-regulation, and writing achievement and performance, there is no measure that accurately assesses students' perceptions of feedback. Feedback can have a profound effect on student learning, and being able to assess perceptions of feedback will provide an improved understanding how students actually internalize and use feedback.

II. The benefit from participation in this study is being able to learn about how 6th through 12th grade students feel about feedback they get on writing, and to contribute to a larger study on children's view of writing feedback. Once the study is completed, I am willing to share the results with [county], your principal and you in aggregate form.

III. Students will answer a series of questions using an online survey form that ask them about feedback they get on their writing from their teachers. I will not interact directly with students. Answering the questions should only take about 10 to 15 minutes of class time. The students do not have to answer all of the questions and they may stop participating in the study at any point. None of the questions ask about you specifically, only about teachers in general. The questions are attached to this email.

IV. The research is not expected to cause any harm or discomfort to students.

V. Student participation will be anonymous and will not be released in any individually identifiable form.

VI. The researchers are available to answer any questions about the research and contact information is provided below.

VII. We hope to collect data during the month of February before students begin SOL testing.

VIII. If you choose to help us with this project, you will be provided a link to an online questionnaire that your students will complete. The only thing you will need to do is make the link available to your students either by writing the link on the board, emailing it to them, or posting it on their class website. The link as well as a list of instructions to provide your students will be delivered to you. I will also provide letters to be sent home with your students. The letter will describe the study to parents; if parents choose not to allow their child to participate, we ask that they sign and return the form to you. We ask that you allow all of your students to complete the questionnaire at the same time and in one sitting. Students who are not granted parental passive consent to participate may complete an alternate assignment of your choosing during that time. Once students complete and submit their answers, they will be stored in a password protected file that only I have access to. Students' answers will not be able to be traced back to a particular school or classroom and will be completely anonymous.

IX. If you are interested in allowing your students to participate, please contact me (contact information below) no later than **[enter date].** This will allow time for me to get the materials delivered to your classroom, send letters home, and collect data before the end of February.

I look forward to hearing from you and to working with you on this project! Please do not hesitate to contact us if you have any questions.

Best,

Sarah Marrs
School of Education
Virginia Commonwealth University
marrsa@vcu.edu
304-320-1647

Dr. Jim McMillan
Interim Associate Dean for Academic Affairs
Professor, Department of Foundations of Education
jhmcmill@vcu.edu

APPENDIX F

Youth Assent Page

Examining Middle and High School Students' Writing Beliefs

Purpose of the Study: The purpose of this study is to look at students' writing beliefs. Your school has been chosen to participate in this study.

Description of the Study and Your Involvement: If you agree to participate in this study, you will complete an inventory about your writing beliefs. It will take you approximately 10 to 15 minutes to complete the online inventory during class.

Risks and Discomforts: There are no known risks related with your participation in this study.

Benefits to You and Others: Your participation can provide local school districts, universities, parents, and students with more information about student writing perceptions and beliefs, which can be used to improve classroom instruction.

Costs and Compensation: *There are no costs for participating in this study other than the time you will spend completing the inventory. No compensation or reward will be offered for participation in this study.*

Alternatives: *The alternative to participating in this study is to not participate in this study.*

Confidentiality: *No identifying information (e.g., names or student ID numbers, teacher name) will be collected during this study. Only the lead researchers will have access to the data once it is collected and the data will be saved using password protection. The information may be published in scientific journals or presented at professional meetings, but the data will not identify any individual student or school.*

Voluntary Participation and Withdrawal: *Your participation I this study is your choice. You are free to decide not to participate at any time without penalty. You may choose not to answer particular questions that are asked in the study. Your decision to participate or not to participate will not affect your grade or your relationship with your teacher or your school.*

Questions: *You may have questions about your participation in this study. If you have any questions, complaints, or concerns about this research, contact Sarah Marrs at 304-320-1647 or* marrssa@vcu.edu. *If you have any questions about your rights as a participant in this study, you may contact the VCU Office of Research at 804-827-2157. You may also contact the VCU Office of Research for general questions, concerns, or complaints about this research. Please call this number if you cannot reach the research team or wish to talk to some else. Additional*

information about participation in research studies can be found at http://www.research.vcu.edu/irb/volunteers.htm

ASSENT: *If you click the "next" button below, it means that you have decided to be in the study, and you have read and understand everything on this page.*

APPENDIX G

Vita

Sarah Anne Marrs was born on December 6, 1988, in Bluefield, West Virginia, and is an American citizen. She graduated from Graham High School in Bluefield, Virginia, in 2007. She received her Bachelor of Science in Psychology from Virginia Tech, Blacksburg, Virginia in 2011 and her Master of Arts in Psychological Sciences from James Madison University, Harrisonburg, Virginia in 2013.