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A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

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by

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This dissertation has been approved in partial fulfillment of the requirements for the degree of

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at Lindenwood University by the School of Education

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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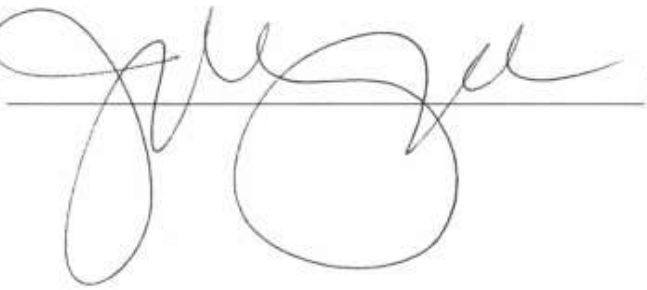
Signature:  Date: Nov 30, 2018

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Abstract

The purpose of the study was to investigate middle school students' perceptions of teacher feedback, middle school teachers' perceptions of the same feedback, and the extent to which those perceptions matched. While research into feedback practices was rich, few studies investigated middle school students' perceptions and experience with feedback practices. The study aimed to address possible miscommunication between teachers and students which may negatively impact middle school students' learning trajectories. Middle school students and teachers from a Midwestern Independent school participated in the study. Student data was examined in aggregate and by race, gender, grade level, years of experience at the school, and student academic self-ratings. Data was acquired using surveys, focus groups, questionnaires and interviews comparing middle school student and teacher responses to 1) clarity of feedback messages, 2) effectiveness of feedback messages, 3) feedback delivery systems and 4) how feedback is used by middle school students. The study also compared trimester grade point averages of middle school students who participated in a 6-week feedback training session intended to improve feedback engagement. A quantitative and qualitative analysis of data revealed that while there were significant differences in how middle school students and teachers view and interpret teacher feedback, middle school students find teacher feedback to be highly valuable and crave instructive rather than evaluative feedback to help improve their work. The evidence also revealed the advantages and limitations of instructing middle school students on how to be better interpreters and users of teacher feedback. The researcher suggests educators need to incorporate explicit feedback

protocols in their classrooms including providing reflection time and opportunities for middle school students to practice becoming better receivers of feedback. The researcher also recommends educators proactively seek middle school student input concerning the type of feedback desired and how to deliver that feedback.

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Chapter One: Introduction

Purpose of the Dissertation

Every day, in classrooms around the world, teachers provided students with opportunities to practice and demonstrate their understanding and application of knowledge. Along the path towards mastery, students needed, and desired information from their instructors about how they were progressing, in relation to the learning goal. As "data-based decision makers," (Stiggins, 2005, p. 325), students wanted to know what they were doing well and what they needed to work on to improve upon future assignments. Teachers often provided students with both formative and summative feedback to meet the needs of the students. Rarely, however, did teachers measure the effectiveness of their feedback through the eyes of their students.

Feedback has been shown to both help and hinder student academic growth (Hattie, 2012; Kluger & DeNisi, 1996). Several components of feedback, which influenced a student's reception and use of teacher feedback, included the type of academic information provided in the message (Brookhart, 2017), the delivery mode of the message (Morris & Chilkwa, 2016), the implied or inferred tone of the message (Sadler, 2010), and the level to which the message directly addressed the student personally (Kluger & DeNisi, 1996). Sutton (2012) stated, "The acquisition of feedback literacy is a complex process which presents . . . different challenges for different types of learner[s]" (2012, p. 39). This study sought to accomplish two goals. The first was to investigate (a) middle school students' perceptions of teacher feedback, (b) teacher perception of the same feedback, and (c) the similarity and difference between the two. The second goal of the study was to determine if receiving guidance in interpreting and

using teacher feedback could improve student academic performance. Data from the study were analyzed to provide the researcher with insight as to what types of feedback middle school students determined to be most effective and if teaching middle school students how to be better interpreters and users of teacher feedback increased qualitative and quantitative academic performance.

Rationale

Research showed a disconnect between the intent of teacher feedback and what students understood or how students interpreted the feedback message (Károly, 2015; Weaver, 2006; Zhan, 2016). The miscommunication could hinder learning, as students did not know what to do with the information or interpreted it differently than the teacher intended (Hammond, 2015; Kluger & DeNisi, 1996; Zumbrunn, Marrs, & Mewborn, 2016). A negative emotional response associated with feedback hindered academic growth and influenced self-worth (King, 2016; Tian & Lowe 2013). Carless (2006) found students and teachers reported very different perceptions on the effectiveness of teacher feedback with 66% of teachers claiming their feedback was often or always helpful, while only 12.6% of the students agreed with the claim that the feedback was often or always helpful (p. 223).

Then-current research provided minimal literature on adolescent students' perceptions of teacher feedback and its implications on student learning. Most studies measuring student perception of feedback occurred with students at the university level (Evans, 2013). Very few studies focused on student perception of feedback at the middle school level with students in the 10 to 14-year-old range. As adolescent brain structure

was shown to be different from the structure of an adult brain, it was suggested that children and teens did not process information in the same way as adults (Jensen & Ellis Nutt, 2015; Sebastian, Burnett, & Blakemore, 2008). Therefore, the adolescent might misunderstand the feedback itself, and so exploring feedback exclusively from the adult perspective (teacher) would be incomplete, at best, and possibly inaccurate in what it suggested.

Student perception surveys of teacher effectiveness, which could directly relate to the feedback provided by teachers, had been shown to be reliable. In a study by Wilkerson, Manatt, Rogers, and Maughan (2000), "student ratings of teachers were the best predictor of student achievement on district-developed, criterion-referenced tests and showed the strongest positive relationship to student achievement when compared with those of principals and teachers" (p. 179). While student perception of feedback was multi-layered and complex, its validity needed to be considered, as teachers had reported such student survey results were extremely valuable in helping instruction. When the feedback experience was not considered from the student perspective, the adult could not explicitly know the impact of the message. Nuthall (2005) stated teachers needed to get inside the minds of their students, because "what's important about students' experience is the information that she or he can extract from those experiences" (p. 13). Hattie (2012) stated,

> It could be powerful to move research beyond descriptions of types of feedback towards discovering how to embed 'best fit' feedback not only in instruction, but also to help students to seek it, evaluate it (especially when provided by peers and

> the Internet), and use it in their learning -- towards teachers receiving feedback from students such that they then modify their teaching. This may require a move from talking less about how we teach to more about how we learn . . . [and require] providing ways for teachers to see learning other than merely through their own eyes and reflection, but instead through the eyes of the student. (p. 152)

This purpose of this research was to investigate the extent to which teachers actively engaged in feedback practices where the intent of the message was measured against the perceived reception of that message by middle school students.

Hypotheses and Research Questions:

Hypothesis 1: There will be a difference between teacher feedback intent and middle school student perception of teacher feedback intent.

Hypothesis 2: There will be a difference between teacher perception of feedback effectiveness and student perception of feedback effectiveness.

Hypothesis 3: There will be a difference between teacher preference and middle school students' preferences regarding feedback delivery systems.

Hypothesis 4: There will be a difference between teacher intended use of feedback on student work and how middle school students use the feedback.

Hypothesis 5: There will be a difference in middle school academic performance as a result of participating in 6-8 sessions of Feedback Learning Groups.

Research Question 1: What are middle school students' perceptions of teacher feedback; teacher perceptions of the same feedback; and the similarity/difference between the two?

Research Question 2: From the student's perspective, what are the best methods/approaches for gaining useful teacher feedback?

Research Question 3: How will lessons on interpreting and using teacher feedback through an independent study group (Feedback Learning Group - FLG) influence a student's ability to better interpret and use teacher feedback?

Limitations

The following limitations were considered when completing this study.

1) The study's primary researcher was employed by the study school at the time of the research.
2) Several students who participated in the research were either former or current students of the researcher.
3) The study's research and data were taken from only one Midwestern, suburban Independence school.
4) Research was only collected over one academic year.
5) Lessons which occurred during the Feedback Learning Group sessions were done independently and not part of an authentic classroom experience between teacher and student.
6) There were multiple variables to consider when measuring feedback effectiveness and therefore it was difficult, if not impossible, to isolate which variable produced which result.

Definition of Terms

Data-based decision makers: Students who used feedback to determine next step

in learning process (Stiggins, 2005).

Evaluative Feedback: Described what the student did well or did not do well but offered no information on how to improve the work (Hammond, 2015).

Exemplars: Work examples that clearly illustrate the implied standards of the lesson (Sadler, 1989).

Feedback: Shute (2008) stated feedback was "defined as information communicated to the learner that is intended to modify his or her thinking or behavior to improve learning" (p. 153). For the purposes of this study, feedback was defined as any message given by a teacher on student work that communicated where the student's demonstration of mastery was in relationship to a learning goal. This could include what the student was doing well, what gaps still existed in the student's learning as well as suggestions on how to close those learning gaps.

Feedback delivery systems: For the purposes of this study, feedback delivery systems may have included verbal (face-to-face interactions), as well as written information conveyed to a student from a teacher. Feedback could come in electronic forms (written, video, audio, or mix), as well.

Feedback Learning Group (FLG): For the purposes of this study, this was a small group of middle school students in grades 5 through 8, identified by their teachers as needing additional academic assistance, who participated in a research project during a six-week session after school.

Feedback elements:

These include a symbolic mark or grade to represent the global quality of the

> work; a detailed explanation or justification of the mark; a description of the quality of the work, with no mark or grade; praise, encouragement or other affective comments; diagnoses of weakness; and suggestions on how to attend to specific deficiencies and strengthen the work as a whole. (Sadler, 2010, p. 536)

FLEX: For the purposes of this study, this was a time built into the schedule at Independence Academy where students could work on assignments and meet with teachers outside of the regular classroom time.

Instructive Feedback: Defined by Hammond (2015) as "actionable information that will help the student improve" (p. 103).

Perception: "The conscious recognition and interpretation of sensory stimuli that serve as a basis for understanding, learning, and knowing or for motivating a particular action or reaction" (O'Toole, 2017, p. 1021).

Quick Comment: For the purposes of this study, this was a method of communication used at Independence Academy that came in the form of an email and was saved as part of the student's record. Parents, students, advisors, deans, and other related faculty received a copy of a quick comment when it was sent by a teacher.

Summary

The intent of teacher feedback on student work was to provide information that students could use to improve learning and move towards attainment of a goal. Feedback could come in many forms and through a variety of delivery methods. The purpose of the study was to explore middle school students' perceptions of teacher feedback and its impact on student metacognition and motivation. The study included data from teacher

and student survey responses, teacher and student focus group responses, questionnaires, and interviews of middle school student participants in the FLG and questionnaires and interviews of middle school teachers. The study also utilized secondary data from Independence Academy, which included FLG student participants' trimester and year-end grades. The evidence collected revealed the extent to which the intent of teacher feedback matched middle school students' perceptions of the same feedback. The evidence also examined the advantages and limitations of a student-training program in the use and implementation of teacher feedback to improve learning.

Chapter Two: The Literature Review

Introduction

Educators had continuously planned lessons, activities, and assessments, all meant to facilitate student academic progress. At various points along this continuum, students received feedback from many different sources, including their teachers, peers, parents, and themselves. The feedback could come in many forms, with or without a grade, including praise, encouragement, a diagnosis of errors, or suggestions for improvement (Sadler, 2010). The purpose of the feedback could also have had multiple meanings, including diagnosis, correction, or benchmarking, or it could have been used to help with future work often referred to as feed-forward feedback (Price, Handley, Millar, & O'Donovan, 2010).

More importantly, students' perceptions of that feedback could vary greatly and the information used, or ignored, could produce both positive as well as negative results. "Feedback is among the most common features of successful teaching and learning. But there is an enigma: while feedback is among the most powerful moderators of learning, its effects are among the most variable" (Hattie, 2012 p. 129). However, even with the fluctuation of variables, feedback, when understood and used by students, was shown to produce effect sizes ranging from 0.4 to 0.7 (Black & Wiliam, 2010, p. 83), and average effect sizes as high as even 0.79 (Hattie, 2012, p. 130). Kluger and DeNisi's (1996) meta-analysis of feedback intervention indicated an improved academic performance with an average effect size of 0.41, but also a decreased academic performance one-third of the time (p. 254). The polarity of effect size demonstrated not all feedback promoted

student academic growth. The ability to isolate and determine those characteristic of effective versus non-effective feedback was problematic. Effects of feedback were dependent upon many factors, and it was difficult to isolate or predict outcomes. However, feedback, when given in such a way students could and would interact with it, promoted learning (Hounsel, 2003).

Therefore, as feedback was one of the most critical influences on learning (Hattie & Timperley, 2017), educators needed to make decisions not only about the purpose of the feedback and how and when to give the feedback; more importantly, educators needed to identify those situations and delivery methods which produced the highest possibility for academic growth. Many studies attempted to identify those characteristics of feedback which produced the highest effect sizes, but it was difficult to point to one characteristic and label it as the holy grail of feedback (Shute, 2008), because the receiver of the feedback, the student, and his/her understanding, interpretation, or interaction with the feedback directly influenced the result (Sadler, 2010). What worked for one student in one situation may not have worked for another. "Feedback is clearly a complex multi-dimensional rather than a simple, straightforward phenomenon" (Poulos & Mahony, 2008, p. 145). Wiliam and Black (1998) identified a distinct dichotomy between student reception of feedback and response to feedback, "There are complex links between the way in which the message is received, the way in which that perception motivates a selection amongst different courses of action, and the learning activity which may or may not follow" (p. 21).

Traditional Feedback Model

Feedback, as defined by Ramaprasad (1983), "is information about the gap between the actual level and the reference level of a system parameter which is used to alter the gap in some way" (p. 4). Historically, teachers provided feedback as a way to give students information about their work with the assumption, if they chose to, the students would use this information to make improvements to their work (Boud & Molloy, 2013). This approach was problematic as there was no guarantee students received the feedback. Teachers assumed students understood the feedback, knew what to do with the feedback, and if no progress was made on subsequent work, it meant the students did not apply the feedback as prescribed (Boud & Molloy, 2013). This one-way communication removed the student from his/her personal involvement in the process and "feedback became synonymous with 'telling'" (Boud & Molloy, 2013, p. 701). The common and customary practice of one-way communication between teacher and student had indoctrinated the receiver of the message to view the teacher feedback as the source for all answers on how to improve the work, and at the same time, created passivity and lack of knowledge on the part of the student in using feedback productively (Marie, 2016; Sadler 1989).

Teachers reported having no idea if students understood their feedback (Price et al., 2010). Price, Handley, Millar and O'Donovan (2010) also found teachers judged effectiveness by the quantity of feedback provided. The practice of giving feedback was not just about helping to identify and fill the gap, but also to make statements about students themselves (Hattie, 2012). For other teachers, feedback was provided as

evidence or justification for the marks or grades given on student work (Price et al., 2010, Sadler, 2010).

Some studies indicated teachers did not believe students were interested in feedback, but rather only interested in the grade (Carless, 2006). Hattie (2012) found teachers and students had different definitions of feedback; "Teachers see feedback more in terms of comments, criticism, and correctives; students prefer to see feedback as forward-looking, helping to address 'Where to next?,' and related to success criteria of the lesson" (p. 147), indicating the teacher's intended feedback message may not have matched the message received by the student, and the teacher may not have provided the student with the type of feedback s/he desired.

Influences Which May Impact Student Interaction with Feedback

Students who did not have proficiency or mastery of a skill were the best users of teacher feedback since the feedback would improve their understanding of the skills and errors could be corrected (Hattie, 2012). However, for this to be true, students had to see errors as opportunities, which in many situations was not the case, especially where the classroom climate did not promote the value of making errors as part of the process of learning (Dweck, 2015). Students needed a degree of self-confidence and motivation to be able to learn from the feedback they received from teachers (Tian & Lowe, 2013). Student bias could muddle how the feedback was received as students interpreted feedback based on their self-image and individual interpretation of the message sent (Hattie, 2012; Kluger & DeNisi, 1996). Some students reported that feedback caused anxiety and it directly influenced their developing self-confidence as an academic

(Sutton, 2012). A student's emotional response directly affected the reception and implementation of teacher feedback (Price et al., 2010; Varlander, 2008; Zimmerman 2000). Valuable feedback could become lost or downgraded, based on the student's emotional response to the feedback; therefore, Varlander (2008) recommended educators needed to acknowledge students' emotions, not try to limit or control them.

Students demonstrated different behaviors when faced with feedback about their work. Kluger and DeNisi (1996) identified four main strategies students employed for eliminating discrepancy between feedback and performance. The first strategy was to increase one's effort to attain the goal. This typically happened when the goal was clear, the student was committed to attainment, and s/he believed success was possible. Some students were also known to change the grading standard, both lower if the student was given negative feedback and higher if the feedback was positive. Abandonment of the standard also occurred, especially when a student sustained repeated negative feedback. Finally, other students simply rejected the feedback. Student response to feedback was as variable. Students' backgrounds and personal aspirations influenced their perceptions of feedback (Hounsell, 2008). Students' individual traits or personality also contributed to how the students interpreted and reacted to the feedback (Hattie, 2012; King, 2016; Kluger & DeNisi, 1996; Sutton, 2012).

Cultural paradigms directly and powerfully influenced a student's educational experience, including response to feedback and the teacher/student relationship (Hammond, 2015; Markus & Kitayama, 1991). Two cultural archetypes referenced in several studies identified the differences between societal norms for people from

collectivist cultures and individualistic cultures. The former emphasized relationships within a community placing a high value on cooperative structures where the latter emphasized independence and the uniqueness of the individual. Motivation for students from collectivist cultures was socially oriented and students determined responses to feedback based on how their actions may influence their relationships with the teacher (Markus & Kitayama, 1991). Students from collectivist cultures often preferred oral feedback to written feedback as the oral process established a connection between the speaker (teacher) and the listener (student) and strengthened the relationship (Hammond, 2015). Markus and Kitayama (1991) found that students from a collectivist culture, East Asian, accepted negative feedback more readily than positive feedback to elicit behavior changes to reach a goal, while students from individualistic cultures, focused more on ego-focused emotions and used feedback to help them monitor their sense of self and their proof of competency.

Ahn, Usher, Butz, and Bong's (2016) research examined the role of culture in students' formation of academic self-efficacy, specifically in the areas of vicarious experience (modeling) and social persuasion (both positive and negative feedback about the person's capabilities in comparison to other students.) Self-efficacy, as defined by Zimmerman (2000) was a student's belief in his/her academic ability. Results of Ahn et al.'s (2016) research included support for previous studies that indicated students from collectivist cultures were more likely to report lower self-efficacy ratings based on cultural norms for demonstrating humility. A student's self-efficacy beliefs influenced motivation, independence or self-regulation, and academic performance (Ahn, Usher,

Butz, & Bong, 2016).

Cultural differences between student and teacher could create communication issues and produce stress for the student (Hammond, 2015; Tian & Lowe, 2013). As feedback messages passed through a student's cultural filter, students expressed both psychological and emotional dissonance when teacher feedback challenged their work, especially in the beginning months of a class (Tian & Lowe, 2013). Teachers did not provide all students with the same level of feedback as students of color were often provided with ineffective, praise-heavy feedback lacking in the identification of errors and specific information to help correct or improve the work that caused students to view the teacher and the feedback as untrustworthy and lacking value (Cohen & Steele, 2002). Brain research showed students who felt marginalized because of race, class, gender, or language exhibited similar brain function as people who sensed a threat, causing hormones to make learning almost impossible (Hammond, 2015). Instructional techniques, such as how to deliver feedback, became part of a larger sociopolitical context. Teachers needed to elicit a different feedback protocol when cultural barriers between teacher and student either negated the effectiveness of the feedback or produced a negative emotional response to the feedback (Cohen & Steele, 2002; Hammond, 2015).

Brain development was also a factor in student interaction with teacher feedback. Studies showed adolescent brain structure to be different from the structure of an adult brain; therefore, children and teens did not process information in the same way as adults (Jensen & Ellis Nutt, 2015; Sebastian et al., 2008). While adolescents possessed an ability to learn new things quickly, adults were better equipped to make quicker

connections between pieces of information. Adolescent brains were also becoming acclimated to the recent surge of hormones that could affect mood. The structure of an adolescent brain caused middle school students to have a heightened awareness of new information that could be overwhelming. They were unable to make quick connections between this information and were often influenced by an influx of hormones that caused a variety of emotional responses (Jensen & Ellis Nutt, 2015).

Adolescent brains were undergoing neurological changes that included a process of developing a sense of self. Teens were more aware of other's opinions and placed a higher value on the judgement of others (Sebastian et al., 2008). The medial prefrontal cortex (MPFC), which played a key role in self-reflection, developed later during adolescence, which indicated adolescents used different neurocognitive strategies than adults when making judgments about themselves (Sebastian et al., 2008). For middle school students, this implied that any message received in the form of feedback on work may or may not be interpreted as the teacher intended.

As the adolescent brain underwent neurological changes, this also increased the student's ability to consider third person perspective. Sebastian, Burnett, and Blakemore (2008) stated this might have caused teens to use their sense of self as a benchmark for judging others. An increased awareness of others' perspectives may have caused adolescents to think they had an imaginary audience defined as "the phenomenon whereby adolescents believe that others are constantly observing and evaluating them" (Sebastian et al., 2008, p. 443). This, in turn, caused adolescents to overestimate the extent and frequency to which they were being judged. A middle school student's ability

to take a wide range of social cues into consideration when determining the implied meaning of a comment increased during adolescence, as well. However, for those at the beginning of development, interpretation of feedback messages may not have matched the intent of the sender.

Weil et al. (2013) found metacognition, or the ability to reflect on one's thoughts and behaviors, improved as students moved through adolescence with the highest results occurring in late adolescence. Researchers also found adolescents demonstrated higher metacognitive ability than adults, and female participants demonstrated higher metacognitive ability than males (Weil et al., 2013).

In Peters, Braams, Raijmakers, Koolschign, and Crone's (2014) study, researchers gave participants aged 8 through 25 performance feedback on a rule-learning task while in a 3T MRI scanner. The frontoparietal network of the brain was examined. The scans of younger participants demonstrated more brain activity when given positive feedback. As the person's age increased, brain activity was more prevalent when the subject was given negative feedback, indicating adults' brains were more activated by negative feedback. Scans indicated brain activity reached adult levels around age 13 to 14. Reaction to positive feedback stayed consistent regardless of the participant's level of development.

Focusing on the student's subjective and objective reality to measure the true learning experience meant not only finding out what the student interpreted from the feedback on an academic level, but also on a personal level. "What matters is the sense the student is making of the experience" (Nuthall, 2001, p. 13). Students needed to know the purpose of feedback to judge effectiveness of feedback accurately; however, not all

students were equipped to do so, "The learner is in the best position to judge the effectiveness of feedback, but may not always recognize the benefits it provides" (Price et al., 2010, p. 277). Therefore, teachers needed to know their students in order to provide the best feedback (Brookhart, 2017); just as importantly, students needed to understand the feedback and be willing to use it in order for it to be effective. A student's willingness to act upon the feedback depended on their cognitive abilities, emotional responses, and prior experiences with the teacher, the topic, or even feedback in general. "Real effectiveness can only be measured by looking at the impact" (Price et al., 2010, p. 280).

Feedback Elements Which Impact Effectiveness

The goal of feedback was to cause a change in behavior stimulating the student to correct those errors which were in direct contrast to the goals of the lesson (Black & Wiliam, 1989; Kluger & DeNisi, 1996). For this goal to be met, students had to act on the feedback that meant teachers had to intentionally design and implement feedback into their lessons (Boud & Molloy, 2013). The feedback had to be purposeful, clear, and meaningful to the student, which meant the feedback had to be compatible with the student's prior knowledge and provide a logical course of action to reach the desired outcome (Hattie & Timperley, 2007). The transfer of information had to be a two-way process; so, when students constructed understanding of the feedback, discrepancies in meaning and or intent could be identified and addressed (Hattie & Timperley, 2007). Feedback was only effective (a) if it helped a student learn and the work improved, (b) if the feedback motivated the student to want to improve his/her work and learn more, and

(c) if the feedback was interpreted as valuable, including constructive criticism, as established through the culture and social interactions within the classroom (Brookhart, 2017).

Quality feedback, therefore, needed to be instructive, and focused on the work rather than evaluative of the student. Feedback needed to be specific, delivered at the right time in the right amount; it was most effective if the learning environment and teacher-student relationship were supportive. In the end, the real test of effective feedback was whether the students acted on the feedback (Hammond, 2015).

Feedback was not only about the message being sent by the teacher, but also about the action taken by the student on the information communicated. Both the teacher and the student viewed feedback "as 'telling,' but as 'appreciating.' It ends not in 'telling,' or even 'reading', but in acting" (Boud & Molloy, 2013, p. 706).

Nicol and Macfarlane-Dick (2006) argued effective feedback addressed cognition, behavior, and motivation, which intentionally placed the student back into the feedback equation shifting the feedback model away from the one-way communication (teacher to student) and making students active participants in their learning process. Students learned the practice of self-regulation, which included active monitoring of learning, goal setting, strategizing on how to reach goals, using and managing resources including feedback, and measuring progress. Giving the students more control over their learning was a more effective use of teacher feedback but it required a shift in how teachers viewed and used feedback in the classroom (Boud & Molloy, 2013). Orsmond, Merry, and Reiling (2002) argued, "To engage student fully in the learning process and to

encourage them to take responsibility for their own learning required academic staff to make a shift from teaching to facilitating active learning" (p. 309).

Certain standards needed to be met for students to be more likely to act upon teacher feedback. Teachers needed to provide students with clearly defined learning goals and the criteria for which student work would be evaluated (Nicol & Macfarlane-Dick, 2006). While teachers often assumed students understood the criteria being used to judge the work, students reported they did not possess a full understanding of the criteria nor were the students aware what part of the work the feedback was referencing (Sadler, 2010). Black and Wiliam (2010) found the following:

> Pupils can assess themselves only when they have a sufficiently clear picture of the targets that their learning is meant to attain. Surprisingly, and sadly, many pupils do not have such a picture and they appear to have become accustomed to receiving classroom teaching as an arbitrary sequence of exercises with no overarching rationale. (p.85)

Without clear formative assessment goals, students were unable to recognize their learning gaps nor were they then able to close those gaps (Black & Wiliam, 1989).

Several studies concluded miscommunication of feedback messages between teachers and students occurred when there was lack in clarity of goals and standards (Nicole & Macfarlane-Dick, 2006; Black & Wiliam, 2010; Sadler, 1989; Carless, 2006). Schimmer (2016) found teachers had difficulty articulating the ultimate goals or standards for particular assignments**.** When assessing work and providing feedback to students, teachers had difficulty describing what they were looking for (criteria), often

stating they could tell you when they saw it (Sadler, 1989). Heritage, Kim, Vendlinski, and Herman (2008) revealed teachers were more apt at identifying student understanding, but lacked the ability to determine what the next steps should be regarding instruction and the type of feedback they would provide the student to increase understanding and performance on future work. When the goals and criteria were not clear to both the teacher and student, any feedback administered lost considerable value and became ineffectual. The time and energy required to produce feedback became wasted when the feedback did not clearly connect the desired learning outcome to the student's work and aid the student in closing the gap (Glover & Brown, 2006; Nicole & Macfarlane-Dick, 2006).

While academic goals needed to be explicit for students to be able to seek out, appreciate, and use feedback effectively, educators also needed to be more transparent with students about the feedback process by instructing students in how to generate or apply criteria (Carless, 2006). "Students who are prepared to question or reflect on what they know and understand are more likely to seek confirmatory and/or disconformity feedback that allows for the best opportunities for learning" (Hattie & Timperley, 2007, p. 104). From the feedback, the learner needed to know and understand their level of mastery towards the learning goal (Marzano, 2017 Shute, 2008), and when criteria requirements were clear, students could compare their work and know if they were meeting expectations (Nicol & Macfarlane-Dick, 2006).

Sadler (1989) explained that exemplars or work examples that clearly illustrated the implied standards of the lesson, helped students understand the expectations of the

assignment. "Levels of quality or performance can also be conveyed in part by means of a set of key examples or exemplars, chosen so as to illustrate what distinguishes high quality from low" (p. 128). Orsmond et al.'s (2002) study on the use of exemplars in concert with formative feedback indicated students were more likely to better understand the grading criteria and produce higher quality work when both components were incorporated into the learning process. The use of exemplars helped focus the feedback making it more effective as students were likely to mark work in congruence with teacher markings and it "enhanced the quality of their learning" (Orsmond, 2002, p. 318).

On a contradictory note, teacher-produced rubrics were shown to be, at times, detrimental to the learning process. According to Sadler (2010), "Certain forms of disclosure, particularly rubrics and criteria-standards templates, can actually inhibit the formation of a full-bodied concept of quality because they tend to prioritize specific (criteria) rather than quality as a global property" (p. 548).

The feedback students received had to be high quality messages (Nicol & Macfarlane-Dick, 2006) and needed to come after the student had attempted his/her own learning and produced some type of response or solution (Shute, 2008). High quality feedback included clear, specific information that was descriptive in nature and informative to the student (Hattie, 2012; Shute, 2008). The feedback highlighted the thinking the student had already accomplished coupled with the thinking s/he needed to do to improve the work (Ritchhart, 2015).

Deliberate and scaffolded feedback needed to be differentiated, based on the student's needs in the areas of timing, amount and mode (Brookhart, 2017). Students and

teachers did not always hold the same beliefs about the role of feedback; therefore, teachers needed to design and implement feedback that was timely, integrated into lessons naturally and interactive. "By using objective and easily accessible criteria, applying clear principles, providing desirable models and guidance, and training students in giving and receiving feedback teachers can greatly enhance student learning" (Károly, 2015, 109). In some situations, researchers found inefficient learners actually did not need more feedback, but rather needed more elaborate instruction as they would not have understood how to use the feedback to improve the work (Hattie & Timperley, 2007). Feedback had to be provided in incremental steps that did not overwhelm the receiver (Hattie, 2012). When given copious amounts of feedback on one assignment, students became overwhelmed and missed important notes, became confused, or did not accept the feedback at all (Shute, 2008). Feedback needed to be given in a timely manner, when the students could still use the feedback to improve upon the work (Brookhart, 2017).

High quality feedback focused on the task and not the student. Task feedback was more effective than feedback about the student even when the feedback included praise, as ego-involving feedback produced negative effects in some situations (Black & Wiliam, 1989; Dweck, 2016). Feedback about the student rather than about the student's work sometimes produced negative effects on learning as students found the messages threatening to their self-esteem (Kluger & DeNisi, 1996). High quality feedback also avoided comparisons between students (Black & Wiliam, 2010). In addition to feedback needing to address specific qualities of the work with produced, feedback also needed to provide students with suggestions for how to improve the work (Black & Wiliam, 2010).

Feedback about the task could identify misconceptions or lack of knowledge (Hattie & Timperley, 2007). Feedback at the task and product level was most effective when the information conveyed directly addressed the goal of the lesson. The feedback indicated when an answer was correct or incorrect, and if the product needed additional work or different information (Hattie, 2012). Kluger and DeNisi (1996) found students were more likely to use feedback that contained correct solutions. Task feedback which "support learning, attracting attention to feedback-standard discrepancies at the task level….and is void of cues to the meta-task level (e.g., cues that direct attention to the self) is likely to yield impressive gains in performance, possibly exceeding 1 SD" (Kluger & DeNisi, 1996, p. 278).

Regardless of the quality of feedback, unless the feedback was received by the student, its effects were moot (Kluger & DeNisi, 1996). Feedback became futile when the messages given to the students were not clear, when students had difficulty decoding the teacher's messages or when the student's translation of the message did not match the intent of the teacher (Nicol & Macfarlane-Dick, 2006). Feedback could have multiple meanings based upon the context of the work and students could have difficulty interpreting the specific meaning in a particular situation (Sadler, 1989). When students did not possess the required vocabulary or level of expertise, students' interpretations of teacher feedback were inconsistent (Sadler, 1989).

In a study by Sutton (2012), college student interviews indicated most students read teacher feedback; however, Sutton (2012) found the interpretation of that feedback to be problematic. Students indicated the instructors used language they did not

understand, while the professors indicated the students lacked the language of thinking in addition to the academic lexicon. One teacher in Sutton's (2012) study commented:

> Not only do they not have the words to express themselves, they do not have the words to think. If they do not have the language ability to deal with complex ideas, I think that holds them back as well. And then you end up trying to cure all this with feedback. You're not just marking an essay you're trying to develop these different aspects of their cognitive abilities, so it becomes huge. (p. 37)

Students also articulated constraints of teacher feedback effectiveness stemmed from the varied backgrounds and cultures of students, which in turn caused a language barrier with feedback. For this reason, Sutton (2012) wrote, "The challenge then for teachers . . . is to make academic language accessible to learners from increasingly diverse backgrounds, without denuding it of its power to signify, to analyze, to criticize" (p. 38).

There was also the issue of how much time it took for teachers to provide high quality feedback. Some teachers stated providing feedback to students was labor intensive (Sadler, 2010); and time was a barrier to giving good feedback (Carless, 2006). Marie (2016) indicated the time constraints associated with providing high quality feedback cost students, as teachers who were working to provide feedback on student assignments were therefore unavailable to attend to other educational practices. Glover and Brown (2006) stated:

> Evidence suggests that tutors are attempting to teach their specialisms, as well as correcting errors in academic conventions. This proves to be often excessively

> time consuming, yet tutors continue to devote many hours to providing feedback that is often ignored or misunderstood. (p. 9)

Yet, for students to be able to use the high-quality feedback provided by the teacher, students needed to be adequately equipped to understand the feedback by possessing a certain level of expertise often only associated with the teacher (Sadler, 2010). The divide between teacher intent and student perception also needed to be addressed, "Clearly, the gap between the teacher's feedback and the student's appreciation of its practical import has to be reduced or closed" (Sadler, 2010, p. 541).

Effective teacher feedback needed to be positive and help build a student's belief in his/her ability to improve for the feedback to have a significant impact on the student's learning. For this to happen, students needed to become comfortable with the cognitive process of interpreting, constructing and internalizing teacher feedback. However, as "feedback both regulates and is regulated by motivational beliefs" (Nicol & Macfarlane-Dick, 2006, p. 201), the entire process was problematic. For feedback to be effective, it had to "provide little threat to the person at the self-level" (Hattie & Timperley, 2007, p 104). Tian and Lowe (2013) found that students perceived the teacher feedback to be not only negative, but also an attack on them on a personal level. The students in this study were from China and had entered a Master's level program in the UK. The students who were unfamiliar with UK school's culture had to interpret feedback and their academic experience through the lens of their own culture (Chinese) and previous experiences in education. The students' audio diary entries, along with follow up interviews, revealed students' severe reactions to the teacher feedback. While the intent of the teacher was not

to cause the students undue stress, the experience proved to do just the opposite. After time and exposure to the expectations of teacher and how feedback was given, students showed a change in their perceptions of feedback, recognizing its value as a guidance towards learning. "We see that the route to more effective communication has been cleared as the student begins to understand the attitudes and intentions of his tutor . . . thereby allowing the student to make better use of the content of the feedback" (Tian & Lowe, 2013, p. 591).

Feedback, in the form of praise, was also investigated. In Burnett and Mandel's (2010) study of feedback in grades 1 through 7, researchers observed several classrooms and found teachers used general praise feedback 71% to 93% of the time and only used effort and ability feedback less than 10% of the time (p. 149). The data indicated that 89% of the feedback was positive and 11% of the feedback was negative (p.149). "The main finding of this study was that general, non-targeted praise was the dominant type of feedback used by teachers, 77% of the time or on an average of 35 times per hour" (p. 151). Praise, while often intended to motivate students or to mitigate critical teacher comments, rarely provided useful information the student could use to reach the learning goal of the lesson; instead, the praise often diluted the useful feedback message, and in some cases, praise produced levels of learned helplessness in the student psyche (Hattie, 2012). Feedback about the self, typically in the form of praise, was personal in nature and was rarely effective in enhancing learning. "When feedback draws attention to the regulatory processes needed to engage with a task, learners' beliefs about the importance of effort and their conceptions of learning can be important moderators in the learning

process" (Hattie & Timperley, 2007, p 102). Different types of praise could often set students along a trajectory of beliefs about their own ability to learn, as well as their level of intelligence. Dweck (2016) stated intelligence praise often created a fixed mindset with students. These students believed intelligence was based on a student's innate ability or talent and that intelligent students should not need to work at something to learn, but rather immediately know how to do the task. For students with this type of mindset, feedback may not have been motivational, but rather an attack on the student's interpretation of the self. The study revealed many students attempt to hide their lack of knowledge or avoid any task with which they were not already skilled and able to perform well. The other type of praise, which did produce positive emotional beliefs about the self, was process praise. Process praise encouraged students to build a growth mindset, one where challenging problems where sought out and feedback was determined as a positive part of the learning process.

For students to be able to interact with and use feedback, feedback needed to answer three questions: 'Where am I going? How am I going? and Where to next?' (Hattie & Timperley, 2007). The first question addressed the need for teachers to provide clear success criteria that functioned as the goal of the lesson, as was address in the previous section. Process feedback, which addressed 'How am I going?' helped a student think about how s/he approached the task and how s/he developed alternative approaches. This thought process identified the relationship between the student's work and the goal of the lesson; it specifically addressed the process a student would take towards mastering the goal. Feedback at this level was shown to reinforce learning on a deeper

level for the student (Hattie, 2012). The final question, 'Where to Next?' looked to future assignments, asking the student how s/he would use what s/he learned. This last question helped move students towards a developing a sense of self-regulation over their learning and prompted students to produce internal feedback and self-efficacy (Hattie, 2012).

Students had to be intentionally taught how to be reflective learners. Training included how to interpret feedback, how to connect the feedback to the work and then use the feedback to make improvements, "It cannot simply be assumed that when students are 'given feedback' they will know what to do with it" (Sadler, 1989, p. 78). Formative assessment, or activities which provided information to modify teaching and learning, utilized feedback to help students practice self-regulation (Black & Wiliam, 2010). In addition to training, students needed to be given the opportunity to practice the skill to develop self-regulation routines (Hattie, Fisher, & Frey, 2016; Nicole & Macfarlane-Dick, 2006). However, students continued to need more education on how to use feedback to self-regulate and improve work (Marie, 2016). While active learning protocols increased a student's level of responsibility, independence, and problem solving abilities, limited improvement was found when student were asked to self-assess their own work as they confused effort with product (Orsmond, Merry, & Reiling, 2002). "The processes and resources that are accepted as natural and normal for the professional teacher need to be replicated for the students and built into their learning environment" (Sadler, 1998, p. 81).

Hattie (2012) found teachers who instructed their students on how to self-evaluate and reflect upon their learning, in turn influenced and strengthened the students' ability to

seek out as well as accept external feedback more routinely and openly. This level of feedback was also shown to increase a student's ability to more accurately measure and reduce the gap between where they were in relation to the learning goal. Therefore, to approach the feedback process more effectively, the receiver of the feedback (student), not the giver (teacher), must be the key player. "It doesn't matter how much authority or power a feedback giver has; the receivers are in control of what they do and don't let in, how they make sense of what they're learning, and whether they choose to change" (Stone & Heen, 2014, p. 5). The ability to receive feedback well, was defined by Stone and Heen (2014) as the ability to engage with the feedback and to make skillful choices as to what to do with the feedback, was a skillset that can be taught.

For Sadler (1989), the removal of the teacher as the provider of feedback became the goal of student self-assessment. Sadler argued students needed to learn to self-assess and monitor their learning as they worked, rather than rely on the feedback given to them by their teachers. Students needed to be taught how to do this by practicing the evaluation process as part of their learning, "providing guided but direct and authentic evaluative experience for students enables them to develop their evaluative knowledge . . . they become insiders rather than consumers" (p. 135). Other authors suggested shifting the focus from teachers providing feedback to students eliciting feedback from their teachers. The process made both teacher and student co-dependent causing feedback to "move from a prime focus on timely and detailed information to one in which the focus is on the appropriateness of timing and the nature of information for fostering self-regulation" (Boud & Molloy, 2013, p. 711).

It was important to note, students' self-efficacy was shown to be very susceptible to instructional techniques; therefore, it was recommended educators focus on cultivating a positive sense of self-efficacy when instructing students on how to become reflective learners. This included training students by modeling self-regulatory techniques, providing frequent and immediate performance feedback, and having students set proximal goals where evidence of growth could be measured and seen right away (Zimmerman, 2000).

Regardless of the intent of the feedback message by the teacher, or the reception and perception of that message on the part of the student, miscommunication in the form of feedback stems from the asynchronous nature of written feedback (Sadler, 2010). To address this problem, the use of dialogue loops between teachers and students was identified as a necessary practice for effective feedback (Nicol & Macfarlane-Dick, 2006). These dialogues alleviated the asynchronous nature of traditional one-way feedback models and helped to minimize misconceptions between student and teacher (Carless, 2006; Hammond, 2015). Dialogues between teacher and student could address the misinterpretation of the message. A comparison between teacher and student perceptions helped the student decide to stay with or change his/her plan and promoted a reinterpretation of task, strategies, goals, and methods for completing the task (Nicol & Macfarlane-Dick, 2006). Carless (2006) found students indicated a deep desire to talk about the feedback process with their teachers. Teachers could clarify the intent of the feedback message and what they wanted the students to do with the feedback, hence avoiding the miscommunication that often led to a potential negative impact on student

self-perception (Carless, 2006). At the same time, students could share the intent of the work produced (Carless, 2002). Student learning improved when feedback loops between student and teacher were created as the "experience indicated a growing mutual awareness: (a) students begin to recognize what their tutor was looking for; and (b) the tutor gained a cumulative understanding of each student's limitations and capabilities" (Barker & Pinard, 2014, p. 910).

In 2002, Carless investigated the use of a mini-viva. Students and teachers engaged in discussion after work was turned in, but before work was graded, to clarify criteria expectation and allow students to ask questions. Most student responses to the mini-viva were positive. Student statements included: "Concerning the feedback, it is fair because we have the chance to explain what we are thinking" (p. 358), and "I like the feedback sessions as we could learn from it for how we did the assignment and it's a chance for us to clarify any unclear issues in the feedback" (p. 358). Other studies also reported positive student reactions to feedback dialogues with teachers as well as peers (Orsmond et al., 2007). "Assessment dialogues can help students to clarify 'the rules of the game,' the assumptions known to lecturers but less transparent to students" (Carless, 2006, p. 230).

Even with the positive responses by both teacher and students around feedback dialogues, communication was inequitable by nature. "The communication is clearly not between equals, so the nature of the inequality needs to be recognized as part of an understanding of what makes for effective communication" (Sadler, 1998, p. 80). The teacher was in a position of authority so all feedback automatically came with a

heightened sense of power which students invoke both positive and negative feelings based on the feedback regardless of the intent of the teacher (Higgins, Hartley & Skelton; 2001). Dialogue between teachers and students could also send the wrong message. When teachers did not allow the student to talk about their own interpretation and understanding of the task it caused the students to become passive learners (Black & Wiliam, 2010).

Students needed to also deem the feedback to be trustworthy, and therefore unbiased and objective (Shute, 2008). Without this level of trust, students might not have chosen to interact with the feedback counter to the expectations of the teacher. "The learners interviewed believed that an academic's educational identity influences learners' ability and willingness to engage successfully with feedback" (Sutton, 2012, p. 38). Both teachers and students also agreed effective feedback required a positive teacher-student relationship. When the relationship was strained, students had difficulty engaging with the feedback and teachers were unable to gauge the effect of their feedback. "There were strong indicators from both staff and students that what is needed to enhance effectiveness [of feedback] is recognition of the relational dimension to feedback" (Price et al., 2010, p. 284). For teachers and students to understand each other, they needed to engage in open dialogues that validated everyone's values and expectations, recognizing the many factors at play within the relationship (Károly, 2015). As "students bring different experiences to the classroom and hold heterogeneous views about the nature of effective feedback, teachers should adopt assessment methods that engage students more and provide options regarding the most preferred types of feedback" (Károly, 2015, p.

127). While feedback was useful for students to understand how they were progressing with a concept, so too could teachers use feedback to determine the effectiveness of their teaching.

In a study by Price et al. (2010), the teacher set up times for students to dialogue with the teacher outside of class time, but found most students did not take advantage of the opportunity. Students cited negative past experiences as to why they did not seek out teachers for clarification on the feedback. In addition, the use of grades caused students to see feedback as a justification for the grade rather than feedback for future assignments, therefore negating the need for a dialogue with the teacher.

Coupling feedback with giving marks or grades could dilute the effectiveness of the feedback (Sadler, 1989; King, 2016). "Feedback has been shown to improve learning when it gives each pupil specific guidance on strengths and weaknesses, preferably without any overall marks" (Black & Wiliam, 2010, p. 87). Feedback connected to a grade muddled the message as grades can have multiple meanings depending on the student (Sutton, 2012). Glover and Brown (2006) found most feedback focused only on justifying a grade rather than explaining what mistakes were made and how to fix them. "If feedback does not aid understanding, i.e. enable the students to close the performance gap, and does not feed forward . . . Such 'feedback' serves only to justify the grade, and may as well not be given at all" (p. 14).

Black and Wiliam (1989) investigated the different effects produced with students when students were or were not given grades along with narrative feedback. When students were given comments only, with no final grade or mark, the students'

subsequent work showed the most improvement. Students who were given comments with a grade exhibited some improvement but also some decline. Those students given only grades demonstrated most academic performance decline; with improvement seen only on the third successive task. Studies also showed that feedback that was tied to a grade negatively affected the effectiveness of the feedback and influenced motivation and self-worth, especially if the student interpreted the feedback to be an evaluation of self rather than an evaluation of the work produced (Black & Wiliam, 1989).

Students often confused personal investment in the work (effort) with the actual work produced, and therefore students needed to be trained not only on what quality work looks like, but also on how to judge work and provide explanations for their judgments (Sadler, 2010). Engaging in peer feedback dialogues allowed students the opportunity to practice the art of evaluation and students developed a deeper engagement with the learning process. Teacher feedback no longer was the critical component for determining learning as a student's evaluation skills developed. However other researchers had found peer feedback, while having the highest reception by students, was also the most inaccurate or unhelpful type of feedback (Nuthall, 2005). Poulos and Mahony (2008), found the validity of the feedback was determined by the credibility of the source. If the peer, or teacher, was not seen a credible, then neither was the feedback.

Regardless of the source, researchers found students constantly judged the quality of feedback; however, for students' judgments to be valid, they needed to have a reasonably well developed "ability to reflect on and have an understanding of the learning process" (Price et al., 2010, p. 286)**.** Barker and Pinard (2014) noted while

iterative feedback could be time consuming, when included as part of the learning process, it could replace other forms of teaching to enhance learning. "This is because a dialogue involving feedback can be a rich form of learning. Even when used in its simplest form, iterative feedback may have demonstrable effects on both student and tutor performance" (Barker & Pinard (2014, p. 912).

Feedback loops were necessary for teachers to determine the effectiveness of their feedback and to identify what adjustments were needed to the lessons and activities to promote additional learning. This type of feedback was called corrective feedback. "The completion of a feedback loop is needed to adjust the actions of teachers to ensure an impact on student learning. Without this information, teachers are blind to the consequences of their actions and cannot therefore act effectively to improve the quality of learning" (Boud & Molloy, 2013, p. 701). This implied the necessity of the teacher to monitor student interpretation of feedback. Therefore, the best mode for feedback was through student - teacher dialogue (Brookhart, 2017).

Effective feedback practice required teachers provide students with opportunities to use feedback to close the gap between their current work and the performance standards set by the teacher (Nicol & Macfarlane-Dick, 2006). Students needed to identify an "action point" (Nicol & Macfarlane-Dick, 2006, p. 214) after receiving feedback and then devise a plan and what steps they would take to close the gap. Both teachers and students agreed effective feedback was feedback that could be applied; the challenge came in each constituent's definition of applicable (Price et al., 2010).

Teachers deliberately planned immediate opportunities for feedback to be used by students and provided students with opportunities and training on how to judge the quality of their work (Sadler, 1989). "Feedback can lead to learning only if the students have an opportunity to use it" (Brookhart, 2017, p. 75). Successful students constantly tested their understanding of themselves as learners, and saw any feedback as useful to learning. Struggling students needed feedback that clearly and explicitly connected their process of learning to the product produced. Using criterion-referenced feedback compared with quality work examples helped students measure their work against learning goals (Brookhart, 2017; Orsmond et al., 2002; Sadler, 1989). Hattie, Fisher, and Frey (2016) indicated that teachers needed to help students become better listeners of feedback who could attend to the messages that teachers sent. For this to happen, structured feedback needed to take place on a regular basis and students needed to practice receiving and processing feedback through the skill of paraphrasing.

Boud and Molloy (2013) described two different feedback models. The first placed the teachers as the drivers of feedback, while the second model gave students the control. Researchers stressed that effective feedback required teachers to move from providing information, to providing opportunities where students could develop their own abilities to self-regulate, judge their learning, and proactivity enlist feedback from others, not just the teacher. Providing time for effective feedback practice required teachers to stop engaging in feedback practices that did not promote action on the part of the student or feedback that was given at a time when students were unable to use the feedback. Making feedback student-centered required teachers to use a different set of

competencies, including becoming designers of learning conditions where students became agents of their own learning. The feedback given by teachers was still important, but more ownership on the part of the student to appreciate and enlist feedback became the focus of the lesson design and the feedback provided.

Feedback only became high quality information when students took an active role in the feedback process including monitoring the feedback, regulating the feedback through a variety of strategies, and setting and monitoring goals by constructing their own understanding of the teacher feedback (Nicol & Macfarlane-Dick, 2006). Teachers had to intentionally invite students to become an integral part of the feedback process, which required teachers to first gauge their decisions about feedback based on the perspectives of the students (Brookhart, 2017). "Teachers need to view feedback from the perspective of the individuals engaged in the learning and become proactive in providing information addressing the three feedback questions and developing ways for students to ask these questions of themselves" (Hattie & Timperley, 2007, p 101).

Feedback Delivery Systems

Feedback could be delivered to students in a variety of forms. Oral or verbal feedback no longer referred just to face-to-face conversations between two people in the same room. Verbal feedback could occur in electronic form, both as taped video or audio segments, in addition to video or audio conversations between student and teacher while each was in his/her separate location. Whether delivered personally or electronically, the verbal feedback could also be shared within a group dynamic or in a one-on-one setting (Merry & Orsmond, 2008; Spector et al., 2016).

Written feedback delivery systems had also adjusted since the advent of the internet. While teachers may have scribed directly onto a hard copy of student work (pen to paper), this written feedback could also have been in electronic form. Teachers could still 'write' their feedback directly on the work using a stylus or typing comments within the margins. The option to interact with feedback through a 'live' dialogue electronically was available in written form as it was in video/audio form with the use of email, texting, and a variety of learning management systems (Sopina & McNeill, 2015).

Teachers had many options for how they delivered feedback to their students. Teachers may have found one platform or option more tenable, but also students had varied options on which form they preferred and or found most effective for accessing, understanding and using feedback. Determining which feedback delivery system was best to use was a question teachers thoughtfully considered. Student preference for different feedback delivery methods varied, dependent on the student's learning style, which made it imperative that teachers "explore alternative forms of feedback to support the learning of their students" (Morris & Chilkwa, 2016, p. 126).

Several studies investigated students' preferences regarding written or audio feedback. Audio feedback enhanced learning as "Students perceive and implement audio feedback in different and more meaningful ways than written feedback" (Morris & Chilkwa, 2016, p. 126). Lunt and Curran (2010) found similar results as 92% of students surveyed agreed or strongly agreed they liked audio feedback and would want future feedback from teachers to be delivered through this medium (p. 765). Lunt and Curran

found "Students are at least 10 times more likely to open audio files compared to collecting written feedback" (2010, p. 759).

Students reported audio feedback was easier to understand, and it provided a more in depth explanation, as well as more specific or clearly articulated strategies for improvement (Gould & Day, 2013; Merry & Orsmond, 2008; Morris & Chilkwa, 2016). Students also reported audio feedback provided a more supportive approach (Gould & Day, 2013) and solved the problem of a grader's illegible handwriting (Sopina & McNeill, 2015). Students issues with written feedback included losing the feedback and finding the teacher's handwriting difficult to read (Lunt & Curran, 2010).

> Findings in a large majority (13/15) of students listened to the audio feedback more than once and that they (12/15) used it to annotate or alter their original work as they listened to the feedback . . . it seems most students spontaneously began to complete the formative feedback process when the feedback was delivered as an audio file. (Merry & Orsmond, 2008, p. 6)

Tutors within this study also stated electronic audio files allowed them to provide more detailed feedback than written feedback, as written feedback was limited based on time or space constraints. Audio files also eliminated feedback illegibility, which was often cited by students as an issue for effective teacher written feedback (Merry & Orsmond, 2008). Students identified an additional benefit to audio files. "In the audio file feedback variation was observed by students in the tone of the tutors' voice and they were able to use this to enable them to discern the most important aspects of the feedback" (Merry & Orsmond, 2008, p. 8). Spoken feedback provided a level of feedback not possible through

the written word. One student stated the electronic feedback made him/her feel as if s/he was sitting in the teacher's office and getting a personal explanation of what s/he needed to do to better his/her work. "The spoken work can possess greater emphasis than the written word and the points made can be more pointed . . . the audio monolog can use a wider, richer and more direct vocabulary than formal written English permits" (Lunt & Curran, 2010, p. 764).

Audio feedback was seen to be more genuine and personal, yet not all students preferred this delivery method. In one study, 64.3% of students indicated while they liked the personalization of audio feedback, and they preferred the written feedback for future assignments (Morris & Chilkwa, 2016, p.131). Gould and Day (2013) found similar results and suggested, "In an increasingly technological world, it [audio feedback] can be used to complement traditional forms of assessment feedback and could contribute greatly to a student's learning experience" (p. 564). Lunt and Curran (2010) postulated "In the face of increasing numbers of 'tech savvy' students who will demand better standards of feedback, the audio feedback method will go some way to addressing their needs" (p. 765).

The results of two independent studies which investigated the academic impact of audio versus written feedback on student performance, found while audio feedback was perceived by students to contain richer language, the effect of providing electronic audio feedback as opposed to written feedback did not yield any significant improvement in student marks (Chalmers, Maccallum, Mowat, & Fulton, 2014; Morris & Chilkwa, 2016). Chalmers, Maccallum, Mowat, and Fulton (2014) found 81% of the students who

received audio feedback stated it was easy to follow while only 47% of the students who received written feedback had the same response (p. 69). Participants from both groups identified strengths and weakness for each delivery method. Additional studies indicated the delivery mode did not affect the students' levels of satisfaction with the feedback (Morris & Chilkwa, 2016; Sopina & McNeill, 2015).

Earlier studies identified issues with electronic audio files including large file sizes and email incompatibility (Merry & Orsmond, 2008), while more recent studies provided solutions for these issues including adjusting the format of the audio files to smaller files (Lunt & Curran, 2010). Some teachers reported creating audio files was time consuming (Merry & Orsmond, 2008) and the production of audio files did not lessen the amount of time teachers spent giving student feedback as compared with written feedback (Morris & Chilkwa, 2016). However, other teachers stated with more practice this may not be an issue in the future (Merry & Orsmond, 2008), and Hounsell (2008) recommended using audio-feedback as an economic way for teachers to provide students with oral feedback. In two separate studies, teachers reported time was not an issue when creating audio files. "In terms of time taken to deliver audio feedback, the average time was five minutes for 2000-word coursework. This is significantly less than the typical 30 minutes to write comments on the coversheet and body of the work" (Lunt & Curran, 2010, p. 761). "Markers reported that hard-copy marking, on average, took 30.8 min - almost 3 min longer than electronic marking" (Sopina & McNeill, 2015, p. 673).

Researchers measured the type of feedback provided depending on the type of

delivery method used. Merry and Orsmond (2008) identified a large discrepancy as written feedback included many more comments that identified errors in students work and comments that gave the student praise. Audio feedback included more comments about correcting errors, demonstrating correct practice, engaging students in thinking and suggesting further study.

Turner and West (2013) studied undergraduate student preference for video feedback. Students received feedback in the form of an individualized six to twelve-minute videos that included a live screen capture of the student work being marked against an assessment rubric with narration from the teacher. The study "revealed a mass preference for video feedback, with participants noting that video feedback personalized assessment processes and enhanced understanding" (p. 288), and provided more depth than written feedback. Ninety-two percent of students rated video feedback higher than written feedback, stating video feedback was more likely to help improve future work (p. 288). Seventy-four percent of the students indicated video narration of marked work allowed them to completely understand the feedback provided by the teacher (p. 288). Additional themes emerged from the study including 75% of students stated they spent more time reviewing with video feedback then written feedback (p. 292). Many students reported they found video feedback more personal and motivating. Students indicated a better understanding of how and why their work was marked as such, hence allowing a deeper insight into assessment process. Results of the study indicated "100% of students stated their understanding of what was being conveyed via video feedback was equal to or greater than that derived from written feedback" (p. 294). As with the audio feedback

studies, Turner and West (2013) noted no significant impact on students' grades based on the video feedback.

Student perceptions of feedback usefulness in strictly online courses was also investigated. Fyfe et al. (2014) asked students to assess online feedback as to its usefulness. Researchers also wanted to determine if students reflected on the feedback and if this reflection improved learning. Of the one-third who responded, 60% stated reflecting on feedback was helpful to their learning (p. 179). Older students, and students who earned higher scores on the tests, were more likely to reflect on their learning based on the feedback provided. Younger students were less likely to reflect, expected higher scores than their performance merited, and when they did reflect they were less likely to strategize on ways to improve future performance. Due to the inconstancy of the results, researchers stated students needed more practice reflecting on feedback, "normalizing reflection both before and following feedback on assessments, may be the way to engage a broader group of learners and develop their skills in reflection" (p.190). Researchers included recommendations such as providing immediate online feedback to students, providing training in reflection with practice opportunities and making the reflection task easy by attaching it directly to the online feedback.

Jones and Blankenship's (2014) study of student perceptions of online feedback indicated that students wanted and appreciated feedback from their teachers. Overall, 95.4% of students said their work had improved as a direct result feedback from teachers (p. 5). When asked if feedback was given in a timely manner, 86% of the students partially or totally agreed (p. 5). Almost all students (98.5%) partially or totally agreed

feedback helped with the next assignment, while 93.8% responded they partially or totally agreed that teacher feedback improved student learning (p. 5). A vast majority of students (96%) responded feedback helped them reach goal performance, and 95% appreciated the critical comments (p. 5). Finally, 89% said feedback given by teachers related to assessment criteria (p. 5). When students were asked about the amount of teacher feedback provided, 83% reported they were often or always satisfied with the amount of feedback (p. 5).

Jones and Blankenship (2014) paralleled online feedback to the constant stream of feedback students received daily via social media. Students expected and sought out feedback, sometimes immediately, through electronic means and teachers needed to recognize this desire translated into the classroom. The researchers suggested teachers should not only clearly state in the syllabus how and when feedback would be provided, but also where to find it. Some students reported they did not know feedback was available through the online system and therefore never accessed it.

Student preference for computer-generated electronic feedback was also investigated. In Lai's 2010 study, students received automated writing evaluation and peer feedback. Students indicated computer-generated feedback was not as helpful as peer feedback in improving writing. Approximately three-fourths of the students "considered the computerized feedback too general for them to make revision; they were not satisfied with the vague, fixed or sometimes repeated feedback" (Lai, 2010, p. 442). Computer feedback was also found to be less helpful for students who experienced high levels of anxiety when using technology or when the technology did not work effectively.

The computer-generated feedback was found to be helpful for students comfortable using the technology and teachers also reported computer generated feedback was a helpful time saver. Overall results of this study indicated students preferred peer feedback over computer-generated electronic feedback. "From the student writers' perspectives…peer review helped foster interaction and co-construction of knowledge. But, in the virtual classroom . . . students experienced dehumanizing instruction" (Lai, 2010, p. 442).

Face-to-face interactions during the feedback process provided a social relationship element not found in other delivery modes. Budge (2011) found that students preferred face-to-face feedback or written feedback to electronic feedback. Students wanted opportunities to engage with the teacher and to create personal connections with their teacher and their peers. Students wanted feedback to be detailed and given privately. Students "perceive feedback as a two-way communication with both parties actively involved and learning . . . electronic feedback is viewed as static, one way, and not alive" (p. 346). Students indicated they preferred electronic feedback to be coupled with verbal face-to-face feedback. Some students commented they wanted to be able to look at the work and discuss it with the teacher while receiving feedback, especially when the work had elements of creativity. Budge (2011) was surprised that young, tech savvy students would prefer non-electronic forms of feedback.

Edeiken-Cooperman and Berenato's (2014) study provided students with both handwritten and electronic feedback on formative work. Responses from a student survey indicated a 50/50 split on preference, but student responses to follow up questions about the two types of feedback indicated a stronger preference for handwritten feedback

as it provided a personal touch. The benefit of electronic feedback included timeliness and ease in reading, but these factors did not promote the personal quality preferred by students. Student responses indicated handwritten feedback established rapport (69.05%), demonstrated the professor cared about the student (73.81%), caused the student to appreciate the time taken by the professor to handwrite the feedback (83.33%), and was more encouraging than electronic feedback (71.43% to 28.57%) (p. 82).

Spector et al. (2016) provided a synthesis of research in technology and its potential to improve learning and support effective feedback. Authors noted concerns and issues with technology-based feedback both for the student and for the teacher:

> As more and more learning activities involve the internet, the timeliness of feedback becomes increasingly important. As week's or even a day's delay in proving [sic] feedback can jeopardize the effectiveness of the feedback in terms of improving learning and performance. (p. 61)

Researchers stressed that educators needed time and training to learn how to use the technology effectively. There was a "need to reform teacher training and better support teacher professional development, especially in the area of technology-enhanced learning and formative assessment" (Spector et al. 2016, p. 65).

Student Perceptions of Feedback

Carless (2006) found that most of the time it was the teacher who was making the decision about what type of feedback to give and how to give that feedback to the student. One student from that study stated "no tutor has ever asked us what kind of feedback we would like" (Carless, 2006, p. 231). Whether feedback was communicated

verbally, in hand-written notes on the students' work, sent electronically either by typed word, audio or video messaging, often teachers were giving students feedback with its intent to meet a specified goal of the teacher but rarely, if ever, did teachers determined as to whether students received the message as intended. An assumption of acknowledgment and understanding of the message was assumed once the paper was returned or the message was sent (Boud & Molloy, 2013; Nuthall, 2005; Price et al., 2010).

Nuthall (2005) identified three cultural contexts that directly affected learning. The first context, a very visible component of learning, was teacher-managed activities like feedback, while the second and third cultural contexts of peer relationships and a student's personal context of the learning, were often hidden. Peer relationships and a student's beliefs and attitudes about their ability as well as prior knowledge, were found to be very powerful influences in learning. Teachers were only able monitor the first context, which provided an incomplete picture of the learning going on in the classroom. "Understanding students' participation in classroom activities (and the consequent shaping of their minds through internalization) required an understanding of these three separate cultures and the ways in which students simultaneously affected, and were affected by, these cultures" (Nuthall, 2005, p. 919). "The commonly held belief (which is a myth) is that school learning is a direct consequence of teaching . . . it is assumed that whatever the teacher explains or demonstrates automatically and simultaneously becomes part of the knowledge of the student" (Nuthall, 2005, p. 921).

Determined effectiveness of feedback was complicated and multidimensional as a teacher's intent or perceived effectiveness of the feedback may not have matched the students' perceptions of the same feedback message. Effectiveness of feedback, as perceived by students in one study, was defined as the "meaning as assigned by the students, how feedback was delivered and how feedback related to criteria, marks and grades" (Poulos & Mahony, 2008, p. 145). Based on the personal nature of feedback and individualized interpretation of feedback effectiveness, studies identified students' perceptions did not always match teacher intent within several areas, including the delivery mode of the feedback (Poulos & Mahony, 2008), the timing of feedback (Barker & Pinard, 2014; Holmes & Papageorgiou, 2009; Poulos & Mahony, 2008), the type and amount of information given within the feedback to the student (Carless, 2006; Hattie, 2012; Jones & Blankenship, 2014; Károly, 2015; Stiggins, 2005; Sopina & McNeill, 2015), the relationship and power structure between teacher and student including a teacher's level of credibility based upon student perspective (Carless, 2006; Higgins et al., 2001; Holmes & Papageorgiou, 2009; Poulos & Mahony, 2008), the markings or grades and its impact on the reception of feedback (Carless, 2006; Károly, 2015), the direct or indirect connections between the feedback and the work (Barker & Pinard, 2014), and the maturation or ability of student to fully comprehend the feedback given to them by their teacher (Carless, 2006; Higgins et al., 2001; Poulos & Mahony, 2008).

Student perspectives as to whether a specific teacher's feedback was effective was shown to have a wide range of views (Poulos & Mahony 2008). Higgins, Hartley, and Skelton (2001) identified six major factors that directly influenced the effectiveness of

feedback "the salient factors in the feedback process are related to issues of emotion, identity, power, authority, subjectivity, and discourse" (p. 272). With so many influencing factors, student perception of feedback effectiveness appeared to lie within the social relationships formed and cultivated between teacher and student as some students who saw the teacher as credible were more likely to see feedback from that teacher as credible which then in turn promoted the teacher's level of credibility to a higher level (Poulos & Mahony, 2008).

Poulos and Mahony (2008) measured student perception of effective feedback in three dimensions. The study indicated attention to student perception of teacher feedback not only required specific attention to mode and timing of the feedback, but also the student's academic stage and the student perceived credibility of the teacher. Student perspectives as to whether a specific teacher's feedback was effective was shown to have a wide range of views. This had major implications, as teachers could not assume if one student perceived his /her feedback to be helpful that other students did as well. Students new to an academic program benefited more from timely feedback, "For these students, feedback goes beyond providing information on how to improve assessment marks. The 'effective feedback' for these students was that which provides emotional support and facilitates integration into university" (Poulos & Mahony, 2008, p. 152).

Marie (2016) investigated the value students placed on feedback. Marie stated while educators valued feedback and believed students should as well, there was little evidence students did in fact value the feedback. More importantly, the definition of 'value' was vague as some students saw feedback a symbol rather than an instrument for

improvement. Feedback acted as a symbol to some students - a sign of the student's value to their lecturers and the university was fulfilling its side of the implicit 'contract' that had been created with the concept of students as consumers (Marie, 2016, p. 211). Results indicated while students generally valued feedback when it could be used to improve upon future assignments, all other feedback was not seen as worthy. Students also indicated they often did not collect the feedback, nor did they see a correlation between the feedback and the attainment of their degree (Marie, 2016).

Several other studies found students did value teacher feedback (Carless, 2006; Barker & Pinard, 2014; Károly, 2015; Weaver, 2006; Zhan, 2016), especially when it was used to justify a grade or mark (Holmes & Papageorgiou, 2009). Interestingly, while Marie (2106) found most students who did poorly placed a higher value on the feedback than those who did well, Carless' 2006 study found students who were academically stronger tended to be more receptive to teacher feedback.

Weaver (2006) found that students reported they valued feedback; however, teacher feedback was less than helpful when the comments were too vague, focused on the negative, were not clearly related to the assessment criteria or when students felt they needed guidance and support on how to read and interpret the feedback. Students indicated they found constructive criticism motivated them to improve; however, such feedback was found to be rare especially for the higher achieving students. Within the same study, it was demonstrated that teachers provided a lack of positive comments, and most comments diagnosed problems in student work. Students indicated a desire for a balanced approach (both positive and negative comments) when receiving feedback from

their teacher and that feedback unrelated to the assessment criteria was very unhelpful. Reasons for why teachers did not give useful feedback were proposed including (a) lack of knowledge and practice in giving feedback, (b) time constraints, and (c) cynicism about the purpose of feedback in student constructed learning. Teachers needed to be aware of their feedback style and how students were interpreting their feedback to motivate and provide guidance towards reaching academic goals.

> There may have been some truth to the claim by some academics that students did not 'bother with' feedback; but in light of these findings, this may have been because either the feedback did not contain enough to guide or motivate students, or they had insufficient understanding of academic discourse to interpret comments accurately (Weaver, 2006, pp. 391-392).

These types of student responses indicated students also needed more training on the value of feedback and how to use it (Károly, 2015; Marie, 2016; Robinson Pope, & Holyoak, 2013; Weaver, 2006). Specifically, researchers indicated students would benefit from more training on how to decode and use teacher feedback, which in turn would lessen the disconnect between teacher and student perceptions of effective feedback and improve academic performance, "[by] training students in giving and receiving feedback teachers can greatly enhance student learning" (Károly, 2015, p. 109).

Studies had shown students were often not willing to initiate a conversation with the teacher about the feedback (Carless, 2006; Robinson et al., 2013). In one study, most students indicated they were scared to approach their teacher for follow up conversations after receiving feedback (Robinson et al., 2013). Past experiences with feedback appeared

to influence students' perceptions of teacher feedback as researchers found substantial differences in students' previous experience and expectations of academic feedback (Károly, 2015; Robinson et al., 2013). Students who reported lower quality feedback with their current teacher also reported poor quality feedback from their previous teachers (Robinson et al., 2013). All but one student (165 out of 166) who responded to the survey stated they always read teacher feedback; however, only 51% of students reported they did anything more with the feedback than read it and only 39.8% arranged a meeting with the teacher to go through the feedback (Robinson et al., 2013, p. 265). Students reported on their general understanding of the feedback and researchers found a wide variety of responses, however, a lack of clear explanation on how to improve the work had the most negative responses. Students who did poorly wanted more specific information on how to correct the work, while students who performed well on the assignment wanted clear information on how to make future assignments even better. Students reported they would like to see teachers provide a list of common misconceptions or mistakes which researchers speculated could help avoid the negative emotional response some student experience as student would "feel less alone in their problems" (Robinson et al., 2013, p. 268).

Research showed teachers believed they were giving the right amount of detailed feedback while students disagreed. Students did not find the feedback to be as useful as the tutor believed (Carless, 2006; Price et al., 2010; Sopina & McNeill, 2015; Zhan, 2016). Students were generally critical of teacher feedback (illegible handwriting, negative tone, vague or ambiguous) even when teachers were specifically trying to be

clear and, in some cases, provided copious notes to the students (Price et al., 2010). Students were most satisfied with detailed feedback, but there were conflicting reports on as to whether specific or general feedback was more helpful (Sopina & McNeill, 2015). Zhan (2016) investigated student perceptions of written feedback in an English as a foreign language class in China, and determined students' perceptions of teacher feedback (what they wanted) did not match the teacher's perceptions of her feedback (what she thought the students wanted). As in other studies, it was recommended that increasing communication between teacher and student about purpose of feedback could strengthen relationships, make feedback more valuable, and improve students' writing skills.

Even though many studies indicated students were not likely to initiate a follow up conversation with the teacher (Carless, 2006; Robinson et al., 2013), students still wanted follow-up clarifications based on the feedback provided (Holmes & Papageorgiou, 2009; Price et al., 2010; Sopina & McNeill, 2015). "Student felt that interpretation could only be gained through dialogue" (Price et al., 2010, p. 282) and in one study, a student recommended dialogue between teacher and students could happen within online discussions (Holmes & Papageorgiou, 2009).

Students stated formative feedback was more useful than feedback on summative work, and they desired feedback to be more general and applicable to future assignments. "Such feedback has the potential to 'feed forward,' into future tasks rather than back to completed work" (Carless, 2006, p. 225). Hattie (2012) found similar results as students "prefer teachers to provide more feedback that is forward-looking, related to the success

of the lesson, and 'just in time' and 'just for me', 'about my work' (and not 'about me')" (p.147). Students stated they would prefer optional sessions with tutors to go over general feedback rather than sending an email identifying strengths and weakness of student work (Carless, 2006).

Károly (2015) found most students preferred detailed, individualized, private feedback. Students saw teacher feedback as more important than peer and wanted feedback to focus on more general points and transferable skills like creativity, critical thinking, and innovation. Many preferred written feedback stating it allowed them to process the information at their own pace and use it for later work. Students who preferred oral feedback stated it allowed them to engage in a dialogue with the teacher, asking clarifying questions as needed. The students' desire for a score or grade for their performance was mixed, but most agreed that grades should always include qualitative feedback which provided clear guidance for how to interpret and use the feedback.

Students also questioned the fairness in the feedback. Teachers saw their feedback as fair while students gave mixed responses indicating teacher bias (Carless, 2006). Teachers gave several reasons for why students saw teacher feedback as biased, including "students were unable to distinguish between general ability and performance in a specific assignment . . . students have difficulty in distinguishing between the amount of time and effort they have invested, and the quality of the work . . . lack of ability to self-evaluate" (Carless, 2006, p. 229). A student's emotional response to feedback could have also influenced a student's perception of fairness. "The asymmetrical power relations inherent in the assessment process risk invoking negative emotions, which may form a

barrier to learning from feedback" (Carless, 2006, p. 229). For this reason, Boud stated, "We judge too much and too powerfully, not realizing the extent to which students experience our power over them" (2003, p. 44).

Carless (2002) stated that feedback given without a grade would initiate less of an emotional response, allowing the student to focus on the feedback. King (2016) found feedback coupled with a grade or score weakened the students' performance and students reacted negatively to the evaluative feedback. The level of student performances was much higher when no grade or score was given. Students' individual traits or personality contributed to how that student reacted to the feedback, "Openly recognizing the fact that students vary greatly in their perceptions of feedback and recognizing the potential hazards of associating evaluation with information intended to improve performance is a significant first step" (King, 2016, p. 13).

In another study, student reported that grades were the preferred type of teacher feedback (Jones & Blankenship, 2014). Students were asked to rank, in order of priority, those types of feedback they perceived as most useful. The highest ranking was a letter grade, with 86% reporting this method as most useful (Jones & Blankenship, 2014, p. 4). Providing a student with a completed grading rubric or summary comment at end of assignment both ranked second highest. Marked spelling and grammar errors within the assignment were found least useful. Károly (2015) found those students who desired feedback in the form of a score or a grade for their performance was mixed, but most agreed grades should always include qualitative feedback that provided clear guidance for how to interpret and use the feedback.

Timing and utility of feedback was deemed as very important to students (Holmes & Papageorgiou 2009; Károly, 2015; Price et al., 2010), however students considered time differently than their teachers. "Their [students] wish for direct application suggests that their view of the temporal dimension of feedback had a shorter timescale than that of staff" (Price et al., 2010, p. 283). Consequently, students then considered teacher feedback to be vague or ambiguous because they could not immediately apply the feedback to another assignment. Students wanted explicit instructions on how to do better while teachers were giving more generalized comments.

Studies indicated feedback directed toward meta-task processes defined by King (2016) as processes that may involve the self-including feelings about one's self or one's relationship with the teacher, weakened the student's attention toward corrective feedback. "Any communication directing attention towards meta-task issues, even if relatively positive, reduces the attention given to corrective feedback" (King, 2016, p. 11). Skipper and Douglas (2015) investigated student perception (ages 7 - 11) of the student-teacher relationships based on the type of feedback presented to the student. Feedback in this study was either about the student, about the process, or no feedback given to the student. All feedback was given from a fictional teacher on scenarios where the student found both success and failure. All students reported positive relationships when successful with the task. However, "following failure, children who had received person feedback had the most negative perceptions of the student-teacher relationship" (Skipper & Douglas, 2015, p. 284), and that perception continued through future scenarios. "Perceptions of the relationship were only improved following a second

success. Following the second success, children who received personal criticism seemed to 'forgive' their teacher and view the relationship more positively. However, this effect was not statistically significant" (Skipper & Douglas, 2015, p. 284). Results suggested teachers needed to avoid person feedback after failure results. It was better to provide process feedback or no feedback at all, as students could equate teacher criticism with a negative student-teacher relationship that could affect the relationship long-term. Results also indicated positive feedback following success boosted the student's perception of the student-teacher relationship and helped develop a positive rapport.

McGrath, Taylor, and Pychyl (2011) sought to determine if feedback, deemed effective by students, improved student performance on writing assignments. Developed feedback, or feedback that was clear, specific, and strategic in nature to help with future assignments, was perceived by students to be more helpful than non-developed feedback. However, this was only when students were given developed feedback first. If students received non-developed feedback on their first assignment, they did not rate the developed feedback as more effective when given on subsequent assignments. Students instead noticed no difference in the two types of feedback, suggesting order as being important. Researchers hypothesized reasons for this phenomenon offering two possibilities. One, students who received developed feedback first expected the same level of feedback on the second assignment, which coincided with the Robinson, Pope, and Holyoak (2013) study about student's past experiences with feedback influencing current perceptions. Two, students who received non-developed feedback on the first assignment did not engage with the more developed feedback on the second assignment

because there was no third assignment with which to feed forward. In all groupings, developed feedback did not produce significantly higher student written performance; however, students who received developed feedback on the first assignment performed less poorly on the subsequent writing assignment.

Students experienced and responded to the same feedback differently so it became quite complex for teachers to determine what means and methods were best to use. Sutton (2012) described three dimension of feedback literacy that influenced how a student perceived feedback and what s/he did with the feedback. Students needed to possess skills or attributes that helped them gain a standard of knowledge about a subject. Students needed to possess the ability to form valid judgements about that knowledge as it related to their learning, and students had to know how to act upon the feedback to improve.

> Recognition of the real value of feedback would require a significant change in educational practice. It would necessitate the creation of more time and space for feedback within the curriculum. This would help raise the status of feedback enabling it to become a highly-valued resource by both academics and learners. (Sutton, 2012, p. 34)

With so many factors at play, teachers needed to pay more attention to the variety of possible student responses when crafting feedback since the whole purpose of feedback was to encourage students to adapt their behavior and increase "favorable pedagogical outcome(s)" (King, 2016, p. 5).

Validity of Middle School Students' Perceptions about School Experience

A typical middle school student possessed the developmental ability to not only use teacher feedback to improve learning, but also to provide reliable feedback about the learning environment and his/her own learning process. Hanover Research's (2013) investigation into student perception surveys, indicated student surveys of this nature were found to be "a reliable measure of teacher effectiveness" (p. 3) and that "student surveys can accurately predict student achievement gains" (p.3). It was also reported that teachers found the student survey results to be "extremely valuable, citing their ability to identify strengths and weaknesses and develop new, effective teaching strategies" (Hanover Research, 2013, p. 4).

Asking middle school students their perceptions of what was going on in the classroom and what helped them learn provided valuable data usable by educators to improve practice. However, there was limited research into student perceptions of teacher feedback at that age level. Nelson, Yesseldyke, and Chris (2015) looked at how middle school students perceived the classroom environment using the REACT (Responsive Environmental Assessment for Classroom Teaching), and how student feedback on classroom practices could help teachers improve classroom environment. The study showed teachers who used student feedback showed higher REACT score the second time, and that teachers found using student feedback on their teaching practice to be feasible.

Zumbrunn, Marrs, and Mewborn (2016) surveyed students in grades 6 through 10 to assess student perceptions of feedback on student writing and its effects on motivation

and self-regulation beliefs. Results of their study indicated a range of reasons why students' perceptions of feedback were found to be both positive and negative; however, the researchers identified a student's perception of self-efficacy to be a driving force. "Our research suggests that students' beliefs about their ability to accomplish certain writing tasks are related to their level of openness to receiving feedback" (Zumbrunn et al., 2016, p. 365). Within the diverse range of student responses, researchers identified several themes. Students who liked receiving feedback on their writing stated the feedback helped with improvement towards mastery, produced positive feelings about one's self and ability, identified things they did well and or helped them understand the perspective of others. Students who viewed feedback negatively demonstrated noninterest (did not want feedback on their work) or indifference to the feedback (did not care what others thought about their work). Many students found feedback to be very critical and associated with negative feelings (feeling poorly about themselves and their work). Few students in this study identified how feedback could help them obtain writing goals. A small subset did identify how feedback could be helpful on future assignments. Researchers suggested "that improving both student writing self-efficacy and writing feedback perceptions has the potential to result in better student writing" (Zumbrunn et al., 2016, p. 363). "Perhaps the most straightforward way to encourage positive feedback perceptions in the classroom is to make time for conversations not only about the feedback students receive about their writing, but also how such feedback makes students feel" (Zumbrunn et al., 2016, p. 366).

A 2016 study of sixth grade students' ability to accurately predict their

performance level on a specific task began with the premise students at this age tended to overestimate their own understanding and ability to perform unless provided with teacher feedback (Al-Harthy, 2016). The researcher presented sixth grade students with pictures, and after studying the images, participants were asked to predict how many of the pictures they thought they would be able to recall. Those in the control group were given no feedback, while those in the experimental group received feedback indicating the number they predicted versus the number they actually recalled. The purpose of the feedback was to help the student reflect on his/her predictions and to analyze why the prediction was not accurate. Students in the experimental group lowered their prediction number in subsequent trials while students in the control group did not, and continued to demonstrate overconfidence. Results supported the premise that sixth graders could learn to monitor and improve their ability to self-assess more accurately when given feedback, therefore making the teacher's role as feedback provider extremely important.

Burnett and Mandel's (2010) study investigated student feedback preferences in grades 1 through 7. Researchers found the type of feedback students preferred changed based upon the maturation of the student. Younger students (grades 1-4) preferred feedback about their ability while older students (grades 5 - 7) preferred feedback about their effort. Students in grade 5 wanted feedback about goal achievement, assignment completion and effort. All students reported they liked receiving teacher praise. Sixty percent preferred private praise over public praise (Burnett & Mandel, 2010, p. 149). One student in grade 5 stated he desired effort praise unless the subject was something he was good at, then he wanted to be told he was "clever" (Burnett & Mandel, 2010, p. 149).

"Younger children associated ability with hard work whereas older children commonly believe that more capable students do not need to apply much effort" (Burnett & Mandel, 2010, p. 151). This last statement was very similar to those students demonstrating a fixed mindset rather than a growth mindset as in Dweck's (2016) research.

Chen, Thompson, Kromrey, and Chang's (2011) study of students' perceptions**,** grades 3 through 6, found teachers gave oral feedback differently to their students depending on the teacher's expectation of the student. The students' perceptions of the teacher feedback was then influenced by this expectation, "students for whom teachers held high performance expectancies tended to perceive more positive and less negative oral feedback than those for whom teachers held low performance expectancies" (Chen, Thompson, Kromrey, & Chang, 2011, p. 470). Students who perceived feedback to be positive tended to have a higher self-concept, while those who perceived more negative teacher feedback showed a lower self-concept. Males tended to perceive more negative oral feedback than females, but there was no significant difference between the male and females' perceptions as to the amount of positive oral feedback. Authors stressed the need for teachers to be aware of the importance of having high expectations for all students, especially low-achieving students. "This study supports the idea that teachers' expectancies and oral feedback can become a self-fulfilling prophecy for student self-concept" (Chen et al., 2011, p. 472), and teachers needed to be trained on how to frame constructive criticism in a more positive tone.

Summary: How to Assess Effectiveness of Feedback from both Teacher and Student Perspectives

"Since current feedback practices are diverse, so too will the saliences of any one of these pathways (and the strategies associated with each) vary from course to course and from one subject area to another" (Hounsell, 2008, p. 3). For feedback to be effective in different situations, teachers needed to recognize student outcomes were the measuring stick as "specific mental states and processes in learners' minds are the mediating variable between the effective application of instructional strategies and enhanced student learning" (Marzano, 2017, p. 5). Students made decisions on their capability based on the data or feedback they received from teachers (Stiggins, 2005). When students believed, they were capable, they tried to make improvements or adjust their approaches; when students did not believe they were capable they ignored the feedback and often gave up (Stiggins, 2005). "The student makes an emotional investment in an assignment and expects some 'return' on that investment" (Higgins et al., 2001, p. 272).

Higgins et al. (2001) stressed the need to investigate feedback based upon the communication model between student and teacher before looking at external factors like timeliness, nature of feedback, criteria to assess work and language of feedback, because until the power structure was explored and understood, there would be inherent communication issues. Regardless of the teacher intent, if the student did not interpret the feedback as implied, then the full potential feedback was not met. The teacher's role put him/her into a position of power therefore tainting the purity of the messages provided within the feedback. Students may have interpreted the feedback differently due to an

emotional response, either about the work they put into the assignment or the level of power and influence they gave the teacher. A teacher's "expert position confers their 'judgements' with an elevated status, which enhanced the power of these judgments to invoke feeling such as pride and shame" (Higgins et al., 2001, p. 272) depending on the student's interpretation of the feedback.

A level of expertise was required by the student to be able to interpret the teacher's feedback as it pertained to the academic nature of the assignment. "The feedback comments convey a message based on an implicit understanding of particular academic terms, which in turn reflect a much more complex academic discourse, which in turn may be only partially understood by students" (Higgins et al., 2001, p. 272). This left the teacher and student to "conceptualize feedback in qualitatively different ways" (Higgins et al., 2001, p. 272). Until the social relationship between the teacher and the student was explored, with the teacher acting in the dual role of support and judgment, the external issues like language and timeliness were irrelevant.

When assessing the effectiveness of feedback, first teachers needed to ask themselves how they came to construct the feedback they were giving students, what the intentions were for that particular piece of feedback, and what they wanted the student to take away from the feedback. Second, teachers needed to explore how students came to understand or make meaning of the feedback given to them. Teachers needed to ask students what the feedback meant to them, and whether it was helpful or not helpful. Finally, teachers needed to ask students what they intended to do with the feedback; how they planned to use it moving forward. Feedback "need[s] to be more dialogical and

ongoing . . . shift[ing] the emphasis to 'feeding forward' into a piece of work, rather than simply 'feeding back'" (Higgins et al., 2001, p. 274). The concept of ongoing feedback loops or feedback dialogues between teachers and students played a major role in ensuring feedback was understood, actionable and therefore effective.

Ritchhart (2015) stated the purpose of education was to make the thinking process visible for both teachers and students. "When we make thinking visible, we are provided a window into not only what students understand but also how they are understanding it" (Ritchhart, 2015, p. 32). For teachers to identify what students were thinking, they needed to first truly listen to their students and strive to uncover the ideas of not only what they thought, but why they thought a certain way. Only then would teachers be able to plan effective future instruction "as it provides us with the information necessary to plan the opportunities that can take students' learning to the next level" (Ritchhart, 2015, p. 32). Developing students' capacity to become "active interpreters and users of feedback" (Hounsell, 2007, p. 6) enhanced the practice feedback for the student and made feedback more effective and useful to the students.

Chapter Three: Methodology

Introduction

The purpose of this mixed methods study was to examine in what ways and to what extent middle school students and their teachers perceived teacher feedback in the same way. The study investigated how often teacher feedback messages matched middle school students' understanding of the messages received. The study also investigated which delivery modes teachers and students preferred, as well as the emotional responses middle school students had to the teacher feedback messages. For the purpose of this study, feedback was defined as any message given by a teacher on student work that communicated the student's demonstrated level of mastery in relationship to a learning goal. This could include what the student was doing well and what gaps still existed in the student's learning, as well as suggestions on how to close those learning gaps.

An online survey, constructed by the researcher, was presented to the participants. There were two versions of the survey, one for the adult participants (middle school teachers), and another for the student participants (grades 5 through 8, Appendix F). While the specific language of the survey questions was tailored to the developmental level of the participants, similarities in types of questions were found in each version of the survey. Both surveys contained one open-ended question to provide participants the opportunity to expound on their personal experiences with teacher feedback and student use of that feedback.

Participants were also given the opportunity to participate in a focus group discussion around feedback. Two focus groups were conducted. The adult focus group

consisted of middle school teachers, and the student focus group consisted of participants from grades 5 through 8 (Appendix G). Both focus group sessions were video and audio-recorded, for accuracy purposes only. All questions in the focus group were aligned to the researcher's research questions and hypotheses.

At the completion of the first trimester of the 2017-2018 school year, teachers identified students who, based on prior academic performance, might benefit from additional support. These students participated in six to eight 45-minute study sessions referred to as the Feedback Learning Group (FLG), led by the researcher. During the sessions, students worked on how to interpret teacher feedback messages, what to do with teacher feedback, and how to proactively ask for specific teacher feedback. Both students and their nominating teachers completed paper questionnaires prior to the first FLG session and following the last FLG session (Appendix H). Sixteen student participants and four nominating teachers were interviewed, following the completion of the FLG sessions. Two of the teachers interviewed taught more than one FLG student participant, and therefore, reported out for each student they instructed. Interviews were video/audio-recorded for accuracy purposes only. Secondary data, student participants' trimester grades and year-end grades for the 2017-2018 academic year, were acquired from the Independence Academy middle school Director of Scheduling and Registration.

Problem Statement

The literature on feedback practices within the classroom was extensive. Many studies sought to determine the specific characteristics of feedback that directly influenced the effectiveness of teacher feedback on student learning. There were fewer

studies on student perception of teacher feedback, and of those studies, most were conducted at the graduate or postgraduate level. The researcher found few studies that investigated middle school students' perceptions of teacher feedback and its effects on learning. For this reason, the researcher conducted a two-part study. First, the researcher investigated the effectiveness of teacher feedback practices from the student perspective (ages 10 -14), teacher perceptions of the same feedback, and the similarity/difference between the two. These practices included the mode of delivery, the different types of feedback messages sent, the translation of those messages, and the impact of those messages both on the cognitive and emotional responses of the students. The second part of the study included an examination of the effectiveness of a student-training program on interpreting and using teacher feedback to enhance learning.

Research Site

The study took place at Independence Academy, a junior-kindergarten through 12th grade independent school in the county of a large metropolitan Midwest city. Independence Academy was formed in 1992 when two independent day schools, one for boys and one for girls, merged creating a single school with one board and a common curriculum. The school was separated into three divisions, all of which resided on the same campus. The upper school was comprised of students in grades 9 through 12. The middle school was for student grades 5 through 8, and the lower school served students grades junior-kindergarten through 4th grade. At the time of the study, Independence Academy's total enrollment was 1,223, with 633 students in the upper school, 387 students in the middle school, and 203 students in the lower school (Director of

Enrollment Management, personal communication, October 31, 2017). Students travelled daily to Independence Academy from more than 60 zip codes within the region. More than 30% of the student body identified themselves as students of color. During the year that this study was conducted, students new to the school came from over 90 different public and private schools, both religious and independent. School-wide, over 39 different languages and dialects, in addition to English, were spoken in the home. Each division had a director who oversaw the day-to-day operations of the division.

Independence Academy was led by the Head of School, and a board of trustees comprised of parents and alumni. At the time of the study, the board of trustees totaled 29 individuals. Independence Academy was a fully accredited school, as through the ISACS accreditation process for grades junior-kindergarten through 12th grade. The school's accreditation cycle was on a seven-year rotation, with the next review scheduled to occur during the 2020-2021 academic year (Department chair, personal communication, October 31, 2017.)

At the time of the study, Independence Academy employed 153 faculty, more than 73% of which held advanced degrees. The average number of years teaching was 16 years and the average tenure at Independence Academy was 11 years. The faculty was comprised of 57% women and 43% men.

Null Hypotheses and Research Questions:

Null Hypothesis 1: There will be no difference between teacher feedback intent and middle school student perception of teacher feedback intent.

Null Hypothesis 2: There will be no difference between teacher perception of

feedback effectiveness and student perception of feedback effectiveness.

Null Hypothesis 3: There will be no difference between teacher preference and middle school students' preferences regarding feedback delivery systems.

Null Hypothesis 4: There will be no difference between teacher intended use of feedback on student work and how middle school students use the feedback.

Null Hypothesis 5: There will be no difference in middle school academic performance as a result of participating in 6-8 sessions of Feedback Learning Groups.

Research Question 1: What are middle school students' perceptions of teacher feedback; teacher perceptions of the same feedback; and the similarity/difference between the two?

Research Question 2: From the student's perspective, what are the best methods/approaches for gaining useful teacher feedback?

Research Question 3: How will lessons on interpreting and using teacher feedback through an independent study group (Feedback Learning Group - FLG) influence a student's ability to better interpret and use teacher feedback?

Data Collection Procedures

The researcher secured written permission to conduct the research from both the Head of School and the Middle School Division Director. The researcher explained the study and provided both individuals with copies of the surveys, focus group question outline, FLG lesson plans, questionnaires and follow up interview questions. IRB approval was obtained from Lindenwood University before beginning data collection.

The researcher introduced the project to the middle school teachers during a

division meeting by explaining the purpose of the study and how the various types of data collection would occur over the course of the 2017-2018 academic school year. Interested teachers signed a written consent form (Appendix A) for all aspects of the research, including the survey, focus group, questionnaires, and interviews. The consent form explained the purpose of the research and informed participants there were no anticipated risks associated with participation in this study. The consent form also indicated participants would obtain no direct benefits for participation in this study other than their contribution to the knowledge about feedback effectiveness at the middle school level. The consent form stated participation was voluntary and that participants could withdraw consent at any time without penalization. The consent form explained that the focus group and interviews would be video/audio recorded for accuracy purposes only, and that participants' identities would remain private. Once written consent was secured, the electronic survey was sent to the teacher's school email addresses. Electronic assent was required again at the beginning of the survey.

With the assistance of the Independence Academy's Marketing and Communications Department, a video explaining the study to middle school parents was created and distributed through the school's portal. Parents were given access to an explanation of the project and the parent consent form online, both of which could only be obtained using the parent's private, login credentials. Parents had the option of allowing their child to participate in both the survey and the focus group, just the survey, or just the focus group. Again, the consent form (Appendix B) explained the purpose of the study and informed participants there were no anticipated risks associated with

participation in this study. The consent form also indicated participants would obtain no direct benefits from participation in this study other than their contribution to the knowledge about feedback effectiveness at the middle school level. The consent form stated participation was voluntary and that participants could withdraw consent at any time without penalization. The consent form explained that the focus groups would be video/audio recorded for accuracy purposes only, and that participants' identities would remain private. The researcher then attended grade level class meetings to explain the study to the students and to distribute assent forms. Assent forms (Appendix C) included the same stipulations outlined in the parent consent forms. Both written and electronic assent forms were offered to students. Electronic assent forms could only be accessed using the student's private, login credentials. Once parent permission and student assent were obtained, the researcher sent the online survey link to the student participants through their school email addresses.

Teachers and students who indicated they were interested in participating in a focus group were sent email invitations indicating the date, time, and location of the focus group. An announcement about the teacher focus group was made at a divisional meeting and a flier was posted in the copy room. An announcement about the student focus group was made at grade-level class meetings and fliers were posted in the hallways. At the beginning of the focus group sessions, the researcher reviewed participants' rights and explained the procedure for participating in the discussion, including the use of a video-recording device present in the room for accuracy purposes.

Following the posting of the first trimester grades, the researcher met with grade

level teaching teams to identify students who exhibited academic concerns. The researcher then contacted parents of identified students, and students were invited to participate in the Feedback Learning Group (FLG) sessions. Parents received a written letter explaining the FLG's purpose. Written parent consent (Appendix D) and student assent forms (Appendix E) each explained the purpose of the study and informed participants there were no anticipated risks associated with participation in this study. The consent form also indicated participants would obtain no direct benefits from participation in this study other than their contribution to the knowledge about feedback effectiveness at the middle school level. The consent and assent forms stated that participation was voluntary and that participants could withdraw consent at any time without penalization. The consent and assent form explained that the FLG and interviews would be video/audio recorded for accuracy purposes only, and that participants' identities would remain private. The consent and assent forms also stated that the researcher would collect the participant's trimester grades for the academic year. Once parental consent and student assent was obtained, both student participants and nominating teacher participants completed the pre-questionnaire (Appendix H). The FLG sessions took place over a course of six weeks. All students, except one, participated in at least six sessions. At the conclusion of the FLG sessions, student and teacher participants completed the post-questionnaire. Sixteen students and four teachers also participated in separate follow up interviews with the researcher, which were recorded for accuracy purposes only. Two teachers interviewed reported out on more than one FLG student participant. The researcher omitted the identifiers of the participants from the final

analysis during the transcription process.

The researcher was a teacher at the school from which the participants were recruited. Due to the faculty assignments at the school, the researcher was the only sixth grade mathematics teacher therefore some student participants were also the researcher's then-current or former students. The students did not receive any compensation for their participation, nor were non-participants penalized. The researcher was not an administrator at the time of study and therefore was not in a position of authority over the teacher participants. At the conclusion of the study, all participants received a letter of thanks for their participation in the project (Appendix J).

Instrumentation and Analysis Procedures

The researcher used a mixed methods approach for the study to investigate the similarities and differences between middle school students' perceptions of feedback and teachers' perceptions of feedback. When completing the quantitative analysis, several tests were used, including testing for significance of the Spearman Rank Correlation Coefficient, testing the difference between two means with independent samples, testing the difference between two means with dependent samples, and running a one-sample *t*-test for difference of means. For each test, the researcher used an alpha of 0.05 to determine the statistical significance of the results. Analysis of the qualitative data included categorizing strategies, connective strategies, and memos. The results of all the quantitative tests performed and qualitative analysis are presented in Chapter Four.

Quantitative Data

A survey was created for students and faculty to test four of the five researcher's

hypotheses:

Null Hypothesis 1: There will be no difference between teacher feedback intent and middle school student perception of teacher feedback.

Null Hypothesis 2: There will be no difference between teacher perception of feedback effectiveness and student perception of feedback effectiveness.

Null Hypothesis 3: There will be no difference between teacher preference and middle school students' preferences regarding feedback delivery systems.

Null Hypothesis 4: There will be no difference between teacher intended use of feedback on student work and how middle school students use the feedback.

Quantitative data for the first four hypotheses were acquired through an on-line survey, which included both normative data and questions about teacher feedback with all responses, except for one, measured on a 5-point Likert scale, with 1 being 'Strongly Disagree' and 5 being 'Strongly Agree.' Question 25 on the student survey also used a Likert scale but with different descriptions; however, a rating of 1 continued to indicate the weakest rating and 5 indicated the strongest rating. Students were asked to provide the following information: gender (male or female), then-current grade in school, if the student was new to Independence Academy, race (as listed on the admission material from Independence Academy), languages other than English spoken at home, and a self-evaluative description of the student participant's academic level (Exceptional student, Good student, Average student or Below average student). Teachers were asked to provide the following information: gender (male or female), grade level(s) taught the year the study took place, academic department to which the teacher was assigned during the

study, and number of years of teaching experience at the middle school level (grades 5 - 8). This last question asked teachers to select from one of the four categories: 0 - 3 years, 4 - 10 years, 11 - 20 years, or more than 20 years teaching experience at the middle school level. Experience could include instructional time at middle schools other than Independence Academy.

The first part of the survey included eight questions that measured the difference between teacher and student perception on how well certain types of feedback helped convey where the student work was in relationship to a learning goal. This included what the student was doing well, what gaps still existed in the student's learning, as well as suggestions on how to close learning gaps. In a lecture on July 9, 2018, to an EDA 76700-Quantitative Methods Design in Educational Research class, Dr. Winslow stated, to analyze rank ordinal data, a Spearman Rank Correlation Coefficient must be used. The researcher calculated the mean for each type of feedback based on teacher responses and student responses independently. Each mean was then ranked, based on the independent sample populations (teachers and student). The researcher then analyzed the data for discrepancies between teacher and student responses.

The second set of survey questions measured teacher and student perceptions of feedback effectiveness, based on the same definition of feedback. A *t*-test for difference of two independent means was used to analyze the data for statistical significance and comparison when similar questions were asked on both the teacher and student surveys. As stated by Bluman (2013), a two-sample *t*-test was used when the population standard deviations were not known and "when the two samples are independent and when the

samples are taken from two normally or approximately normal distributed population" (p. 480). For specific survey questions asked of only one population, a one-sample *t*-test was conducted. The population standard deviations were again unknown; therefore, a *t*-test rather than a *z*-test was warranted, as stated by Dr. Winslow in a lecture on June 6, 2018 to an EDA 76700-Quantitative Methods Design in Educational Research class. The data were compared against the neutral response of 3.

The third set of survey questions measured teacher and student preferences for different types of feedback delivery systems. As the data were rank ordinal, rather than interval or ratio, data, a Spearman Rank Correlation Coefficient was again used to analyze the student and teacher responses to determine if there was a difference in preference in feedback delivery systems. The researcher calculated the mean for each type of delivery system based on teacher preferences and student preferences independently. Each mean was then ranked based on the independent sample populations (teachers and student). The researcher then analyzed the data for discrepancies between teacher and student preferences.

The data from the final set of survey questions measured teacher and student interpretation of how feedback was to be used by the student. When similar questions were posed to both populations, a *t*-test for difference of two independent means was used to analyze the data for statistical significance and comparison. For questions which were asked of only one population or the other, a one-sample *t*-test was conducted and results were compared against the neutral response of 3.

The final question on both the student and teacher versions of the survey asked

the participants to provide recommendation about feedback from each participant's distinct perspective. The data from the open-ended question will be explained in the Qualitative Section.

Null Hypothesis 5: There will be no difference in middle school academic performance as a result of participating in 6 - 8 sessions of Feedback Learning Groups.

Trimester grades were acquired from the Director of Scheduling and Registrar. It was not the practice of Independence Academy to calculate grade point averages; however, the Registrar provided the researcher with a list of course credits (personal communication, February 28, 2018). In consultation with Dr. Winslow, professor of educational statistics, it was agreed the grade distribution (Table 1) from GPAcalculator.net team (2018), would provide the necessary numbers to compare student grades over the course of the year the study was conducted (K. Winslow, personal communication, March 1, 2018).

Table 1

GPA Calculator

Grade	4.0+ Scale
A+	4.3
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
D-	0.7
F	0.0

A *t*-test for difference of two dependent means was used to compare the FLG participant's trimester grades (T1) before the intervention and after the intervention (T2 and T3). As Bluman (2013) explained, when two samples were related or were used in a pre-post situation, a *t*-test for difference of two dependent means should be used. It is important to note, that "the matching process does not eliminate the influence of other variables" (p. 488), therefore the researcher considered the limitations of this test when completing the analysis process. FLG participants' first trimester grade point averages were compared to their second trimester averages to determine changes immediately following the completing of the FLG lessons. First trimester averages were then compared to third trimester averages to determine any long-term impact of the intervention.

Qualitative Data

The qualitative aspect of this study included data acquired from the open-ended question on the survey, statements made during both the student and teacher focus groups, the pre-and post-questionnaires completed by the student FLG participants and their recommending teachers, and follow up interviews with FLG students and their teachers. The analysis helped to answer the following research questions:

Research Question 1: In what ways are middle school students' perceptions of teacher feedback similar/different from teacher intent?

Research Question 2: From the student's perspective, what are the best methods/approaches for gaining useful teacher feedback?

Research Question 3: How will lessons on interpreting and using teacher feedback

through an independent study group (Feedback Learning Group - FLG) influence a student's ability to better interpret and use teacher feedback?

The researcher analyzed the data to identify themes and categories through a "two-stage process of coding" (Esterberg, 2002, p. 158). The first stage, open-coding, involved "reading the data and developing your coding categories, based on what data (including the participants' terms and categories) seemed most important" (Maxwell, 2013, p. 107). Focused coding, described by Esterberg (2002) as "going through your data line by line, but this time you focus on those key themes you identified during open coding" (p. 161) was the second stage of the coding process. The researcher also engaged in the writing of memos to allow for "serious reflection, analysis, and self-critique" (Maxwell, 2013, p. 20) of the data.

As themes emerged from the survey and focus group discussions, the researcher created FLG lessons based on student and teacher responses about feedback, specifically what specific attributes created helpful feedback, how to interpret and process a student's emotional response to feedback, how to use teacher feedback to improve work, and how to initiate and or engage in feedback dialogues with teachers around feedback on student work. During the FLG sessions, the researcher engaged in conversations with the student participants to "look for relationships that *connect* statements and events within a context into a coherent whole," (Maxwell, 2013, p. 113). The purpose of this connecting strategy was to help the researcher be aware of any self-imposed categories or "analytical blinders" (Maxwell, 2013, p. 112) created during the initial coding process.

Participants

The study participants consisted of middle school teachers and students recruited exclusively from the campus of Independence Academy. A total of 387 middle school students and 53 middle school teachers were invited to take part in the study. The middle school had 99 new students in 2017-2018 academic year, which represented 25.8% of the student body in this division (Director of Enrollment Management, personal communication, October 31, 2017). A purposive convenience sample was used in this study (Fraenkel, Wallen, & Hyun, 2012). As this study is both a descriptive and correlational study, it was determined that a minimum yield of 100 students and 20 adults would be needed for adequate sampling (R. Steffes, personal communication, March 28, 2016).

Survey participants. A total of 110 students completed the survey, which resulted in a 28.4% response rate. Students who took the survey were asked if they identified as male or female, with 109 out of 110 responding. Of those 109 respondents, 44% identified as male and 56% identified as female. The students were also asked their then-current grade level in school, as displayed in Figure 1. Fourteen and five tenths percent were eighth graders, 42.7% seventh graders, 32.7% were sixth graders, and 10% were fifth graders.

Students were also asked to indicate whether this was their first year as a student at Independence Academy, and of the 109 who responded, 40.1% indicated this was their first year at the school. The middle school reported 99 new students in 2017-2018 academic year, which represented 25.8% of the student body in this division (Director of

Enrollment Management, personal communication, October 31, 2017).

The survey asked students to which race they identified and stated students were to check all applicable choices. The survey used the same race descriptors Independence Academy used on its admission materials. With 108 students responding to the question of race, results showed students from all racial descriptors participated in the survey, except students of Native American descent, while 13 students identified as being more than one race, as displayed in Figure 1.

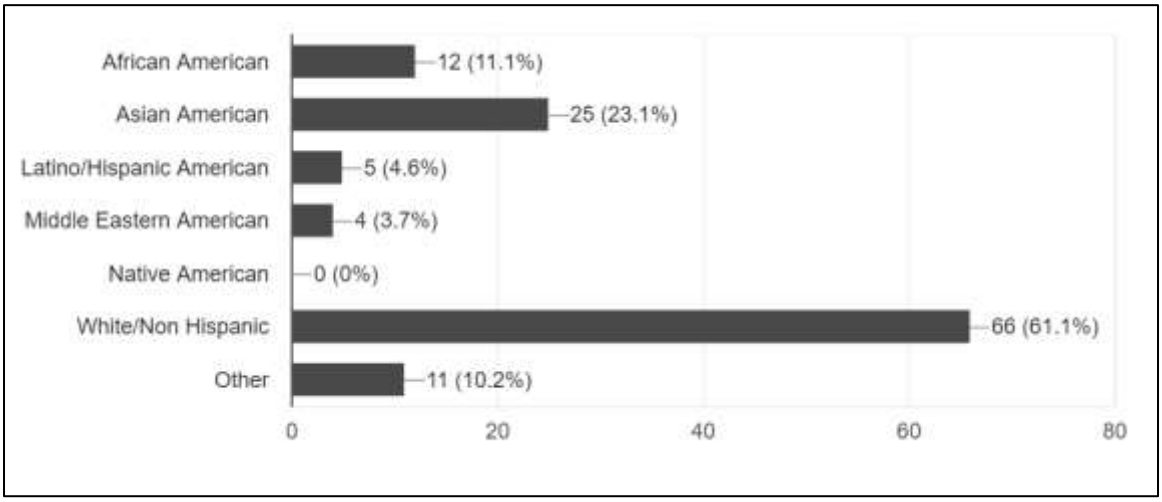

Figure 1. Student Participation Defined by Race Self-Identified (Survey)

Students were asked to list all languages, other than English spoken in the home. Fifteen students responded and listed the following languages: Bengali, Cantonese, Chinese/Mandarin, Finnish, German, Hindi, Malayalam, Russian, Spanish, Tamil, Telugu, Turkish, Ukrainian, and Urdu. The most frequent response was Chinese/Mandarin, with 12 responses, followed by Spanish with nine responses. Some students listed more than one non-English language spoken at home in the survey.

A final demographic question asked students to identify themselves as an

exceptional student (top of the class), good student, average student, or below average student. All students responded. The most frequent response (67.3%) was 'I consider myself to be a good student,' followed by 19.1% who self-identified as exceptional and 13.6% self-identified as average. No student identified him or herself as a below average student.

A total of 31 middle school teachers completed the survey, which resulted in a 58.5% response rate. The middle school employed 53 teachers, and 31 of them participated in the survey, yielding a 58.5% participation rate. The survey asked teachers if they identified as male or female, with 26 out of 31 responding. Of those 26 respondents, 34.6% identified as male and 65.4% identified as female. Teachers were also asked to indicate which grade levels they taught. Some teachers identified more than one grade level taught, as the survey measured 56 total responses to this question, as displayed in Figure 2.

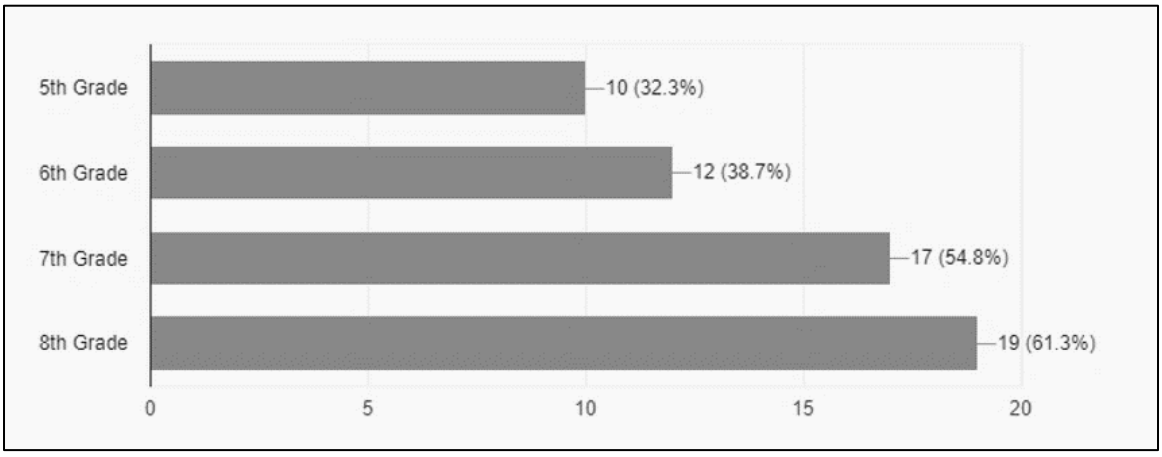

Figure 2. Grade Levels Taught by Teacher Participants (Survey)

Teachers were asked to indicate to which academic department they were assigned. Teacher responses are recorded in Figure 3. Faculty from all departments

participated in the survey. The category titled 'other' was for teachers who may be part of the support staff and not teach a specific course. Only one respondent identified him/herself as 'other.'

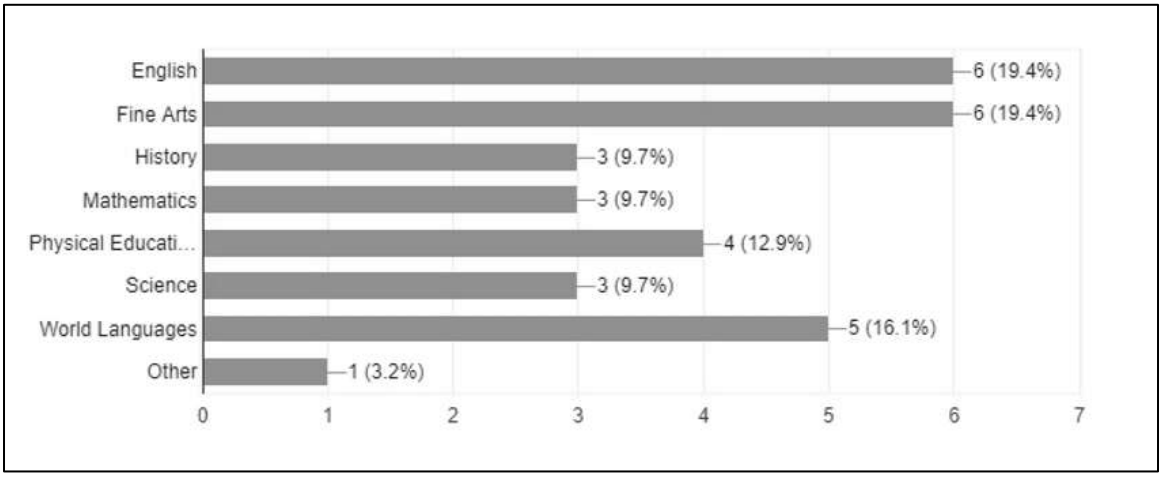

Figure 3. Academic Departments of Teacher Participants (Survey)

When asked to indicate the number of years a teacher had taught at the middle school level, 56.7% of respondents indicated they had taught 11 or more years, with two teachers stating they had been teaching middle school for more than 20 years. Only six teachers (20%) had been teaching less than 4 years at the middle school level. One teacher did not respond to the question about number of years taught.

Focus Group Participants

A total of 20 students participated in the student focus group. All four grade levels were represented during the focus group discussion; however, based on enrollment numbers, the participation by grade level was not proportional, as seen in Table 2. Of those 20 students, 11 participants were male and nine were female.

Table 2

Student Focus Group Participants Compared to Middle School Enrollment

Grade	5	6	7	8
Number of Participants				
Male	1	4	3	2
Female	0	3	6	1
Total Participation by Grade Level	1	7	9	3
Enrollment Totals	54	66	136	131
Number of Participants needed to meet proportional threshold	2.79	3.41	7.03	6.77
Over/Under	-1.79	+3.59	-1.97	-3.77

A total of 11 teachers, four men and seven women, participated in the teacher focus group. Faculty members from all four grade levels and each academic department were represented in the focus group. Each academic department had six to seven members. One faculty participant was a member of two departments and was therefore counted twice in Table 3.

Table 3

Teacher Focus Group Participation Based on Academic Department

Participants	Male	Female	Total
Academic Departments			
Arts	1	1	2
English	1*	1	2
History	1*	0	1
Mathematics	1	1	2
Physical Education	1	1	2
Science	0	1	1
World Languages	0	2	2
Total Participation by Gender	4	7	11**

Note. *Signifies participant who is a member of two academic departments. **Total teacher participation by academic department (12) minus the teacher who is recorded twice equals 11 teacher participants.

Feedback Learning Group Participants

The FLG resulted in 16 student participants, with 9 teachers recommending and completing the pre- and post-questionnaires. Of these participants, 16 students and five teachers participated in final interviews at the conclusion of the FLG sessions. The grade level, gender, and subject of recommending teachers are indicated in Table 4.

Table 4

Feedback Learning Group Participation Based on Grade, Gender, and Subject of Recommending Teacher

Participants	Male	Female	Subject
Grade			
5	3	2	History Physical Education Science
6	5	2	English Science World Languages
7	0	2	Math World Languages
8	1	1	Math Science

Conclusion

Chapter Three provided the research design and methodology for the mixed methods study on middle school students' perceptions of teacher feedback. In the quantitative stage of the study, data were measured and analyzed using a Spearman Rank Correlation Coefficient, a two-sample *t*-test for difference of independent means, a two-sample *t*-test for difference of dependent means, and a one-sample *t*-test. The qualitative portion of the study included an in-depth examination of participants' responses to open-

ended questions designed to elicit further insight regarding emerging themes pertinent to characteristics of quality feedback, emotional responses to feedback, feedback delivery methods, how to use the feedback, and feedback dialogues between student and teacher.

There were two groups of participants in this study. The first group included the middle school students at Independence Academy, which enrolled 387 middle school students the year the study was conducted. Over 110 students in grades 5 through 8 participated in the study on feedback. The second group included the middle school faculty, with over 31 participants.

Within Chapter Four, the results of the data collected are displayed, including the survey questions, focus group questions, questionnaires, interview questions, and examples of the Feedback Learning Group lessons. Both the primary and secondary data are reported in Chapter Four, according to emerging themes around feedback. Chapter Five includes a summarization, based on the results of the study. The research summary includes a discussion, based on the data, and provides recommendations for future research on feedback at the middle school level.

Chapter Four: Results

Introduction

The purpose of this study was to examine to what extent middle school students and their teachers perceived teacher feedback in the same way and in what ways their perceptions differed. The researcher used surveys, focus groups, questionnaires, and interviews. As themes emerged, general characteristics of good feedback practices and preferences were collected from middle school student and faculty participants and then compared.

Quantitative Results

Null Hypothesis 1: There will be no difference between teacher feedback intent and middle school student perception of teacher feedback intent.

The data were analyzed using a Spearman Rank Correlation Coefficient comparing the teachers' responses to the students' responses, for a series of eight questions asking participants which types of feedback clearly conveyed feedback messages to students. After computing the rank order for each population, the analysis $r_s = 0.577$, $t(6) = 1.730$, $p = 0.0671$, revealed no relationship between the teachers' ranking and students' ranking for each type of feedback, based on its effectiveness in conveying the feedback message. Null Hypothesis 1 was not rejected and Hypothesis 1 was not supported. The teacher and student ranking for each type of feedback are shown in Table 5.

Table 5

Teacher and Student Rankings for Type of Feedback that Clearly Conveys Feedback Message

Participants	Teachers	Students
Types of Feedback		
Completed Rubrics	6	6
Marking Errors	7	5
Suggestions for Improvement	3.5	2
Letter Grade or Percentage	8	7
Identifying what Student is Doing Well	5	3
Exemplars	3.5	8
Explicit Expectations	2	4
Formative Feedback	1	1

Note: $\alpha = 0.05$

Null Hypothesis 2: There will be no difference between teacher perception of feedback effectiveness and student perception of feedback effectiveness.

The data for Null Hypothesis 2 were analyzed using two separate tests. A two-sample *t*-test for difference in means was utilized to compare teachers' responses and students' responses to series of five questions pertaining to feedback effectiveness (Questions 2a - 2e). Student participants were also asked how teacher feedback made them feel about themselves. These data were analyzed using a one-sample *t*-test comparing the student responses against the neutral response of 3 (Question 2f).

Question 2a: 'My students agree with the feedback I give them on their work. / When a teacher gives me feedback, I agree with what s/he says about my work.' A preliminary test of variances revealed that the variances were not equal. The analysis revealed that the responses of the teachers (M = 3.806, SD = 0.477) were significantly different from the responses of the students (M = 4.073, SD = 0.738); $t(30) = -2.400$, $p = 0.0228$ (Table 6). Null Hypothesis 2 was rejected and Hypothesis 2 was supported. This

suggested that the average student response was significantly higher than the average teacher response on question 2a.

Table 6

Agreement with Teacher Feedback Given on Student Work: Teachers and Students

Participants	Teachers	Students
Mean	3.806	4.073
Standard Deviation	0.477	0.738
Observations	31	110
t(30)		-2.400
p		0.0228

Note: $\alpha = 0.05$

The researcher conducted a two-sample *t*-test for difference in means for question 2a again, but only included data from students who indicated they were new to Independence Academy to determine if the initial results, which included all students, differed from the survey results of only the new students to the school. A preliminary test of variances revealed that the variances were equal. Results, as indicated in Table 7, suggested that the average new student response was not significantly different from the average teacher response on question 2a. For this group of students, Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported.

Table 7

Agreement with Teacher Feedback Given on Student Work: Teachers and New Students

Participants	Teachers	Students
Mean	3.806	3.978
Standard Deviation	0.477	0.657
Observations	31	45
t(74)		-1.243
p		0.2179

Note: $\alpha = 0.05$

Based on these findings, the researcher then applied a *t*-test for difference of two

independent means to determine if other student demographic attributes produced statistically significant results in relation to hypothesis 2. As shown in Table 8, average responses from students who self-ranked as average students (this was the lowest academic rating marked by the participants) or exceptional students (this was the highest academic rating marked by the participants) were significantly higher than the average teacher response to questions 2a. This suggested that regardless of a student's self-concept of his/her own academic achievement (average or exceptional), student responses continued to be higher than the average teacher response to question 2a. For this analysis Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

Table 8

Agreement with Teacher Feedback Given on Student Work: Based on Student Self-Ranking

Participants	Teachers	Students	Students	Students
		Average	Good	Exceptional
F-test		$\sigma = \sigma$	$\sigma \neq \sigma$	$\sigma \neq \sigma$
Mean	3.806	4.200	3.986	4.286
Standard Deviation	0.477	0.561	0.731	0.845
Observations	31	15	74	21
d.f.		44	30	20
t		-2.476	-1.491	-2.356
p		0.0172	0.1463	0.0288

Note: $\alpha = 0.05$

A final two-sample *t*-test for difference in means for question 2a was conducted to compare student and teacher responses using data only from students who self-reported their race as anything other than only White/Non-Hispanic. This sample included 44 students who reported as being of another race, other than White/Non-Hispanic, or who reported being multiracial, including White/Non-Hispanic. For purposes of clarity, this demographic category was referred to as Non-dominate Culture group. A preliminary test

of variances revealed that the variances were not equal; in fact, the student variance was zero, as all students marked choice '3' on a Likert scale of 1 to 5. Results were statistically significant, $t(30) = 9.408$, $p < .0001$, indicating that these students' neutral responses of 3 were lower than those of their teachers. For this analysis Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

The researcher continued to investigate student and teacher response to question 2a based on student's gender (Table 9). The analysis revealed that the average responses by female students were significantly higher than the teachers' responses for question 2a. For this analysis, based on female gender, Null Hypothesis 2 was rejected and Hypothesis 2 was supported. The male student responses to question 2a were not significantly different from the teacher's responses. Based on male gender, Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported.

Table 9

Agreement with Teacher Feedback Given on Student Work: Based on Gender

Participants	Teachers	Students Female	Students Male
F-test		$\sigma \neq \sigma$	$\sigma \neq \sigma$
Mean	3.806	4.098	4.042
Standard Deviation	0.477	0.746	0.743
Observations	31	61	48
d.f.		30	30
t		-2.274	-1.714
p		0.030	0.0967

Note: $\alpha = 0.05$

Student responses to question 2a, based on the student's grade level were then compared to the teachers' responses. Only the sixth-grade student responses differed significantly from the teachers' responses with the sixth-grade responses being higher

than the teachers' responses (Table 10). For this analysis, based on sixth grade students, Null Hypothesis 2 was rejected and Hypothesis 2 was supported. There was no statistically significant difference between the teachers' responses and the students' responses in grades 5, 7 and 8. Based on grades 5, 7, and 8, Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported.

Table 10.

Agreement with Teacher Feedback Given on Student Work: Based on Student Grade Level

Participants	Teachers	Students Grade 5	Students Grade 6	Students Grade 7	Students Grade 8
F-test		$\sigma \neq \sigma$	$\sigma = \sigma$	$\sigma \neq \sigma$	$\sigma \neq \sigma$
Mean	3.806	4.273	4.139	3.957	4.125
SD	0.477	0.786	0.639	0.477	0.806
n	31	11	36	47	16
d.f.		10	65	30	15
t		-1.850	-2.379	-1.061	-1.454
p		0.0941	0.0203	0.2973	0.1665

Note: α= 0.05

Question 2b: 'My students like it when I give them feedback about their work. / I like it when my teacher gives me feedback about my work.' A two-sample *t*-test for difference in means was conducted comparing the teachers' and students' responses to question 2b. A preliminary test of variances revealed that the variances were equal. The analysis revealed that the responses of the teachers (M = 4.226, SD = 0.669) were not significantly different from the responses of the students (M = 4.385, SD = 0.804); $t(138) = -1.009$, $p = 0.3147$ (Table 11). Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported. This suggested that the average student response was not significantly different from the average teacher response on question 2b.

Table 11

Students Like Receiving Teacher Feedback on their Work: Teachers and Students

Participants	Teachers	Students
Mean	4.226	4.385
Standard Deviation	0.669	0.804
Observations	31	109
t (74)		-1.009
p		0.3174

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed that the teacher response was not significantly different from the students' responses within each independent category except for the seventh-grade student responses. For these categories, Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported.

For the seventh-grade data, a preliminary test of variances revealed that the variances were equal. The results of this test indicated the seventh-grade student responses (M = 4.565, SD = 0.720) were significantly different from the teachers' responses (M = 4.226, SD = 0.669); $t(75) = -2.087$, $p = 0.0403$ (Table 12). This suggested that the average seventh grade student response was higher than the average teacher response on question 2b. Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

Table 12

Students Like Receiving Teacher Feedback on their Work: Teacher and 7th Grade Students

Participants	Teachers	Students
Mean	4.226	4.565
Standard Deviation	0.669	0.720
Observations	31	46
t(75)		-2.987
p		0.0403

Note: $\alpha = 0.05$

Question 2c: 'The feedback I give my students makes them feel good about their learning. /The feedback I get from my teachers makes me feel good about my learning.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 2c to the students' responses. A preliminary test of variances revealed that the variances were equal. The analysis revealed that the responses of the teachers (M = 3.710, SD = 0.739) were not significantly different from the responses of the students (M = 3.982, SD = 0.793); $t(138) = -1.709$, $p = 0.0897$ (Table 13). This suggested that the average student response was not significantly different from the average teacher response on question 2c. Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported.

Table 13

Teacher Feedback on Student Work Makes Students Feel Good About their Learning: Teachers and Student

Participants	Teachers	Students
Mean	3.710	3.982
Standard Deviation	0.739	0.793
Observations	31	109
t(138)		-1.709
p		0.0897

Note: $\alpha = 0.05$

The *t*-test for difference in means was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed that the student response was not significantly different from the teachers' responses within each independent category, except for the students who self-identified as exceptional students who were in the sixth grade. For the categories, New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional for grades 5, 7, and 8), Gender, Non-dominate culture, and Grade Levels 5-8). Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported. For sixth grade students who self-rated as exceptional, Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

For sixth grade students who self-rated as exceptional, a preliminary test of variances revealed that the variances were equal. The results of this test indicated the teachers' responses (M = 3.710, SD = 0.739) were significantly different from the self-identified exceptional student responses (M = 4.286, SD = 0.644); $t(50) = -2.901$, $p = 0.0055$ (Table 14). This suggested that the average self-rated exceptional student response was higher than the average teacher response on question 2c. For sixth grade students who self-rated as exceptional, Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

Table 14

Teacher Feedback on Student Work Makes Students Feel Good About their Learning: Teachers and Students Who Self Rate as Exceptional

Participants	Teachers	Students
Mean	3.710	4.286
Standard Deviation	0.739	0.644
Observations	31	21
t(50)		-2.901
p		0.0055

Note: $\alpha = 0.05$

A preliminary test of variances revealed that the variances were equal. The results of this test indicated the teachers' responses (M = 3.710, SD = 0.739) were significantly different from the sixth grade student responses (M = 4.083, SD = 0.770); $t(65) = -2.018$, $p = 0.0478$ (Table 15). This suggests that the average sixth grade student response was higher than the average teacher response on question 2c. Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

Table 15

Teacher Feedback on Student Work Makes Students Feel Good About their Learning: Teachers and 6th Grade Students

Participants	Teachers	Students
Mean	3.710	4.083
Standard Deviation	0.739	0.770
Observations	31	36
t(65)		-2.018
p		0.0478

Note: $\alpha = 0.05$

Question 2d: 'The feedback I give my students inspires them to keep working hard. / The feedback I get from my teachers inspires me to keep working hard.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 2d to the students' responses. A preliminary test of variances revealed that the

variances were equal. The analysis revealed that the responses of the teachers (M = 3.742, SD = 0.815) were significantly different from the responses of the students (M = 4.218, SD = 0.759); $t(139) = -3.036$, $p = 0.0029$ (Table 16). This suggested that the average student response was significantly higher than the average teacher response on question 2d. Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

Table 16

Teacher Feedback on Student Work Inspires Students: Teachers and Students

Participants	Teachers	Students
Mean	3.742	4.218
Standard Deviation	0.815	0.759
Observations	31	110
t(139)		-3.036
p		0.0029

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy (Table 17), Student Self Ratings (Average, Good, and Exceptional) (Table 18), Gender (Table 19), Non-dominate culture (Table 20), and Grade Levels 5-8 (Table 21). A preliminary test of variances revealed that the variances were equal for each test. Analysis for each category revealed that the teacher response was significantly different from the responses of the independent samples of students (student response was higher), except for students who self-rated as average students, fifth grade student participants, and eighth grade student participants where results indicated no statistically significant discrepancy between teacher and student responses. Null Hypothesis 2 was rejected and Hypothesis 2 was supported for categories of New to Independence Academy, Student Self Ratings (Good and Exceptional), Gender, Non-dominate culture, and Grade Levels 6-7. Null Hypothesis 2 was not rejected

and Hypothesis 2 was not supported for categories of Student Self Ratings (Average), and Grade Level 5.

Table 17

Teacher Feedback on Student Work Inspires Students: Teachers and New Students

Participants	Teachers	New Students
Mean	3.742	4.326
Standard Deviation	0.815	0.668
Observations	31	46
t(75)		-3.440
p <		0.0001

Note: $\alpha = 0.05$

Table 18

Teacher Feedback on Student Work Inspires Students: Based on Student Self-Ranking

Participants	Teachers	Students Average	Students Good	Students Exceptional
Mean	3.742	3.933	4.243	4.333
Standard Deviation	0.815	0.799	0.755	0.730
Observations	31	15	74	21
d.f.		44	103	50
t		-0.751	-3.031	-2.563
p		0.4565	0.0031	0.0124

Note: $\alpha = 0.05$

Table 19

Teacher Feedback on Student Work Inspires Students: Based on Gender

Participants	Teachers	Students Female	Students Male
Mean	3.742	4.246	4.167
Standard Deviation	0.815	0.767	0.753
Observations	31	61	48
d.f.		90	77
t		-2.916	-2.369
p		0.0045	0.0203

Note: $\alpha = 0.05$

Table 20

Teacher Feedback on Student Work Inspires Students: Teachers and Student Non-Dominant Culture

Participants	Teachers	New Students
Mean	3.742	4.222
Standard Deviation	0.815	0.795
Observations	31	45
$t(74)$		-2.563
$p <$		0.0124

Note: $\alpha = 0.05$

Table 21

Teacher Feedback on Student Work Inspires Students: Based on Student Grade Level

Participants	Teachers	Students	Students	Students	Students
		Grade 5	Grade 6	Grade 7	Grade 8
Mean	3.742	4.182	4.412	4.106	4.125
SD	0.815	0.874	0.604	0.759	0.957
n	31	11	36	47	16
d.f.		40	65	76	45
t		-1.510	-3.883	-2.016	-1.438
p		0.1390	0.0002	0.0474	0.1573

Note: $\alpha = 0.05$

Question 2e: 'My students find my feedback to be helpful. / In general, how useful is the feedback you receive from your teachers?' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 2e to the students' responses. A preliminary test of variances revealed that the variances were equal. The analysis revealed that the responses of the teachers (M = 3.839, SD = 0.583) were significantly different from the responses of the students (M = 4.336, SD = 0.595); $t(139) = -4.133$, $p = 0.0001$ (Table 22). This suggested that the average student response was significantly higher than the average teacher response on question 2e. Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

Table 22

Teacher Feedback on Student Work is Useful: Teachers and Students

Participants	Teachers	Students
Mean	3.839	4.336
Standard Deviation	0.583	0.595
Observations	31	110
t(30)		-4.133
p		0.0001

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). A preliminary test of variances revealed that the variances were equal for each test. The analysis for each category revealed that the teacher response was significantly different from the responses of the students from each independent sample. This suggests that in all samples, the average student response was higher than the average teacher response on question 2e. For all categories, Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

Question 2f: 'The feedback I get from my teachers makes me feel good about myself.' A one-sample t-test of means, was conducted using student data. The sample was compared to the neutral response of 3. Analysis of the data revealed the students' responses were significantly different than the neutral response of 3 ($M = 3.855$, $SD = 0.947$); $t(110) = 9.464$, $p < 0.0001$ which indicated that middle school students strongly agreed that teacher feedback made them feel good about themselves. Null Hypothesis 2 was rejected and Hypothesis 2 was supported.

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and

Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed similar results to the aggregate data, regardless of the population, except for those students who self-rated as average. Results of the one sample *t*-test of means for the population of students who self-rated as average students (M = 3.467, SD = 0.990); $t(15) = 1.827$, $p = 0.0891$), produced only moderate evidence to support the alternative hypothesis. For the categories of New to Independence Academy, Student Self Ratings (Good and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8, Null Hypothesis 2 was rejected and Hypothesis 2 was supported. For the category of Student Self Ratings (Average), Null Hypothesis 2 was not rejected and Hypothesis 2 was not supported.

Null Hypothesis 3: There will be no difference between teacher preference and middle school students' preferences regarding feedback delivery systems.

A Spearman Rank Correlation Coefficient was used to analyze the data. The teachers' responses to five questions about feedback delivery systems was comparted to students' responses. After computing the rank order for each population, the analysis $r_s = 0.900$, $t(3) = 3.576$, $p = 0.0187$, revealed a relationship between the teachers' ranking and students' ranking for each type of feedback based on its effectiveness in conveying the feedback message. The teacher and student ranking for each type of feedback are shown in Table 23.

Table 23

Teacher and Student Rankings for Preferred Feedback Delivery Mode

Participants	Teachers	Students
Mode of Delivery		
Hand Written Comments	2	1
Electronic Feedback	3	3
Quick Comment	4	4
Face to Face Communication	1	2
Audio or Video Feedback	5	5

Note: $\alpha = 0.05$

Null Hypothesis 4: There will be no difference between teacher intended use of feedback on student work and how middle school students use the feedback.

The data were first analyzed using a two-sample *t*-test for difference in means, comparing the teachers' responses to the students' responses through a series of six questions, which attempted to identify what students did with the feedback once it was provided to them by the teachers, and if this was the intent of the teachers when giving the feedback to the students (Questions 4a - 4f).

Question 4a: 'After reading or listening to teacher feedback, my students delete or throw away their work. / After reading or listening to teacher feedback, I delete or throw away my work.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 4a to the students' responses. A preliminary test of variances revealed that the variances were not equal. The analysis revealed that the responses of the teachers (M = 3.000, SD = 0.730) were significantly different from the responses of the students (M = 1.806, SD = 1.089); $t(30) = 7.114$, $p < 0.0001$ (Table 24). This suggested that the average student response was significantly lower than the average teacher response on question 4a. Null Hypothesis 4 was rejected and Hypothesis 4 was

supported.

Table 24

Feedback is Received and then Discarded: Teachers and Students

Participants	Teachers	Students
Mean	3.000	1.806
Standard Deviation	0.730	1.089
Observations	31	108
t(30)		7.114
p		<0.0001

Note: $\alpha = 0.05$

The test was conducted again using student samples, based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed similar results to the aggregate data, regardless of the population, except for fifth grade students. Results of the two-sample *t*-test for difference of means for the population of fifth grade students (M = 2.1, SD = 1.37); $t(9) = 1.988$, $p = 0.0781$), produced only moderate evidence to support the alternative hypothesis. For the categories of New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 6-8, Null Hypothesis 4 was rejected and Hypothesis 4 was supported. For students in grade 5, Null Hypothesis 4 was not rejected and Hypothesis 4 was not supported.

Question 4b: 'After reading or listening to teacher feedback, my students try to figure out their errors and correct the work. / After reading or listening to teacher feedback, I try to figure out my errors and correct the work.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 4b to the students' responses. A preliminary test of variances revealed that the variances were

equal. The analysis revealed that the responses of the teachers (M = 3.516, SD = 0.724) were significantly different from the responses of the students (M = 4.236, SD = 0.777); $t(139) = -4.623$, $p < 0.0001$ (Table 25). This suggests that the average student response was significantly higher than the average teacher response on question 4b. Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Table 25

Feedback is Used to Correct Errors: Teachers and Students

Participants	Teachers	Students
Mean	3.516	4.236
Standard Deviation	0.724	0.777
Observations	31	110
t(139)		-4.623
p		<0.0001

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed similar results to the aggregate data regardless of the population on question 4b. For all categories, New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8, Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Question 4c: 'After reading or listening to teacher feedback, my students ask follow-up questions. / After reading or listening to teacher feedback, I ask the teacher questions.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 4c to the students' response. A preliminary test of variances revealed that the variances were equal. The analysis revealed that the responses

of the teachers (M = 3.419, SD = 0.765) were significantly different from the responses of the students (M = 4.027, SD = 0.893); $t(139) = -3.449$, $p = 0.0007$ (Table 26). This suggested that the average student response was significantly higher than the average teacher response on question 4c. Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Table 26

Feedback is Used to Formulate Questions: Teachers and Students

Participants	Teachers	Students
Mean	3.419	4.027
Standard Deviation	0.765	0.893
Observations	31	110
$t(139)$		-3.449
p		0.0007

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed similar results to the aggregate data, regardless of the population, except for those students who self-rated as average. Results of the two-sample *t*-test for difference of means for the population of students who self-rated as average students (M = 3.8, SD = 0.941); $t(44) = -1.467$, $p = 0.1495$), demonstrated no statistically significant difference from the teachers' responses to question 4c. For the categories, New to Independence Academy, Student Self Ratings (Good and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8, Null Hypothesis 4 was rejected and Hypothesis 4 was supported. For the category, Student Self Ratings (Average), Null Hypothesis 4 was not rejected and Hypothesis 4 was not supported.

Question 4d: 'After reading or listening to teacher feedback, my students save their work but rarely look at it again. / After reading or listening to teacher feedback, I save my work but rarely look at it again.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 4d to the students' responses. A preliminary test of variances revealed that the variances were equal. The analysis revealed that the responses of the teachers (M = 3.387, SD = 1.086) were significantly different from the responses of the students (M = 2.606, SD = 1.139); $t(138) = 3.406$, $p = 0.0009$ (Table 27). This suggested that the average Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Table 27

Feedback is Saved but Rarely Used Again: Teachers and Students

Participants	Teachers	Students
Mean	3.387	2.606
Standard Deviation	1.086	1.139
Observations	31	109
t(138)		3.406
p		0.0009

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed similar results to the aggregate data regardless of the population except for those students who self-rated as average. Results of the two-sample *t*-test for difference of means for the population of students who self-rated as average students (M = 3.200, SD = 1.014); $t(44) = 0.559$, $p = 0.5787$), produced only moderate evidence to support the alternative hypothesis. For the categories, New to Independence Academy,

Student Self Ratings (Good and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8, Null Hypothesis 4 was rejected and Hypothesis 4 was supported. For the category, Student Self Ratings (Average), Null Hypothesis 4 was not rejected and Hypothesis 4 was not supported.

Question 4e: 'After reading or listening to teacher feedback, my students save their work and use it as a reference on future assignments. / After reading or listening to teacher feedback, I save my work and use it as a reference on future assignments.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 4e to the students' responses. A preliminary test of variances revealed that the variances were equal. The analysis revealed that the responses of the teachers (M = 2.548, SD = 1.028) were significantly different from the responses of the students (M = 3.624, SD = 1.177); $t(138) = -4.610$, $p < 0.0001$ (Table 28). This suggested that the average student response was significantly higher than the average teacher response on question 4e. Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Table 28

Feedback is Saved and Used as References for Future Assignments: Teachers and Students

Participants	Teachers	Students
Mean	2.548	3.624
Standard Deviation	1.028	1.177
Observations	31	109
t(138)		-4.610
p		<0.0001

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and

Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed similar results to the aggregate data regardless of the population except for those students who self-rated as average. Results of the two-sample *t*-test for difference of means for the population of students who self-rated as average students (M = 3.067, SD = 0.799); $t(44) = -1.715$, $p = 0.0933$), produced only moderate evidence to support the alternative hypothesis. For the categories, New to Independence Academy, Student Self Ratings (Good and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8, Null Hypothesis 4 was rejected and Hypothesis 4 was supported. For the category, Student Self Ratings (Average), Null Hypothesis 4 was not rejected and Hypothesis 4 was not supported.

Question 4f: 'My students do not read or listen to the feedback I provide. / I don't read or listen to the feedback my teacher gives me on my work.' A two-sample *t*-test for difference in means was conducted comparing the teachers' responses to question 4f to the students' responses. A preliminary test of variances revealed that the variances were equal. The analysis revealed that the responses of the teachers (M = 2.355, SD = 0.985) were significantly different from the responses of the students (M = 1.312, SD = 0.801); $t(138) = 6.065$, $p < 0.0001$ (Table 29). This suggested that the average student response was significantly lower than the average teacher response on question 4f. Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Table 29

Feedback is Not Listened to/Read: Teachers and Students

Participants	Teachers	Students
Mean	2.355	1.312
Standard Deviation	0.985	0.801
Observations	31	109
t(138)		6.065
p		<0.0001

Note: $\alpha = 0.05$

The test was conducted again using student samples based on the following attributes: New to Independence Academy, Student Self Ratings (Average, Good, and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8). The analysis for each category revealed similar results to the aggregate data regardless of the population on question 4f. For all categories, New to Independence Academy, Student Self Ratings (Good and Exceptional), Gender, Non-dominate culture, and Grade Levels 5-8, Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

A final quantitative analysis was completed by the researcher to explicitly explore the teachers' perceptions of middle school students use of their feedback and if teachers found value in giving middle school students feedback on their work. The data were analyzed using a one-sample *t*-test comparing the teachers' responses to the neutral response of three, with an alpha of 0.05 (Table 30).

Table 30

Teachers' Perceptions of How Middle School Students Use Feedback

Statement		Results
1. My students understand the feedback I provide.	Mean	3.742
	Standard Deviation	0.575
	Observations	31
	t(30)	7.184
	p	<0.0001
2. My students use the feedback I provide to improve their work.	Mean	3.677
	Standard Deviation	0.748
	Observations	31
	t(30)	5.042
	p	<0.0001
3. I do not know what my students do with the feedback I provide.	Mean	2.645
	Standard Deviation	1.199
	Observations	31
	t(30)	-1.648
	p	0.1098
4. My students ask clarifying questions regarding my feedback.	Mean	3.452
	Standard Deviation	0.768
	Observations	31
	t(30)	3.274
	p	0.0027
5. My students meet with me outside of class time to go over my feedback at their request.	Mean	2.267
	Standard Deviation	1.166
	Observations	31
	t(30)	-1.540
	p	0.1340
6. I ask my students if they find my feedback to be helpful.	Mean	3.355
	Standard Deviation	1.082
	Observations	31
	t(30)	1.826
	p	0.0778

Statement #1: 'My students understand the feedback I provide' (M = 3.742, SD = 0.575); $t(30) = 7.184$, $p < 0.0001$, suggested that the average teacher response was significantly higher than the hypothesized mean of three. Statement #2: 'My students use the feedback I provide to improve their work' (M = 3.677, SD = 0.748); $t(30) = 5.042$, $p < 0.0001$, suggested a similar result. Statement #4: 'My students ask clarify question regarding my feedback' (M = 3.452, SD = 0.768) $t(30) = 3.274$, $p = 0.0027$, again

suggested that the average teacher response was significantly higher than the hypothesized mean of three. For Statements # 1, # 2, and # 4, Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Results of Statement #3, 'I do not know what my students do with the feedback I provide,' and Statement #5, 'My students meet with me outside of class time to go over my feedback at their request,' did not indicated a statistically significant difference between the average teacher response and the hypothesized mean of three. For Statement # 3, Null Hypothesis 4 was not rejected and Hypothesis 4 was not supported.

Statement #6, 'I ask my students if they find my feedback to be helpful,' ($M = 3.355$, $SD = 1.082$); $t(30) = 1.826$, $p = 0.078$, indicated moderate evidence that the teachers' response was higher than the neutral response of three. For Statement # 6, Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Faculty were asked on the survey to identify how strongly they identified with this statement: 'The amount of time I spend providing feedback to my students is work the effort.' A one-sample *t*-test of means was used to analyze the teachers' responses against the hypothesized mean of three. Results indicated that mean teachers' response to this statement ($M = 3.903$, $SD = 0.870$) was significantly higher than the hypothesized mean $t(30) = 7.780$, $p < 0.0001$. Responses from faculty indicated Null Hypothesis 4 was rejected and Hypothesis 4 was supported.

Null Hypothesis 5: There will be no difference in middle school academic performance as a result of participating in 6 to 8 sessions of Feedback Learning Groups.

A *t*-test for difference of two dependent means was used to compare the FLG

participants' trimester grades before the intervention and after the intervention. FLG participants' first trimester grade point averages were compared to their second trimester averages to determine changes immediately following the completing of the FLG lessons. The analysis revealed that the FLG students' grade point averages did not significantly change from the first to the second trimester (M = -0.029, SD = 0.274); $t(15) = -0.429$, $p = 0.6743$, indicating there was not enough evidence to conclude that the FLG lesson had any impact on the student's second trimester GPAs. Null Hypothesis 5 was not rejected and Hypothesis 5 was not supported.

The first trimester averages were then compared to third trimester averages to determine any long-term impact of the intervention. Again, the analysis revealed that the FLG students' grade point averages did not significantly change from the first to the third trimester (M = -0.039, SD = 0.239); $t(15) = -0.660$, $p = 0.5194$, indicating there was not enough evidence to conclude that the FLG lesson had any impact on the students' third trimester GPAs. Null Hypothesis 5 was not rejected and Hypothesis 5 was not supported.

Qualitative Results

To ascertain the extent to which middle school students and their teachers interpret feedback in the same way, the researcher investigated student perception in comparison to teacher intent through a variety of data gathering tools, including questionnaires, interviews, and focus group discussions.

Research Question 1: What are middle school students' perceptions of teacher feedback; teacher perceptions of the same feedback; and the similarity/difference between the two?

FLG Video Teacher/Student Comparison of Feedback Meaning and Follow Up

Student participants in the Feedback Learning Group (FLG) engaged in an activity where they were asked to interpret the teacher feedback written on a piece of student work, specifically what the feedback meant and what the teacher wanted the student to do with the feedback. In example one, the mathematics assignment asked for an explanation in words and pictures as to which juice should be purchased, based on the requirements listed in the problem. The student work was then given to a teacher who wrote feedback on the paper. Each statement on this example was written in the form of a question to the student. The teacher was then recorded explaining what she meant by each written comment and what she wanted the student to do with the feedback. Example two was an assignment requiring the student to create a graphic organizer identifying the three branches of government and other specific components necessary in helping determine the topic of a future paper. A different teacher provided written feedback on the work and was also recorded explaining the intent of her feedback.

Participants in the FLG were each given a copy of the student work, which included the teacher feedback. Together, the group discussed their interpretation of the teacher's feedback along with what they thought the teacher wanted the student to do with the feedback on the work. The student discussion was recorded. Following the discussion, a video of the teacher explaining the feedback was shown to the students and then a comparison between teacher intent and student perception was discussed. This discussion was also recorded.

In the teacher video for example one, the teacher indicated that her feedback was

intended to help the student recognize that the answer needed to directly address the criteria in the directions, that she liked the student's visual representation of the problem, but that the work lacked a level of clarity required to demonstrate the similarities and differences between the three juice options. The teacher wanted the student to look at the problem again and figure out how to create a strongly supported and convincing argument for the juice choice.

Most students in the FLG interpreted the teacher's feedback accurately. A sixth-grade boy said, "she wants the images more clearly drawn and explained," while an eighth-grade girl added:

> I think the teacher is trying to get the student to think about what is like the best grouping not just in her opinion, [and] follow what the question is asking because she didn't really explain what the question was asking.

Two students, a fifth grader and a sixth grader, stated they did not understand why the teacher underlined sections of the directions with arrows pointing to specific feedback statements, "I don't really know what he [teacher] means when he says, 'how does your choice satisfy the requirements?'" The fifth grader also commented specifically on the teacher's use of questions to provide feedback; she said, "This is a very sassy teacher." When asked what made the feedback sassy, she explained, "I would have to know like how they were saying this . . . their tone of voice," and the other sixth grader agreed.

While most participants recognized the teacher wanted the student to use the feedback to correct the assignment, three students thought the feedback was only to be used for future work. Three students stated that after watching the teacher video, they still

did not understand certain aspects of the teacher's feedback.

In example two, the teacher stated in the video that the feedback was to help the student recognize that s/he needed to add more detail about the relationship between the legislative branch and how laws were made, that the work indicated a strong understanding of those who currently hold those positions, but that the student needed to add two questions which could then be used to determine the topic of a future paper. The teacher indicated she wanted the student to spend additional time on the current assignment and that peer or teacher collaboration would be encouraged.

Student interpretation of teacher feedback was a match in all cases, except where the teacher wrote, "let's discuss." The teacher indicated a discussion was needed to finalize the topic of the paper, however many students indicated they were not sure what specifically the teacher wanted to discuss. One student equated the phrase "let's discuss" with "there's a problem" and several agreed that such a phrase contained a negative connotation. When the researcher asked, "What would you do if the teacher wrote 'let's discuss' on your work?" a seventh-grade girl strongly interjected, "I would freak out!"

This led to a conversation about talking to teachers about feedback. Some students indicated that they were comfortable talking to teachers about feedback, but many others were uncomfortable engaging in dialogue about feedback. "I would be scared," stated a sixth-grade boy, while an eighth-grade girl said, "I'd be nervous, but I'd go." A sixth-grade girl stated that if a teacher wanted to discuss something with her, she would expect the teacher to initiate the conversation verbally. When questioned why she would only engage if the request to discuss was verbal, she explained she would not

know how to start the conversion; she would not know what question to ask. However, if the teacher wrote the specific question(s) she wanted to discuss on the work, then the student would be less hesitant initiating the conversation about the feedback.

While the feedback on example one was printed, the feedback on example two was written in cursive. Students stated that the cursive handwriting made it difficult to read the feedback, which in turn, impacted their ability to interpret the message. The feedback on example one was printed. When the researcher asked if this made a difference a sixth-grade boy stated, "The handwriting, if it is harder to read, like in cursive, then it might not be as helpful because you have no idea what they are saying. Like me, I couldn't understand what they were saying here." A different sixth grade boy continued, "Teachers have a lot to grade so cursive is faster but if they can they should probably write in print because cursive is hard to read."

The students then engaged in a comparison of the two feedback examples. Most participants found both teachers provided helpful feedback, but several noted that example two, unlike example 1, contained praise feedback and pointed out criteria the student had completed correctly. A sixth-grade boy said he preferred the feedback from example two "if makes me feel better that I at least know some stuff." A sixth-grade girl preferred example two for different reasons:

> The first one said what they did wrong, which is still good feedback, but they didn't say how to fix it . . . the second one, the teacher says what they should do different and how they should change it to be better and they point out the things they don't have to change '[which is] good for future reference.

At the conclusion of this activity, a fifth-grade girl shared that not until now had she ever considered that her interpretation of the feedback she received on assignments could be different than what the teacher had intended, "I was surprised . . . like they're wanting me to do something with it and I'm totally doing something else. My whole life has now been flipped upside down."

FLG Interviews Comparing Feedback Meaning and Follow Up

Student participants were given the option of choosing one authentic assignment from a current class in which the teacher feedback on their work would be discussed with the researcher. The seven students who participated chose feedback from either a math or language arts class. The teacher who provided the authentic feedback was then interviewed to determine if the students' interpretation of the feedback matched the teacher's intent. All seven students' interpretation of the meaning of the feedback matched the teachers' intent except in one case where a partial match occurred. Five of the students' interpretation of what the teacher wanted them to do with the feedback matched the teachers' intent (meaning) while two student interpretations did not match (Table 31). Both examples where the student interpretation of what to do with the feedback (follow up) did not match with the teachers' intent, came from feedback on a language arts assignment. One feedback message was very concise with errors marked and limited written comments while the other message was extensive and written in narrative form.

Table 31

Student Interpretation of Feedback Meaning and Follow Up Against Teacher Intent (Disconnects)

Participants	Student	Teacher
Interpretation of Meaning		
	Sixth grade boy indicated feedback helped him understand what he had mastered on the assignment and what he had not yet mastered.	Teacher The teacher stated that what he wrote on the student's paper was not considered feedback. (Incorrect and correct answers marked with individual symbols, correct answers indicated when incorrect answers were given.) When the researcher asked why the marks, symbols and words were not considered feedback, the teacher stated, "That's corrections."
Interpretation of Follow Up		
	Sixth grade boy stated he would save the feedback and use it to prepare for a future quiz on the same concepts/skills.	The teacher did not intend for the student to save the feedback or use it for future reference. This was the same assignment the teacher did not consider containing any feedback.
	Eighth grade girl stated she would use the recommended website to improve her understanding of the parts of speech.	The teacher intended for the student to use the examples provided to improve her ability to give more detailed explanations when providing quotes as evidence in an essay.

What Middle School Students and Teachers Say About Feedback Practices and Delivery Modes

During the focus group and FLG sessions, participants were asked to provide words or phrases associated with good feedback. Table 32 provides a frequency of responses coded into four categories that compare student responses to teacher responses.

Table 32

What Makes Feedback Good Feedback? Student and Faculty Responses

	Student Responses	Faculty Responses
Helpful/Constructive	38	14
Positive Tone/Motivating	15	6
Clear/Understandable	14	4
Timely/Relevant	5	5

Students stated that helpful feedback meant that it was useful, meaning it could be implemented immediately without needing to follow up with the teacher. Constructive feedback included correct examples, resources for addition support, strategies to employ on similar assignments, and detailed explanations. The lack of detail in the feedback made the students' ability to comprehend the teacher's message difficult. The handwriting of the teacher feedback could also make the feedback messages unclear, as they were difficult to read.

To ascertain a more specific definition of good feedback, students were also asked to provide a list of words they associated with bad feedback. Table 33 provides a frequency of responses coded into four categories. Students provided their own words for this exercise.

Table 33

What Makes Feedback Bad Feedback?

	Student Responses
Unhelpful/Nothing to Build Upon	10
Unclear or Confusing	6
Too General/Not Specific	8
Deconstructive/Not Encouraging	12

Students stated that feedback was unhelpful if it did not provide a way to improve the work. One boy stated unhelpful feedback, "just kinda like left me more behind than I

already was or just like at the same spot." Students wanted the feedback to include strategies for how to improve the work, not just information about what was incorrect about the work. Good feedback and helpful feedback became synonymous terms during the focus group and FLG sessions.

Students in the focus group and FLG sessions, and one student in the survey's open response, stated that determining the clarity of feedback messages included both their ability to comprehend the message as well as the ability to read the teacher's handwriting. In the student focus group, students debated the merits of electronic (typed) versus handwritten feedback, indicating that teacher handwriting can be "sloppy," and "not very legible." One student stated:

> I feel like teachers abbreviate stuff and then you have no idea what they are talking about, and then you feel like you're offending the teacher by asking them to clarify because some teachers take it as an offence if you ask them to clarify what they've written.

Four additional students indicated they had similar experiences where asking for clarity appeared to offend the teacher.

Teachers also identified clarity in feedback messages as important, but the issue of legible handwriting was never considered. Instead, one teacher stated that clarity was achieved when consistent language was used:

> I always try to make sure the language in the assignment and on the rubric and what I'm giving to them [in class] are all the same so they're not saying, 'is this what you mean by a topic sentence' for example.

Two other teachers said that feedback, which addressed student misconceptions directly, provided the most clarity. These two teachers also indicated that even though their intent is to provide clear feedback messages, they recognized that middle school students do not always interpret the messages as intended. For this reason, one teacher included a follow up oral discussion about the electronic [typed] feedback messages in class the next day:

> They're [students] busy, they're over booked so I don't trust that they're fully going over every detail, but at the same time they're the student and I'm the teacher. I shouldn't just grade something and then trust they're going to look through it on their own . . . You have to talk about it.

The other positive aspect of electronic feedback (typed), based on student opinion, was that it was easier to save and locate electronic feedback for future reference, "With Canvas, everything is electronically archived so it's hard to lose something unless you intentionally try to." However, the issue with asking follow-up questions through electronic means about the electronic feedback (typed) was a concern for some of the students. For some it was an issue with timeliness as they would have to wait indefinitely for a response and for others it was an issue with composing the question, "sometimes I'm trying to ask a question and I can't really word it right, so it's a bit hard to reword it in an email for them."

Teachers also indicated that they liked electronic feedback (typed) because it allowed them to provide students with timely information. The faculty did not address using electronic feedback as a looping dialogue, but instead only addressed the electronic mode as the teacher giving and the student receiving.

One student found electronic feedback (typed) to lack an element of personalization. For him, it felt less valuable:

> There would be times where I would just get feedback electronically and I'd just be like, oh, okay, and I'd just discard it, but if I get something on paper, it would mean much more to me . . . I would tend to read it more and it would help me a lot versus just the computer.

Another student stated she preferred electronic feedback (typed), not only because it was easier to read, but also because, "you can get more [feedback] onto the email or Quick Comment then on the paper [assignment] because on paper, there's everything else." This student also noted, that electronic feedback (typed) could be problematic as it:

> Gives the teacher a less than human sense . . . you can't see their reaction and you can't like hear their tone of voice. You can't always figure out if they're angry or if they're proud of you or if they just trying to be constructive.

This was a similar response given by a different student regarding the merits of speaking directly with a teacher as compared to reading handwritten feedback; that experiencing the "emotion in their voice and what they feel" can help with understanding teacher feedback.

Teachers also indicated that providing oral feedback helped to ensure the student was receiving and processing the feedback message correctly. Students could ask clarifying questions, but teachers could also differentiate their feedback based on the student's level of understanding. A World Language teacher said, "I can differentiate. I can get the kids who are ready for higher level stuff more interesting questions and kind

of go off on some tangents," while a math teacher explained that oral feedback for struggling students allowed him to "follow up in that and moment and give them another question and then keep doing it until they can at least get it [correct] in front of me."

In the initial "What makes feedback good?" activity, students provided 15 words about tone and motivation. When asked whether it was better or worse to hear the teacher's emotion when receiving feedback, all respondents said it was better to hear the emotion. One student, when comparing electronic feedback (typed) to meeting directly with a teacher said, "It (face to face feedback) feels more real . . . if the teacher actually says something to you, the student would tend to, in my opinion, act more upon it. It would have a much greater impact on his mind." Another student stated, "It's [typed feedback] much more one sided . . . but when you're talking you can tell everything that's going on."

Students also stated that when teachers talked to the students directly about the feedback, the messages felt more encouraging and motivational. In five separate stories, the students described how welcoming the teachers were, how receptive teachers were to talking about the feedback and how these five students experienced positive emotions both during and after the dialogue, "when you go see them [teachers] eventually, in my experience, you're going to start doing really well, like really well, and that just makes you feel really great."

Another student, who admitted that she did not initiate conversations with her teachers about feedback, stated that she saw the merit in meeting with teachers to discuss the feedback. She said:

> I feel like if you go back to a teacher enough, that you'll start to know how they think so you'll be able to understand their feedback better. So, if there is a teacher you don't really understand, you could start meeting with them and try to see their point of view.

Other students stated that they found initiating conversations with teachers to be "scary," that it made them "nervous," and that they needed "courage" to go talk to a teacher about the feedback. When questioned further, all students, except one, shared that meeting with teachers in the past had been a positive experience, that the teachers were happy to help and that the students gained something from the feedback dialogue. Regardless of these past experiences, middle school students in general stated that initiating conversations with their teachers was difficult.

During the teacher focus group, the researcher shared how middle school students expressed a certain level of fear when initiating conversations with teachers about feedback. Faculty participants were asked what might be contributing to this fear. One teacher stated that the required courage was not in going to see the teacher, but having the courage to be "gone from the social norm." Her example described a situation where the student would prefer to go to recess than stay in and ask a teacher a question about the feedback. Three different teachers stated courage could only come from practicing the skill of talking to teacher about the feedback, "It's hard, of course it's hard. It's hard to do anything sort of for the first time, especially if you're going to be admitting you're not good at something." Two other teachers specifically addressed the students' need for courage and empathized with their feelings of anxiousness. One stated

that she agreed practice would help, but in addition to practice "I also think it is on us [the teachers] to have those conversation until they do feel comfortable." Another teacher agreed that teachers need to first validate the students' feelings because, "even as an adult…it [asking for help] can be an intimidation process." This same teacher went on to reflect on her own experiences as a middle school student:

> I never went for help from any of my teachers in the middle school because I was so terrified, and if you were to ask me what I was terrified about . . . I don't know if I could actually express what I was nervous about.

Another teacher identified that the mindset of a middle school student regarding errors is different than that of adults:

> I think another reason why it requires courage is that it means looking at yourself and saying 'I'm not good enough yet' and teacher add the word 'yet' but students don't. They say 'I'm not good enough,' and coming into someone and saying' I'm not good enough,' that's really hard, so changing that mindset so that it is a growth and not fixed is helpful.

Students in the focus group were asked about their experience with other forms of electronic feedback including audio and video files. Very few students had been exposed to this type of feedback delivery mode. Those who had the experience stated the video and audio files felt more personal and it helped to be able to hear the tone of the teacher's voice when interpreting the feedback. One student commented:

> We weren't talking to the teacher, but it was actually better than just reading something . . . because you could see their faces and you can hear what they're

> saying and when you feel like it's only you, you feel like you can go to that teacher if you need help.

Another student stated, "It [video feedback] made it more reassuring. It made it more valuable" which were similar comments attributed to face to face dialogues with teachers. Being able to retrieve and replay the video was also identified by the students as a positive component of video/audio feedback; however, like with typed electronic feedback, students stated that composing follow up questions or waiting for responses to their questions was troublesome and they preferred the face to face exchange with their teacher.

Teachers in the focus group and on the survey, reported they had minimal experience with using audio or video files to share feedback with their students. Most teachers preferred using a combination of written and oral feedback; written feedback could be saved and referred to later while oral feedback increased the likelihood the students understood the written feedback.

When students shared their experiences with feedback, what made it good or bad and how it made them feel, many reported that without an element of encouragement, whether it be praise or just an explicit acknowledgment of what was correct, even the most useful suggestions for improvement made the students feel bad. "Getting stuff wrong hurts," said one student. While the students could recognize the usefulness of the feedback, the lack of positive messages made the feedback feel less useful:

> I was writing a story . . . and he left me a comment saying on what to do better, but he didn't really say any, like, encouraging things, like what I did well . . .

> because he was telling me what I could do better which was good but at the same time it was bad because . . . he didn't say anything was good.

Students in the FLG indicated that feedback, which only indicated what was wrong with the work, sent the message the teacher thought the student was stupid, "I feel like even if they didn't say you're stupid, I feel like everything they wrote all together . . . that's how you feel after [reading] it."

Student survey responses from the open-ended question also contained statements which indicated that the tone of the feedback could impact the student's reception of the message. One student wrote, "Some teachers don't even put at least some compliments about my work with it, and it makes me feel bad about myself." Five students indicated that teachers should begin the feedback by pointing out what the student did correctly and then identify the errors and areas for improvement, "Tell the good things first so they feel good about their project."

Twelve of the responses from the focus group question, "What makes feedback Bad Feedback?" indicated feedback can be demotivating. One student wrote the word "insult," where four other students used the word "demeaning" when describing negative feedback messages. One boy used both the words demeaning and destructive, "By destructive I mean it can be demeaning. It doesn't help. It can hurt your self-esteem. In fact, bad feedback, in my opinion, is worse than just no feedback at all." In general, students wanted teacher feedback to provide encouragement, and to send the message that they believed in the student, "Make sure the feedback sounds like you are trying to have the student improve." For another student, the message needed to be personal, "Try

to make the feedback more personal. I know some of my teachers say the same thing to everyone and that does not help me further my learning."

Several teachers in the focus group also indicated that weaving positive messages into teacher feedback was good feedback practice. One teacher stated that monitoring a student's mindset as they received feedback was helped to ensure the student was receiving the feedback as intended by the teacher, "If they're acting frustrated from your feedback then it probably wasn't too positive or it wasn't received in the way you intended." Another teacher stated, "there's a whole human side to feedback . . . I'm interested in your growth as a human being. I want you to believe in yourself. I know you can do this. All those sorts of things are part of the feedback."

Table 34

How Does This Feedback Make You Feel? –Student Responses Based on Emotion, Vocabulary and Reasons for the Emotional Response (Positive)

Emotion Type	Positive
Vocabulary Used and Frequency	Good - 8, Relieved - 1
Reasons Given for Emotional Response	
"It explains mostly what I need to know." "It clearly outlines what I did wrong and where I need to fix it." "It has something good and something I can fix." "It made me understand what it does in terms of helping me improve." "I knew I was going to take that part of the quiz again so I could gain more points." "I saw a lot of checkmarks and few like words, I guess, like underlines and stuff where things were wrong." "It's really helpful. It tells me what I need to know to change and get better and then it also isn't completely filled with a bunch of different words. It's just quick statements telling me what I need to change and if I need more information I can go talk to her." "I know she [the teacher] knows where I need to be or where I am and how to improve and get better as the year goes on." This student initially though there were many errors, but then realized it was only one type of error repeated three times.	

To identify student emotional response to specific teacher feedback, the researcher interviewed students from the Feedback Learning Group about a specific piece of authentic work, which included teacher feedback. Student were asked the question, 'How does this feedback make you feel?' Tables 34 through 36 illustrate the different types of student responses.

Table 33

How Does This Feedback Make You Feel? – Student Responses Based on Emotion, Vocabulary and Reasons for the Emotional Response (Positive/Negative/None)

Emotion Type	Positive and Negative
Vocabulary Used and Frequency	"Good but then also bad at the same time." - 1
Reasons Given for Emotional Response	
"Some stuff she said I did really good (read feedback) but then the stuff she said I was developing on, I didn't feel great about that."	
Emotion Type	No Emotion
Vocabulary Used and Frequency	None - 4
Reasons Given for Emotional Response	
Student wanted to state if they found the feedback to be helpful, which was often equated with the word "good."	
Student did not provide an emotion even with prompting, "I mean like it was just a mistake and I could fix it next time by using what um the feedback said."	
Two students said they had no emotional response to the feedback.	

Table 36

How Does This Feedback Make You Feel? –Student Quotes About Feedback Which May be Impacting Emotional Responses

Well, it's not too big.
It's not written in red ink so it kinda looks normal.
I think the less handwriting you have on it matters what is better.
I'm not sure. It depends on what I got. (grade)
She mentioned it like three times.

Teachers in the focus group also indicated that while the purpose of feedback is to identify errors to help student make changes and improve, feedback should also illuminate what the student is doing correctly. On teacher stated, "I like to pull out what about that answer was strong," while another explained, "When something is working, of course you want to point it out and say, 'don't change that . . . that's really working well, but we need to get this stuff that's not working, working.'" One teacher expressed that she struggled giving feedback to students who were mastering the learning standard, "I recognize I don't have great language to use to give feedback to kids who are getting it all right . . . besides, 'great job where again you mastered content at this level' . . . it's [feedback] accurate and true but isn't actionable."

While both students and teachers indicated that timeliness of the feedback to be important, teachers expounded on this topic much more than the students. Many shared how providing feedback required copious amounts of time, the English teachers were the most vocal about this aspect of feedback. However, all faculty members in the focus group agreed that for feedback to be effective it was crucial that the feedback be timely and relevant, "if you don't give feedback soon after you see an improper performance then it's wasted. The student won't get it or it won't be connected back to their actual actions."

Teachers often expressed that they "hoped" their students were using the feedback provided, so in the focus group the researched asked, "How do you know if your students are engaging with your feedback?" None of the teachers tracked whether students were reading/listening to or using the feedback, but rather assumed the feedback was being used if students demonstrated an increase in performance either on formative or summative assignments. For students who did not show improvement or did not engage in further dialogue about the feedback, teachers hypothesized that students either chose not to engage with the feedback due to lack of effort on the part of the student or because the student felt embarrassed and did not want to draw attention to themselves and their errors. Another hypothesis was that perhaps students did not think they had to do anything with the feedback.

Three teachers stated that students who wanted to talk about the feedback or asked follow-up questions to check their understanding, demonstrated they were engaging with the feedback and showed improvement on future assignments, "when I give feedback, the kid that wants to talk about it or argue about it usually does better on the next assessment because they are processing it [feedback] with you." Two teachers stated that motivated or academically stronger students craved feedback much more than average students while another teacher countered the argument and stated:

> I think there is another element there where students are craving feedback because they don't know what an exemplar looks like . . . so if you say please improve your topic sentence, they're like I did my best the first time. I have no idea how to make it better . . . Please help me get a better understanding of what that might

look like.

Teachers in the focus group agreed students need to be taught how to ask for specific feedback but that is it difficult getting students at this stage of development "to understand the difference between asking for feedback and . . . taking the risk and doing the work and then asking for feedback." Three teachers shared specific examples of how they teach students how to ask for feedback and to give feedback within their classes. The Fine Arts teachers taught students how to give each other feedback in order to also learn how to receive, interpret and use feedback. A science teacher modeled types of feedback questions students should ask when discussing student work.

An open-ended question in the survey asked teachers, "If you could give one recommendation to your students about what to do with the feedback they receive on their work, what would it be?" Table 37 illustrated the five types of response given by the teachers.

Table 34

Teacher Recommendations to Students on What to do with Feedback

Type of Response	Frequency
Read/Listen to the feedback	3
Engage in dialogue about the feedback	10 With parents 1 With others 1 With teacher 8
Apply feedback to current work	7
Apply feedback to future work	9
Reflect on feedback (identify misconceptions, use as a measurement of mastery)	14

Only three teachers specifically addressed students reading or listening to the feedback which would indicate teachers at Independence Academy, for the most part, believe the middle school students do accept and attempt to comprehend the teacher feedback given to them on work. The remaining teacher comments addressed what students should do with the feedback after they acknowledge the messages. Fourteen teachers identified a need for students to reflect on the feedback messages. Middle school students should "analyze their mistake(s) and see what they did wrong," or "Take time to think and reflect about the feedback, write in their own words what the feedback is saying, and then create a very short list of objectives/way to improve from the feedback.'" Other teachers indicated reflection should not only consider errors but also the correct aspects of the work, "Feedback is a tool because it helps address your misconceptions or it reinforces what you already know," and that students should "Think about what worked and what did not and why."

Engaging in dialogue about the feedback was mentioned 10 times, "engage with others about your work." stated one teacher. While this statement did not indicate who "others" where, another teacher suggested student should "talk to their parents about the feedback as well." The remaining eight recommendations stated middle school students should talk to the teacher who provided the feedback and ask questions to clarify the meaning of the messages. Most responses were general like, "ask any follow up questions," while other comments specified that if after reading the teacher feedback, if the student did not understand his/her mistake, then "that's a sign that we need to meet individually." Another teacher stressed the need for students to digest the feedback before

setting up a meeting with the teacher:

> Set up a time to meet with your teacher AFTER reviewing any written feedback, looking over the rubric, as well as after reading over your own work. Come to a meeting informed and with an agenda on how and where you want to improve.

All responses regarding dialogue stress the need for collaboration when working through feedback.

Sixteen teacher responses indicated students should apply the feedback to their work. Seven of those comments stated the feedback should be applied directly to the current assignment, "Use it to fix the work immediately," while nine other comments indicated that feedback could be used for future work, "Use the feedback on their work to help guide their work on future assignments."

Research Question 2: From the student's perspective, what are the best methods/approaches for gaining useful teacher feedback?

What Middle School Students Say About Teacher Feedback

In the survey open-ended response section, 13 students indicated that understanding the teacher's feedback was a major concern. One student wrote, "Sometimes I don't understand what my teacher is trying to tell me when they give me feedback." Another student stated, "Sometimes the guidelines and feedback are slightly vague and I don't know how I'm supposed to fix my error." When middle school students were asked how to make feedback message clear, suggestions identified the following characteristics (Table 38).

Table 35

How Teachers Can Make Feedback Clear for Students Based on Student Responses

Characteristic	Frequency of Response
Be specific. Clearly identify error.	9
Thoroughly explain what went wrong and how to fix the work; give details.	19
Give examples/exemplars of correct work.	6
Give general strategies or suggestions for improvement.	2

Student responses indicated a deep desire to want to understand the teacher's feedback so they could use it and lean from it, but not all students felt that teachers recognized the need to ensure the messages were clear. One student, when asked what s/he recommended the teachers understand about feedback, wrote, "When giving feedback could you make sure the student your [sic] giving feedback to can understand it." Another student said, "make sure the student they are talking to understands well enough to do it on their own." Other student response indicated a sense that teachers assume feedback messages are clear once they are given without checking to see if the messages was received by the student, "try to help the student understand, not just saying it," while another student suggested teachers need to be more proactive about checking student reception of feedback messages, "check up on us more and not just wait for us to have a question."

Middle school student stories about their experiences with good feedback always included a clearly conveyed message, "it was really easy to understand what he wanted me to change and it was really easy to read." Strategies or suggestions for improving the work were also included, "she showed me how I could make my writing better by

changing some of the words," as well as elements of encouragement and motivation. On student concluded, "it was very elaborate. it was encouraging . . . it was very kind, it wasn't that advanced, he explained it really well but it was at my level so I could understand what he actually meant."

In the conversations with students about feedback, both in the focus group and in the FLG, students wanted to discuss the connection between grades or scores (percentages, scales, etc.) Most of students identified grades/scores as a separate element and did not interpret grades/scores as types of feedback. One student summarized:

> I don't really consider grades feedback. Good feedback will tell you what you did wrong. It will also state what you did well. Good feedback has to be informative. A grade just sits there and says, 'you have a 90% in x class.' You might not actually understand something so even if your grade is high and you don't understand something it has no kind of reflection of where you are in that class. It also doesn't really tell you what you did wrong, what you did right, or how you can improve. The grade didn't reflect how well I knew the material.

However, some students interpreted grades or scores as a type of feedback which in turn influenced their decision to interact with other types of feedback on assignments. One sixth-grade boy stated that he would check his grade first. If the score was good, then he would explore the written feedback, but if the score was not good, he would "not look at it as much."

Middle School Students Recommendations for Teachers Concerning Feedback

When asked, "What recommendations would you give your teachers about

feedback?" (open-ended survey question) eight student respondents indicated that no changes needed to be made, "it helps a lot and they should keep giving me feedback" while one stated s/he would, "like to have a lot of feedback instead of having it on only a few assignments."

For 10 middle school students, handwritten feedback was the preferred mode. Students used phrases like:

> It [handwritten feedback] means more to me than just typing an email," "Some might argue that you could do the same thing electronically, but writing it down on paper means much more emotionally to the student . . . handwritten feedback provides emotional support and…has a large positive impact.

Other students indicated that annotated student work with handwritten feedback messages made the information clear and easier to understand.

Eight middle school students specifically stated they wanted their teachers to use electronic feedback (email, Canvas comments, quick comments, audio or video files). Reasons for preferring this mode were limited, but one student did state, "I like when I get an email that there is something to be changed on my work that way I can come see them [the teacher] during Flex if needed." Those students who did not like electronic feedback indicated that feedback, which was not annotated directly on the student work, made the feedback message difficult to understand. One specific type of electronic feedback mode known as the "Quick Comment" was directly referred to by seven students, five of whom stated that Quick comment were disliked by middle school students as they were automatically perceived as negative.

In the survey open ended question, 19 students specifically addressed feedback provided orally by the teacher in a face-to-face setting. Ten of those responses indicated that talking with a teacher about the feedback helped ensure the student understood the feedback, six respondents indicated students wanted to be able to ask their teachers questions in real time to ensure they understood the feedback and how to use the feedback. Two students stated that oral feedback helped the teacher understand if the message was perceived as intended, "One recommendation would be to talk to the student about the comments written to make sure the student understands."

Very few students in the focus group and FLG indicated they had experience with video or audio feedback, which is another form or oral feedback, however those who did comment on this mode of feedback stated that they liked video feedback because it provided a "visual representation of how to do something" which could be viewed more than more once. However, another student said:

> I would recommend only doing an audio and not a video recording because if you do a video recording, there will be two pieces of work you would have to follow. doing an audio lets the student look at this paper and follow the audio.

In the survey open response section, one student suggested teachers ask students their preference for feedback delivery, "Ask the student themself [sic] about what is the most comfortable and effective way to give feedback…"

Research Question 3: How will lessons on interpreting and using teacher feedback through an independent study group (Feedback Learning Group - FLG) influence a student's ability to better interpret and use teacher feedback?

FLG Activity Descriptions and Data Points

Based on reoccurring themes from the survey responses, both focus groups, and the FLG pre-questionnaires, lessons were constructed to address both student and faculty concerns around middle school students understanding and use of teacher feedback. Table 39 illustrates the objectives of each activity and the major takeaways for students who participated in the Feedback Learning Group sessions.

Table 39

Feedback Learning Group Activities, Objectives and Enduring Understandings

Title of Activity	Activity Objective	Results
Be the Teacher	Define what elements make feedback useful so students can become actively engaged with the feedback	Feedback should: ● include identification of correct work ● identify student's effort ● provide correct models and additional resources ● have enough information the student can move forward independently when possible Additional conclusions: ● Not all teacher feedback is helpful to a student. ● Student will have to initiate conversations with teachers about the feedback they receive.
Seeing Feedback in a Positive Way	See how a growth mindset can change how a student views teacher feedback	Emotions identified around receiving feedback before activity: ● regret ● frustration ● feeling bad ● crushed Emotions/suggestions for how to receive/interact with feedback after activity: ● see feedback as helpful ● use feedback as a way to start a conversation with a teacher ● see feedback as a way to figure out how to do something better rather than a judgement about the person

Continued

Table 39. Continued

Do we Interpret Feedback the Same Way?	Recognize that a student's interpretation the feedback may not match the teacher's intent	● Cursive handwriting is difficult for students to read. ● Video feedback provides clearer messages than written feedback. ● Students did not consider that their interpretation of the feedback would be different than what the teacher intended. ● Talking to others (parents, peers or the teacher) can help clarify the feedback message.
How to Initiate Feedback Dialogues with Teachers	How to initiate feedback dialogue with teachers	● Greet the teacher, be friendly and ask if they can help you. ● Have a specific purpose/question for the conversation. ● Bring your work with you as a reference

In Activity 1, "Be the Teacher," participants were given student work and then asked to provide feedback as if they were the teacher. The discussions that followed identified several elements which made feedback helpful, termed "good feedback" and elements which made the feedback not helpful "bad feedback." Similar responses were recorded during the focus group sessions, but as one student in the FLG stated, feedback should "say what you need to fix, certain things you should work on [and] have a certain goal for getting better." It was noted that when students discussed "bad feedback," many used the word stupid, either by writing the word as part of the feedback or by explaining that this was an emotion they felt when they received "bad feedback" from their teachers, "if it's written in a negative way, you feel like it basically says you're stupid."

Activity 2 included several videos explaining growth mindset was and how to see feedback as a positive way to make improvement upon one's work. Before watching the videos, students expressed many negative feelings about the feedback they received from their teachers; but after the videos, there was a shift in how the students interpreted

feedback messages. Several students adjusted away from interpreting the feedback as personal in nature and began to connect the feedback with the work produced, "I feel that a growth mindset [person] would probably use that feedback and maybe like talk with their teacher with something like 'How can I do it?'" Another student said, "the growth mindset makes you want to do better and keep yourself going so you can achieve."

"Do we Interpret Feedback the Same Way?" Activity 3, which was referenced in Research Question 1, illustrated to students that their interpretation of the teacher feedback messages does not always match what the teacher had intended. In some cases, the feedback messages were not clear due to the handwriting, but for other students, watching the video of the teachers explaining their feedback surprised them. For one student, this was defining moment for her as she never realized until that moment her interpretation may be different from what the teacher had intended.

In one of the teacher videos, example two, the teacher indicated the student could work with a peer to correct the assignment, however this was not included in the written feedback and many participants were surprised to discover peer input was allowed. Some participants engaged in a discussion about peer feedback. A fifth grader stated explicitly that her parents told her she was not to ask for peer feedback and that she could only ask a teacher because students could give her the wrong information. This is the same student who earlier in the session said, "I'm not usually the one who wants to go up and ask those kind of questions," referring to questions she had about what the teacher meant by the feedback. However, a sixth-grade boy said he was glad the teacher allowed the students to engage in peer dialogue about the assignment, "sometimes your friend, they know like

how you can learn and they know how to explain it . . . instead of teachers giving you, like, some of these long explanations that you don't really understand." He went on to provide her with script to use, stating she should first find a student who did better on the assignment then "walk up there and be like, hey do you understand the government branches? and if they say yes, have them explain it to you."

Two other students indicated they would like to compare the feedback they received with another student's feedback from the same assignment. By combining the both sets of feedback students could learn from each other's mistakes as well as use their knowledge to help another peer who was struggling. The girls liked the idea of reciprocity, "they could help me and if they had a problem in another area . . . I could help them."

Activity 4 provided a safe place for students to practice "How to Initiate Feedback Dialogues with Teachers." Prior to the FLG lessons, students in the focus group had indicated that initiating conversations with teachers about their feedback was difficult. It was "scary," that it made them "nervous," and that they needed "courage" to go talk to a teacher about the feedback. To work through these feelings, participants in the FLG completed an activity where they engaged in a role-play scenario around initiating a dialogue with a teacher about the feedback they had received on an assignment. One student played the role of the teacher while another played the role of the student. Graded work samples were provided. Those participants not involved in the skit watched and then critiqued the interaction. Several role-play scenarios were enacted and at the conclusion of the activity, participants summarize aspects of the approach they found to

helpful and productive.

Participants indicated that having a specific purpose for the meeting was crucial to minimizing the awkwardness many middle school students expressed when asked how they felt about initiating conversations with a teacher about feedback. Two female participants reported they have never initiated a conversation with a teacher during FLEX. Participants were then asked how to move past this feel of awkwardness about asking teachers for help and two students stated it depended on how comfortable they were with the teacher. The level of comfort depended on the amount of time they knew the teacher. Another student indicated that it gets easier to initiate a conversation with a teacher the more you do it, but that it is always hardest at the beginning of the year because, "You're not just new to the teacher, you're also new to the grade, the work, everything in general." It was also noted that it became increasingly difficult to ask a teacher for help when the student did not understand the teacher's help the previous time. At the end of the activity, one eighth-grade girl said that she was going to ask the teacher to give her a question to answer about the topic so that the teacher could then use the student's response to check for understanding.

Having a planned set of specific questions with which to initiate the conversation ensured the student made the best use of her time with the teacher. "She was really to the point so that way the teacher understood what she was there for and you could quickly like just get to what exactly she needs to do," said an eighth-grade boy. That same participant also said, "Addressing the teacher by their name and saying 'Hi,'" showed respect and was also another way to help initiate the conversation.

Participants were asked how teachers could make it easier for students to initiate conversations with them about the feedback they received on an assignment. In the FLG, a sixth-grade boy stated he preferred a teacher to go see a teacher during FLEX only if the teacher wrote "come in and see me at FLEX" as this was the only way he knew the teacher really wanted him to understand how to do the work.

Additional Insights During FLG Sessions

During all the FLG discussion, students initiated conversations about grades or scores when discussing feedback. For some, feedback and grades were interchangeable. In the FLG, during Lesson 3, one sixth grade boy did not interpret the written comments from the teacher as feedback because a grade was not included with the work. Other students separated the grade from the feedback and interpreted them as two distinct pieces of information. A different sixth grade boy stated:

> I actually think that it's good that she [the teacher] didn't grade it. The teacher probably wanted the student to look at the feedback so the teacher put the grade somewhere else so the student could look later, after he or she looked at the feedback.

"Some people, when they get a grade on like homework or a test, they don't focus on the feedback," said a sixth-grade girl.

In Lesson Four, a seventh-grade girl told the participants that she always reads the feedback from her teacher in reverse order, staring at the end of the assignment and working her way to the front so that she focused on the feedback first and then looks at the grade. "That's a good strategy," said a sixth-grade boy, "If you start on the top you

focus on the grade but it you start from the bottom you . . . you can focus and actually process the feedback they're saying and not think about the grade you got." The other participants in that activity agreed and stated that some of their teacher put the grade at the end of the assignment or not on the paper at all (the grade is recorded on Canvas, which students can access electronically) and that this method was preferred.

Changes in Students' Approach with Teacher Feedback Post FLG Sessions

After the final FLG lesson, participants completed questionnaires and interviews about feedback. Tables 40 and 41 include a comparison of written responses from pre- and post-questionnaires between students and teacher including follow up interviews with both to ascertain if students who participated in the FLG sessions demonstrated any changes in their behaviors concerning their use of teacher feedback and if so, in what ways. Clear signs of improvement (Table 40) and limited signs of improvement (Table 41) were recorded following the interviews.

Table 40

Clear Signs of Improvement Following Participation in Feedback Learning Group

Student Code	Teachers' Perspectives	Student's Goal	Student Identified Continued Issues Going Forward
5G1	Initially, the student was not using feedback, lacked confidence and did not see teachers as being on her side. Now she "incorporate[s] more of my feedback into her work…[she is] more confident about asking for help and I think she realizes how helpful it can be."	Wants to have a growth mindset, be positive, and go in for extra help.	She does not understand teacher feedback most of the time and she does not feel comfortable approaching teachers.

Continued

Table 40. Continued

5B2	Student is showing improvement with being open to receiving and using feedback and his attitude towards feedback has improved. He needs continued work on asking for help and seeing teachers as allies.	To ask teachers for clarity when given feedback that he doesn't understand. To see feedback as a way to help improve not just as a comment on his work (which he interprets as bad).	None
5B3	Student demonstrates understanding of feedback and is incorporating feedback into his work. Teacher would like to see him be comfortable asking for feedback sooner.	None	None
6B2	Student is coming in more and asking for help or alternative work to practice for improvement. Initially, he seemed to use feedback well but was not confident, nor did ask for help. He is now "much more engaged and willing to talk than he was before." He has moved from never to rarely coming in for extra help and he does raise his hand more in class. "Seems happier in class."	Start asking teachers how to improve.	In three separate places in his questionnaire he wrote that seeing teachers was "scary" and "terrifying." "I try to avoid approaching teachers."
6B3	Wanted to see the student less anxious about feedback and she has seen improvement. He is more "aware of the patterns of his errors" but still needs to work on coming for extra help more.	When going in for extra help, greet teacher to establish a rapport and bring the work to the extra help session to use as a reference when asking questions.	Still finds asking for help intimidating, "It is scary because they might not want to help me." Feedback " makes me feel like I can't do something [and] "sometimes I think they are criticizing me."

Continued

Table 40. Continued

6B4	Rather than seeing feedback as "transactional" or as his "fate," this student now sees feedback as a way to help improve his understanding. He is more confident, uses feedback to ask better questions, to make connections to other concepts, and to provide his own feedback to peers.	Asking for more feedback	Comfort level with approaching teachers depends on the teacher.
7G1	Initially appeared resistant to feedback, saw it as personal criticism. The student is now showing improvement, "more willing to seek feedback . . . asking question in class and seeking guidance when she doesn't' understand. She very easily takes feedback and applies it to her work."	None	Feedback can make her "sink into her chair" be confusing or unhelpful. Says she's okay with asking for help but sometimes feels like "my teacher is judging me every single second."
7G2	Initially, the teacher stated, "Mostly I get the feeling that she wants the feedback interaction with the teacher to be over as soon as possible." This student is now advocating for self, initiating and going in for extra help and trying to establish positive teacher/student relationships. She "never admitted that she didn't know how to do something before; now she will admit that she has confusion about a topic or problem."	Go talk to teacher if you need help understanding the feedback or how to do the work. "They [teachers] are not scary monsters that live in their little dens of classrooms trying to eat papers."	Does not like asking for help or clarification. Identifies teachers as being "scary [and] mean."
8B1	Student is engaged. He "actively seeks out feedback now and incorporates it into his work." He asks specific questions for clarity. He no longer appears to "just be going through the motions." He discusses feedback with peers. Teachers have noted the change in all of his classes.	Talk to teachers more, use feedback to make adjustments to approach so he can understand and use the feedback on future work.	None

Continued

Table 40. Continued

8G2	Initially, this student was having difficulty making sense of feedback, "I think she leaves the conversation still confused and doesn't ask enough clarifying question to make sense of the topic." Now, all but one of her teachers report "a big difference in her approach to feedback." She is using feedback to adjust the work. She asks more informed questions, is less defensive and more confident. Her self-talk is more positive and she engages in feedback dialogues with peers. She is meeting with teachers more often for extra help.	Not just going through the motions, make sure she understands. Using teachers to test her understanding in extra help sessions. Identified that she is going in to see teachers and actually using the feedback to "improve or edit my work" was her new approach.	None

Table 36

Limited Signs of Improvement Following Participation in Feedback Learning Group

Student Code	Teachers' Perspectives	Student's Perspective
5G2	Student is not using feedback and still rarely asks for help "She seems disappointed when she doesn't do well, but doesn't implement the changes needed to be successful the next time around."	Student recognized that her interpretation of feedback may not match the intent of the teacher, "I'm going to go to the teachers more often now cause it's a totally different thing usually than what they want you to do than what we think." She saw feedback as a way to improve her grade and as a way to become a better learner. She stated she was not afraid to approach teachers and that she had positive success with such conversations in the past. When teachers give her feedback, "sometimes they can put it in a way that can hurt your feelings."

Continued

Table 40. Continued

5B1	This student has started to ask the teachers questions during class. The teachers report that the real issue is that this student does not complete the work on time or at all, so feedback, when given, cannot be used (too late). It was hard to measure his use of feedback and hard to measure his frequency for initiating feedback dialogues because he is often required to go to extra help sessions just to complete the initial work.	Likes feedback because it helps him understands what he did wrong and so he can fix/improve his work. He likes going to the teacher for clarification, "I feel good about it because I actually can understand what we are doing."
6G1	This student is still not coming in for help. She continues have issues decoding the feedback. When applying feedback "she merely corrects or adjusts simple, surface issues" rather than applying it globally to her work.	Student states will review feedback with peers to compare and learn from each other's work. She feels "pretty good" about approaching teachers because she will be able to understand something better, however feedback can make her feel stressed and sad.
6B1	Student demonstrates no changes in behavior. He continues to be independent, use of feedback is "hit or miss . . . I'm not sure I make much of an impact on his approaches to learning. He does his own thing."	Student says he will use feedback for future work however he still doesn't see the need to go talk to teachers "I think I can handle it." When reading feedback, student wrote, "I get nervous."
6G2	Teachers report that making a personal connection with the student continues to be difficult. the student has a negative affect and does not engage in dialogue inside or outside of classroom with the teachers.	She will use feedback for future work, she is trying to see the feedback message from the perspective of teacher. States she does not like asking for help.
6B5	Student continues to seek out copious amounts of clarification feedback but does not apply it to the work. Teachers sense he asks for help because he is supposed to rather than in a genuine way to "reflect on what areas are challenging for him and pinpoint in what areas he needs help, in order to seek more meaningful feedback."	Student states he will ask teachers to rephrase so he can understand the feedback. He states not all feedback is worded well/clearly. His strategy to remedy this issue is to approach the teacher, "I'm going to go up to the teacher and kinda like help them rephrase it so I can get a better understanding and I could use what they taught me next time line in another future test."

Summary

The researcher collected data from over 100 middle school students and 30 middle school teachers from Independence Academy who agreed to participate in various aspects of the research project including surveys, focus groups, questionnaires and interview. All data collected was used to investigate middle school students' perception of teacher feedback and to determine when student perceptions aligned with teacher intent. The Feedback Learning Group data was used to investigate students' approaches to using teacher feedback to determine if the lessons would improve academic performance. Both quantitative and qualitative data indicated an inconsistency between middle school students' perception of teacher feedback and teacher intent. The results of the statistical analysis in concert with the emerging themes that developed out of the qualitative analysis is discussed in Chapter Five. Chapter Five includes a triangulation of data, along with the researcher's recommendation for future research in the area of feedback practices at the middle school level.

Chapter Five: Discussion and Reflection

Overview

Research into feedback practice had been robust, as feedback was shown to impact student learning both positively and negatively (Hattie, 2012; Kluger & DeNisi, 1996). Research attempted to identify the gold standard for feedback elements, including when to give the feedback, what messages to send, in what form, and at what time and frequency. Evidence suggested that one standard could not be applied to all situations or all people with consistent results (Wiliam & Black, 1998).

Research into student perceptions of teacher feedback also produced variable results, based on the personal nature of feedback. Most studies into student perception included older students (Evans, 2013) and very few studies investigated middle school students' perceptions of feedback. As the adolescent brain is still developing, students at this age may not process information the same way adults process information (Jensen & Ellis Nutt, 2015; Sebastian et al., 2008), therefore results of studies based on more mature learners may be missing nuances particular to the developmental level of middle school learners.

The purpose of this study was to investigate middle school students' perceptions of feedback and to compare those perceptions with the intent of middle school teachers, to identify whether correlations, if any, existed. A mixed methods approach was employed to provide both quantitative and qualitative data points; the combined analysis of each intended to provide a fuller picture of the impact of various feedback elements at the adolescent level.

Participants of this study included both middle school teachers and students in grades 5 through 8 from an independent school located in a large metropolitan, Midwestern city. Primary data were acquired using surveys, focus groups, questionnaires, and interviews. Secondary data, in the form of student trimester grades, were acquired from the registrar of the study school. The collection of both sets of data allowed the researcher to make conclusions about the extent to which middle school students and teachers perceived feedback elements in the same way and in which ways the perceptions did not match. Based on the findings, the researcher will make recommendations to the study school and recommendations for future educational research. For this analysis, the following hypotheses and research questions were considered:

Hypotheses and Research Questions:

Hypothesis 1: There will be a difference between teacher feedback intent and middle school student perception of teacher feedback intent.

Hypothesis 2: There will be a difference between teacher perception of feedback effectiveness and student perception of feedback effectiveness.

Hypothesis 3: There will be a difference between teacher preference and middle school students' preferences regarding feedback delivery systems.

Hypothesis 4: There will be a difference between teacher intended use of feedback on student work and how middle school students use the feedback.

Hypothesis 5: There will be a difference in middle school academic performance as a result of participating in 6-8 sessions of Feedback Learning Groups.

Research Question 1: What are middle school students' perceptions of teacher

feedback; teacher perceptions of the same feedback; and the similarity/difference between the two?

Research Question 2: From the student's perspective, what are the best methods/approaches for gaining useful teacher feedback?

Research Question 3: How will lessons on interpreting and using teacher feedback through an independent study group (Feedback Learning Group - FLG) influence a student's ability to better interpret and use teacher feedback?

Interpretation of Results

The quantitative data, acquired through survey responses and student grades, were analyzed using several statistical tests, the results of which were then combined with the qualitative data obtained from focus groups, questionnaires, and interviews. The data from the quantitative analysis rejected Null Hypotheses 1, 2, and 4, and failed to reject Null Hypotheses 3 through 5. Therefore, Hypotheses 1, 2, and 4 were supported and Hypotheses 3 and 5 were not supported. The data from the qualitative analysis provided the researcher with evidence to answer the three Research Questions.

Hypothesis 1 sought to identify a relationship between student and teacher preferences for the type of feedback which best conveyed the intent of the teacher's message on student work. A Spearman Rank Correlation Coefficient was used, the results of which indicated there was no relationship between the ranking for each sample population. However, students and teachers agreed that providing students with formative feedback while they were working on an assignment was the best way for students to understand how their work compared to the goal of the assignment. Both populations also

ranked letter grades/percentages and completed rubrics as the least helpful way to convey how a student's work compared to the goal of the assignment.

Student responses also indicated a strong desire for information feedback, which identified what students were doing well on an assignment (Rank = 3 out of 8) and not just information about the errors or items which needed improvement. Teachers did not rank this type of feedback as high as students, which indicated a disconnect between what students found helpful regarding feedback and what teachers considered helpful for middle school students. This type of praise feedback, and middle school students' desire for it, was also observed during the Feedback Learning Group activities. When comparing two different feedback models, students indicated they preferred feedback to include some type of praise, as it made them feel better about having other components that were incorrect or needed additional work. It is important to reiterate the difference between personal praise and process praise, as defined by Dweck (2015). For the middle school students in this study, praise about correct elements of the work (process praise) was what was desired, rather than praise about the student.

Teachers ranked the use of exemplars much higher than students. While teachers ranked exemplars in the top three (tied for third), the students ranked exemplars at the bottom (Rank = 8). This indicated another major disconnect between the populations and offered additional evidence that middle school students and teachers did not view feedback in the same way.

Hypothesis 3 also attempted to identify a relationship between student and teacher rank order preferences for different feedback delivery modes. The analysis of this data

indicated there was a relationship between the two sample populations. The results of the Spearman Rank Correlations Coefficient test for Hypothesis 3 showed that both students and teachers preferred feedback be given through handwritten comments directly on the work or through face-to-face communication.

In discussions with students and teachers, both populations addressed the importance of message clarity when providing feedback to students. For students, clarity included the ability to read the message, as well as the ability to comprehend the message. While handwritten comments were preferred by both populations, students expressed the desire for those messages to be printed and not written in cursive. Middle school students also requested teachers to use less symbols and abbreviations in their feedback, as these could be misunderstood or not understood at all by the students. While no teachers in the study addressed the legibility of handwritten comments, a few addressed the need to follow up with students after providing comments to ensure the students received the message, as intended. Students also stated that they wanted their teachers to check in with them more often to make sure that the feedback message was received as intended. This corresponds with the results of Hypothesis 1 where students ranked formative feedback checks as the number one way to ensure middle school students understood how their work compared to the goal of the assignment.

Many students indicated that initiating a follow up conversation with a teacher, based on any type of feedback, was difficult and intimidating. The feedback itself produced a variety of emotions for middle school students and then to ask them to initiate a conversation with the teacher about the feedback, especially when they did not

understand the feedback message due to legibility or comprehension issues, produced even stronger emotions.

Emotions were a very big part of the feedback process for middle school students; not just their emotions, but their interpretation of their teachers' emotions as well. While students stated that feedback messages felt more encouraging and motivational when teachers spoke directly to them, being able to experience a teacher's emotions when receiving feedback was also powerful for middle school students. When they could not experience the emotion through body language and voice inflection, they were left wondering or projecting emotions into the feedback that may or may not have been an accurate representation of how the teacher was feeling. Oral feedback helped eliminate some of the murkiness around what the teacher may have been feeling about the students' work and the students themselves. For teachers, oral feedback was about differentiation and following up with misconceptions in the moment, but none expressed an acknowledgment that students were concerned about the teachers' emotions.

Students identified several positive strengths of electronic (typed) feedback, including that this type of feedback was easy to save, locate later, and read. Teachers stated that electronic (typed) feedback increased the timelines of feedback; however, for both populations this mode of feedback delivery ranked 3 out of 5. It was noted by students that electronic (typed) feedback felt less personal and less human, illustrating again the important role emotion plays in middle school students' perceptions of feedback.

Both populations ranked video or audio feedback as their least favorite; however,

based on focus group data, the researcher discovered that both populations had minimum exposure to this type of feedback delivery mode, which may have influenced the ranking process. Video and audio feedback was a relatively new delivery method, as compared to handwritten comments or personal conversations.

In the FLG activities, once students watched the teacher explaining her feedback on the video, students discovered that their interpretation of the teacher's written feedback did not always match. Students were shocked at this discovery. For some students, this was the first time they had considered that the intent of the teacher's feedback message may not match what the students perceived. Studies have shown that this disconnect between teacher intent and student perception happens often (Károly, 2015; Weaver, 2006; Zhan, 2016).

Hypothesis 2 was an investigation into middle school students' perceptions of feedback effectiveness. Data were analyzed using a two-sample *t*-test for difference of means for survey questions, which compared student and teacher responses. For questions only posed to one sample population or the other, a one-sample *t*-test of means was used.

As feedback is personal in nature, the individual interpretations and impact of feedback messages could vary. Research has shown that a student's culture experiences (Hammond, 2015; Markus & Kitayama, 1991), gender (Hammond, 2015), age/developmental level (Jensen & Ellis Nutt, 2015; Sebastian et al., 2008), and self-esteem (Tian & Lowe, 2013) can all influence how a student perceived feedback messages. For this reason, additional two-sample *t*-tests for difference in means were run

using specific student sub-populations, based on student self-reported demographics, to determine if there was any statistical evidence to conclude a result different from the aggregate student population. Results for each question varied.

Five survey questions compared student and teacher responses to statements about feedback effectiveness. Data from three of the five results indicated a rejection of the null hypothesis, which would allow the researcher to conclude there was a difference between middle school students' and teachers' perceptions of feedback effectiveness. However, the results of these three tests indicated higher student ratings than teacher ratings for (2a) student agreement of teacher feedback, (2d) students being inspired to keep working hard from teacher feedback, and (2e) students find teacher feedback to be helpful.

Tests were run again for these three questions using sample populations based on student demographics. Not all subsequent tests based on student demographics produced the same result as the aggregate data. The most interesting of which was the test run using data only from students New to Independence Academy. The responses from students new to the school where not higher than the teachers' responses. By pulling out this subset of students, data indicated that students who had been enrolled at Independence Academy at least one-year valued the feedback they received from the teachers at that institution at a much higher rate than students who had not experienced feedback messages from teachers at other institutions.

Another interesting result was discovered when the responses of students who identified as not being part of the dominate culture of the study school were compared to the teachers' responses. All 44 student participants surveyed marked the neutral response

of 3 on the Likert scale for the question 'When a teacher gives me feedback, I agree with what s/he says about my work.' Previous studies showed that students of the non-dominant culture would often define the feedback they received as untrustworthy and lacking in value, based on experiences which left them feeling marginalized (Cohen & Steele, 2002; Hammond, 2015). While the responses of this population of students were not negative, the fact that all 44 students provided a neutral response indicated additional research was warranted.

For the two questions where the aggregate students' responses were not statistically different from the teachers' responses, additional test results using sample populations based on student demographics did produce higher student responses. Seventh grade student responses were higher than teacher responses for the statement, 'I like it when my teacher gives me feedback about my work,' and sixth grade students' responses were higher for the statement, "The feedback I get from my teachers makes me feel good about my learning." The seventh-grade response was worth noting. At Independence Academy, the seventh-grade was a major enrollment entry point and the class typically doubled from 70 to 140 students. Poulos and Mahony (2008) found timely feedback provided emotional support and facilitated students' integration into a new school, which may be why the seventh-grade responses were higher than the responses from the teachers and other student populations.

A final test was run based on student responses to the statement, 'The feedback I get from my teachers makes me feel good about myself.' Previous studies investigated the relationship between feedback and self-esteem (Varlander, 2008), and it was

interesting to find the average response from students at Independence Academy was higher than the neutral response of 3 ($M = 3.855$, $SD = 0.947$); $t(110) = 9.464$, $p < 0.0001$). While overall students find teacher feedback to be a positive experience, discussions with students, as well as the open-ended survey response, indicated that receiving feedback could an also be a negative experience for middle school students. Students reported feeling 'stupid' or that the feedback was demeaning or destructive. Often students followed up these expressions by stating that had the teacher provided some positive encouragement with the feedback, it would not have made them feel as badly. One student's response was particularly interesting as he stated that feedback, which negatively impacted a student's self-esteem, was worse than no feedback at all. This statement, coupled with the data that indicated middle school students craved feedback, was very telling about how impactful feedback messages could be on a student's self-esteem.

Based on qualitative analysis, the study showed teachers at Independence Academy were aware of how impactful teacher feedback could be on a middle school student's psyche. Several teachers stated that instructors must monitor student's mindset when delivering any type of feedback message. Others reiterated student responses concerning positive feedback messages; teachers also saw the value in illuminating what students were doing well to help students to continue to achieve. It was evident the teachers at the study school thought deeply about the feedback they provided to all types of learners. One teacher expressed her frustration with how to provide useful feedback to students who were meeting or exceeding the expectations of a class, as the purpose of

feedback was to help students grow as learners.

After feedback was given to students, teachers had expectations as to what they wanted the students to do with the feedback. Hypothesis 4 compared student and teacher responses to statements about what students did with the feedback. A two-sample *t*-test for difference in means was used to compare student and teacher responses to six statements and then a one-sample *t*-test was used to compare teacher responses to a neutral response of 3 for seven additional statements, only included within the teacher survey.

Results of the first analysis comparing student and teacher responses to statements about feedback follow-up were conclusive, as each test indicated that student responses were significantly different than teacher responses. Student responses were higher than teacher responses to statements 4b (After reading or listening to teacher feedback, I try to figure out my errors and correct my work), 4c (After reading or listening to teacher feedback, I ask the teacher questions), and 4e (After reading or listening to teacher feedback, I save my work and use it as a reference on future assignments.) Student responses to statements about throwing away or deleting the feedback, saving the feedback but rarely looking at it again, or not even reading/listening to the feedback were statistically lower than teacher responses. This was good news for the teachers at Independence Academy, as the most frequent piece of advice given by the teachers regarding feedback was for students to reflect on the feedback given to them, as measured in the open-ended section of the survey.

Based on the differences in students and teacher responses to Hypothesis 4, the

data indicated teachers did not have a clear understanding of what their students did with the feedback. The average teacher response to the six questions was neutral (M = 3.038, SD = 0.491), which matched Price et al.'s (2010) findings that teachers did not know what students did with the feedback. This was similar to what student participants reported regarding the feedback. Often students did not know what the teacher intended for them to do with the feedback, whether to use it to correct the current work, to use it for future work, to save the feedback, or to discard the feedback.

Additional quantitative data obtained from teacher responses to questions, which specifically addressed the extent of their knowledge about what their students did with the feedback supported the conclusion that middle school teachers did not fully know how their feedback was being used by the students. Statement #3, 'I do not know what my students do with the feedback I provide,' and Statement #6, 'I ask my students if they find my feedback to be helpful,' were not statically different from the neutral response of 3. Yet, the average teacher response to Statement #1, 'My students understand the feedback I provide,' (M = 3.742, SD = 0.575); $t(30) = 7.184$, $p < 0.0001$) was significantly higher than 3, which led the researcher to consider how the teachers came to this conclusion. Previous research showed teachers assumed students understood their feedback, because their students were asking questions about the work (Boud & Molloy, 2013), which teachers at the study school may have done based on teacher response to Statement #4, 'My students ask clarify question regarding my feedback' (M = 3.452, SD = 0.768) $t(30) = 3.274$, $p = 0.0027$. Boud and Molloy (2013) also found teachers based their conclusions on improvements on subsequent student work as indicated in teacher

responses to Statement #2, 'My students use the feedback I provide to improve their work,' ($M = 3.677$, $SD = 0.748$); $t(30) = 5.042$, $p < 0.0001$.

In focus group discussion, teachers stated they "hoped" their students were using the feedback, but none of the faculty participants indicated they tracked their students' use of feedback. Teachers rather assumed the message was received, based on the subsequent student performance, and when students did not show improvement, teachers assumed it was due to lack of effort on the part of the student or because the student was embarrassed to ask for additional help.

Regardless of the level of teacher knowledge concerning student use of feedback, survey results indicated that teachers at Independence Academy found value in giving middle school students feedback, as illustrated in the average response ($M = 3.903$, $SD = 0.870$) to the statement, 'The amount of time I spend providing feedback to my students is worth the effort.' During focus group discussions, teachers did talk about the copious amount of time required to provide students with useful feedback, while at the same stressing the importance of providing timely feedback to students. Teachers recognized that the sooner feedback was provided to middle school students about their work, the more likely the students would be to make a connection between the feedback and how the information could improve the work.

Engaging in dialogue about feedback was the second most frequent teacher recommendation for students from the open-ended section of the survey; therefore, feedback dialogues were discussed extensively with students and teachers during the study. In the FLG and focus group discussions, students indicated that going to a teacher

to discuss feedback made them uncomfortable and for some a "scary" experience. During the focus group, teachers were asked to talk about middle school students' fears around feedback dialogues. Teachers stated that students at this age needed help differentiating between asking a teacher to do the work for them and attempting the work first themselves and then asking for feedback on what they tried. Other teachers stated that it was a skill students must practice in order for the experience to become less scary.

Teacher comments also demonstrated empathy for students' anxieties around feedback dialogues. One stated it was the teacher's responsibility to initiate those conversations until the students could do it themselves. Another teacher shared that she remembered having the same fears when she was a middle school student and not being able to articulate why she felt that way then or now. The researcher believes that this level of empathy expressed by the teachers at Independence Academy spoke directly to why the middle school students' responses to many of the survey questions were stronger than the teachers' responses. While students continued to express various levels of anxiety and emotion about feedback at the study school, it was evident from the responses of both populations that the teachers did a solid job of making the feedback process more positive than negative for these middle school students.

Students also provided recommendations about feedback to the teachers, including identifying practices teachers could employ to encourage adolescents to engage in more frequent dialogues around feedback with their teachers. Some students indicated teachers should write specific questions on student work to help students prepare for conversation relating to the feedback. Other students indicated that teacher questions on

student work implied a negative tone. Just as the individual needs of students are unique, so too are the recommendations. However, for these two examples it appeared that older students found written questions to be helpful, while younger students found written questions to be less than helpful, which was in line with studies that found metacognition improved as students progressed through adolescence (Weil et al., 2013).

The final piece of quantitative data was based on a comparison of the FLG student participants' Grade Point Averages (GPA). The purpose of this part of the study was to see if middle school students could become better receivers of feedback, which in turn would boost academic performance, as measured by the GPA. A *t*-test for difference of dependent means was conducted comparing the participants' trimester one grades to their trimester grades following the conclusion of the FLG sessions. Results of the analysis did not provide conclusive evidence that participation in the FLG improved student academic performance, as measured by a GPA.

Qualitative data points demonstrated more positive results, based on the FLG sessions. A comparison of pre-and post-questionnaires, in addition to the interviews with student participants and their teachers, indicated clear signs of improvement for most students. Teachers noticed students were less defensive about receiving feedback; shifting the interpretation of feedback from personal criticism to helpful information. Teachers reported FLG students used the feedback more readily, initiated follow up questions, and actively sought extra help from the teachers. Many faculty participants reported that their relationship with the students improved after participation in the FLG sessions and several reported witnessing FLG participants engaging in more constructive

feedback dialogues with their peers.

Not all students in the FLG demonstrated significant growth. Teachers reported some participants continued to disengage with their teachers and with the feedback they provided. Of the six students who showed limited signs of improvement, each expressed one positive thing they learned from attending the FLG sessions, which they would now implement in their regular classes.

Triangulation of Results

In this study, data were gathered from both middle school student and teacher populations at Independence Academy through several formats. Survey responses, focus group discussions, FLG lessons and discussions, questionnaires, and interviews all presented common themes and data around feedback practices. Much of the data gained from this study corresponded with then-current research of this topic, and while conclusions could be made based on the data presented in this study, the variable nature of feedback and human beings' reception and understanding of that feedback required an understanding and acceptance that conclusive proof of universal themes was impossible. The data presented in this study, however, were valid and worthy of future study.

Recommendations for Practice

Based on the data collected in this study, there are several recommendations for teachers not only at Independence Academy, but for all teacher who work with middle school students. The recommendation includes a combination of student-reported suggestions based on the study, suggestions based on teacher recommendations from the study, and then-current research found in the Literature Review.

Recommendations to Improve Clarity of the Feedback Messages. Teachers must consider the clarity of their handwriting when composing feedback messages for middle school students. Students desire written feedback, but recommend teachers print rather than use cursive. Students also prefer teachers to limit the number of symbols or abbreviations used in the feedback message, as decoding these symbols could be challenging for middle school students and leave room for multiple interpretations. Students reported they would often ignore feedback they were unable to decipher.

Recommendations for What to Include to Make Feedback Message Most Helpful to Middle School Students. Students want instructive feedback more than evaluative feedback. The feedback must be explicit and include strategies for how to improve the work. When providing feedback, always explicitly acknowledge correct work, as well as incorrect work. Middle school students will find the feedback to be more useful and motivational when the message includes an element of encouragement.

Recommendations for Acknowledging Emotion and Feedback. For middle school students, emotion is interwoven within the feedback message and the exchange of that message between teacher and the receiver. Students will infer or assign emotional meanings to feedback messages when they cannot see the teacher give the message. For feedback that may be difficult for a student to work with, consider giving oral feedback or using a video so that the students can incorporate your encouraging tone into the critique you are giving.

Recommendation for the Use of Video Feedback. Both students and teachers in this study indicated they had limited exposure to using video feedback. As video

feedback can provide many of the same positive qualities as typed electronic feedback (can be saved, easy to locate for future use, less chance for miscommunication of message, and the timeliness of the message), video feedback also provides many of the positive qualities associated with oral feedback, as student can see the teacher's body language and hear the emotion in the teacher's voice.

Recommendations for Determining the Best Forms and Delivery of Feedback. Feedback is personal in nature, and not all students will respond the same way. Teachers should ask for student input into the types of feedback which are most effective for the student based on the assignment. Teachers should try different delivery methods and ask students for their input as to which ones work the best on assignments. Teachers must recognize that students will not always receive the feedback message as intended. More importantly, teachers must recognize that students may not realize the discrepancy either; therefore, follow up communication must become a natural second step in the feedback process. Asking clarifying questions to ensure the student has interpreted the message as designed may help avoid miscommunications.

Recommendations for Encouraging Students to Initiate Feedback Dialogues. Teachers should create class time for peer discussions about how to interpret teacher feedback on authentic pieces of student work and then have students practice initiating feedback dialogues in class. Role play and allowing students to be both the student and the teacher in the situation may help build empathy on both sides of the feedback process. However, until students are confident enough to initiate a feedback dialogue with a teacher, the teacher must continue to take the lead to ensure a positive learning growth

trajectory for the student.

Recommendations for Helping Student Know How to Use the Feedback. Teachers need to be explicit about what students should do with the feedback they receive. "It cannot simply be assumed that when students are 'given feedback' they will know what to do with it" (Sadler, 1989, p. 78). Clearly state how the feedback should be used and whether the feedback should be saved and used at a later data. Build feedback reflection time into the class period.

Recommendations for Future Research

The results of this study indicated that the interpretation and reception of feedback messages were as individual as the students who received them. Quantitative data points indicated there were significant differences between middle school students' perception of teacher feedback and teachers' perception of that same feedback, except with delivery systems. Interestingly, much of the data indicated that middle school students placed a higher value on teacher feedback than the teachers themselves. The qualitative data demonstrated both similarities and differences between middle school student and teacher interpretation. Teachers and students identified similar themes, but often one population identified more intensely with a particular feedback method or delivery system. The FLG quantitative data produced inconclusive results, while the qualitative data indicated participating in the group improved student academic performance. The results of this study indicated future research should be conducted to examine additional methods for improving the feedback process between teachers and middle school students.

The results of this study were based on student and teacher responses from one

Midwestern independent school. To verify, refute, or build upon the findings of the study in general, future investigation should analyze data from a larger pool of middle school students and from more than one institution. Students and teachers from public, private, and parochial schools should be included in the data pool.

Future investigators should also consider additional testing of Hypothesis 5. First, it is recommended future investigators may want to run a *t*-test for difference of dependent means on the GPAs of a random sample of students from Independence Academy who were not FLG participants. Investigators can compare the results of the second test to the FLG GPAs, to determine if a decline in GPA from T1 to T2 and T3 is typical for all students at the study school, and if so, if the decline in FLG participants' GPA is significant.

An additional recommendation for Hypothesis 5 includes adjusting individual components of the methodology and then reassessing student academic achievement. Variables to consider adjusting include providing feedback lessons in an authentic setting with the participants' actual teachers or with participants' actual work, increasing the number and duration of the feedback lessons, and using standardized test scores, rather than student GPAs which may reveal significant quantitative differences in student academic progress, based on the FLG lessons.

A final recommendation for future researchers is to investigate the extent to which video feedback is currently being utilized in middle school settings. Data obtained by investigating how video is being used to convey feedback messages, how often the students' perception of the teacher's messages is received as intended, and to what extent

video feedback positively influences student academic achievement would help researchers compare results to other types of feedback delivery systems.

Conclusion

As feedback was one of the most critical influences on learning (Hattie & Timperley, 2017), educators needed to make decisions, not only about the purpose of the feedback and how and when to give the feedback, more importantly, educators needed to identify those situations and delivery methods which produced the highest possibility for academic growth.

The purpose of the study was to investigate middle school students' perceptions of teacher feedback and its effect on student metacognition and motivation. The study included data from survey responses, focus groups responses, questionnaires, and interviews. The study also utilized secondary data from Independence Academy to compare FLG trimester GPAs. The evidence collected revealed that, while there are differences in how middle school students and teachers view and interpret teacher feedback, middle school students find the feedback to be highly valuable and crave instructive feedback to help improve their work. The evidence also revealed the advantages and limitations of instructing middle school students on how to be better interpreters and users of teacher feedback.

If the intent of feedback is to help students improve upon their learning and increase knowledge, determining the effectiveness and usefulness of feedback needed to be examined from both the teacher and student perspective. The intent of the teacher, while important, was not as important as the students' interpretation of the feedback

message. The feedback process is personal and the results of the study demonstrated that middle school teachers must take an intentionally personal approach to providing feedback to their students. Teachers must enlist the perspectives of the students they teach to determine which feedback elements and delivery methods will best serve their students. While further research into middle school students' perceptions of teacher feedback and feedback delivery systems is necessary, more importantly, additional research is needed to investigate instructional programs that educate middle school students on how to engage more fully and make skillful choices about how to use the feedback. For educators to be well prepared to meet the developmental needs of this specific population of students, researchers must consider the unique perspectives and developmental needs of middle school students.

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Appendix

Appendix A: Sample Faculty Consent Form

INFORMED CONSENT FOR MICDS FACULTY PARTICIPATION IN RESEARCH ACTIVITIES

A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

Principal Researcher: Jody A. Marberry
Telephone: 314-995-7450 x-7608 E-mail: jmarberry@micds.org

Dear teacher,

1. You are invited to participate in a research study conducted by Jody A. Marberry under the guidance of Dr. Robert Steffes. The purpose of this research is to explore the dynamics of feedback between middle school student perception and teacher intent. Approximately 20 - 40 teachers may be involved in this research.

2. a) Your participation will involve any or all of the items listed below
- Participation in an on-line survey
- Participation in a focus group, videotaped
- Participation in a questionnaire
- Participation in an interview with the researcher, videotaped

b) The amount of time involved in your participation will be approximately 30 minutes for the survey, 60 minutes for the focus group, 20 minutes for the questionnaire, and 45 minutes for the interview.

3. There are no anticipated risks to you associated with this research.

4. There are no direct benefits for your participation in this study. However, your participation will contribute to the knowledge about feedback effectiveness at the middle school level.

5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent for your participation at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw your participation at any time.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication or presentation that may result from this study.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Researcher, Jody A. Marberry 314-995-7550 x - 7608 or the Supervising Faculty, Dr. Robert Steffes 636-949-4744. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

Faculty's Signature	**Date**	**Faculty's Printed Name**
Researcher's Signature	**Date**	**Researcher's Printed Name**

Appendix B: Sample Parent Consent Form (Survey and Focus Group)

INFORMED CONSENT FOR PARENTS TO SIGN FOR STUDENT PARTICIPATION IN RESEARCH ACTIVITIES

A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

Principal Researcher: Jody A. Marberry
Telephone: 314-995-7450 x-7608 E-mail: jmarberry@micds.org

Dear parent,

1. Your child is invited to participate in a research study conducted by Jody A. Marberry under the guidance of Dr. Robert Steffes. The purpose of this research is to explore the dynamics of feedback between middle school student perception and teacher intent. Approximately 100 - 200 students may be involved in this research (100 - 200 students will complete the survey. 10 – 20 will participate in a focus group.)

2. a) Your child's participation will involve
   - Completion of a short electronic survey
   - For students who are interested, participation in a follow up focus group with other MICDS middle school students, which will be videotaped, will be conducted outside of regular class time (Lunch/recess, FLEX, before or after school - TBD).

   b) The amount of time involved in your child's participation will be
   - Approximately 30 minutes for the completion of the electronic survey
   - Approximately 60 minutes for participation in the focus group

3. There are no anticipated risks to your child associated with this research.

4. There are no direct benefits for your child's participation in this study. However, your child's participation will contribute to the knowledge about feedback effectiveness at the middle school level.

5. Your child's participation is voluntary and you may choose not to let your child participate in this research study or to withdraw your consent for your child's participation at any time. Your child may choose not to answer any questions that he or she does not want to answer. You and your child will NOT be penalized in any way should you choose not to let your child participate or to withdraw your child.

6. We will do everything we can to protect your child's privacy. As part of this effort,

your child's identity will not be revealed in any publication or presentation that may result from this study.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Researcher, Jody A. Marberry 314-995-7550 x - 7608 or the Supervising Faculty, Dr. Robert Steffes 636-949-4744. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records.

Please check all that apply:

___I consent to my child's participation in the both the survey and in the focus group.

___I consent to my child's participation ONLY in the survey.

___I consent to my child's participation ONLY in the focus group.

Parent's/Guardian's Signature	Date	Parent's/Guardian's Printed Name
Child's Printed Name		
Researcher's Signature	Date	Researcher's Printed Name

Appendix C: Sample Student Assent Forms Child and Adolescent (Survey and Focus Group)

ASSENT TO PARTICIPATE IN RESEARCH

A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

1. My name is Mrs. Jody A. Marberry.

2. We are asking you to take part in a research study because we are trying to learn more about teacher feedback and how it can help you do better on assignments and tests.

3. If you agree to be in this study, you will complete and on-line survey about feedback. Later in the year, you can also participate in a focus group with other MICDS middle school students and share your ideas about teacher feedback. This will be videotaped, but not shared with anyone at MICDS. You can choose to just do the survey or just do the focus group, or you can choose to do both. It is completely up to you.

4. There are no anticipated risks associated with this research. All your comments will remain anonymous.

5. There are no direct benefits for your participation in this study. However, your participation will help contribute to the knowledge about feedback effectiveness at the middle school level.

6. Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say "yes" you can still decide not to do this.

7. If you don't want to be in this study, you don't have to participate. Remember, being in this study is up to you and no one will be upset if you don't want to participate or even if you change your mind later and want to stop.

8. You can ask any questions that you have about the study. If you have a question later that you didn't think of now, you can email me at jmarberry@micds, or ask me next time.

9. Signing your name at the bottom means that you agree to be in this study. You and your parents will be given a copy of this form after you have signed it.

_____ _____

Participant's Name Date

ADOLESCENT (Ages 13-17) ASSENT TO PARTICIPATE IN RESEARCH

A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

You are asked to participate in a research study conducted by Mrs. Jody A. Marberry and associates from the Education Department, at Lindenwood University of Missouri, St. Charles. You were selected as a possible participant in this study because you are a current MICDS middle school student and we greatly value your opinion concerning teacher feedback. Your participation in this research study is voluntary.

Why is this study being done?

We are asking you to take part in a research study because we are trying to learn more about teacher feedback and how it can help you do better on assignments and tests.

What will happen if I take part in this research study?

Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say "yes" you can still decide not to do this.

If you volunteer to participate in this study, the researcher will ask you to do the following:

- Take a short on-line survey
- Participate in a focus group with other MICDS middle school students (videotaped)

You can choose to just do the survey or just do the focus group, or you can choose to do both. It is completely up to you.

How long will I be in the research study?

- Survey – about 30 minutes
- Focus Group – no more than 60 minutes

Are there any potential risks or discomforts that I can expect from this study?

There are no anticipated risks or discomforts.

Are there any potential benefits if I participate?

There are no direct benefits for your participation in this study. However, your participation will help contribute to the knowledge about feedback effectiveness at the middle school level.

Will I receive any payment if I participate in this study?

You will receive no payment for your participation.

Will information about me and my participation be kept confidential?

Any information that is obtained in connection with this study and that identify you will remain confidential. It will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of using a code like "Student 1" rather than using your name. No one will have access to your information or responses except Mrs. Marberry and her Dissertation Chair, Dr. Robert Steffes, at Lindenwood University.

What are my rights if I take part in this study?

You may withdraw your assent at any time and discontinue participation without penalty or loss of benefits to which you were otherwise entitled.

You can choose whether or not you want to be in this study. If you volunteer to be in this study, you may leave the study at any time without consequences of any kind. You are not waiving any of your legal rights if you choose to be in this research study. You may refuse to answer any questions that you do not want to answer and still remain in the study.

Who can answer questions I might have about this study?

If you wish to ask questions about your rights as a research participant or if you wish to voice any problems or concerns you may have about the study to someone other than the researchers, please contact Office of the Provost at mabbott@lindenwood.edu.

SIGNATURE OF STUDY PARTICIPANT

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this

form.

Name of Participant	
Signature of Participant	Date

SIGNATURE OF PERSON OBTAINING ASSENT

In my judgment, the participant is voluntarily and knowingly agreeing to participate in this research study.

Jody A. Marberry	314-995-7450
Name of Person Obtaining Assent	Contact Number
	9/24/2017
Signature of Person Obtaining Assent	Date

Appendix D: Sample Parent Consent Form (Feedback Learning Group)

INFORMED CONSENT FOR PARENTS TO SIGN FOR STUDENT PARTICIPATION IN RESEARCH ACTIVITIES

A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

Principal Researcher: Jody A. Marberry
Telephone: 314-995-7450 x-7608 E-mail: jmarberry@micds.org

Dear parent,

1. Your child is invited to participate in a research study conducted by Jody A. Marberry under the guidance of Dr. Robert Steffes. The purpose of this research is to explore the dynamics of feedback between middle school student perception and teacher intent. Approximately 100 - 200 students may be involved in this research (16 – 40 students for the Feedback Learning Group and questionnaires and 15 - 20 for follow up interviews.)

2. a) Your child's participation will involve
   - Participation in a Feedback Learning Group consisting of other MICDS middle school students, sessions to be videotaped
   - Participation in a pre and post questionnaire
   - Participation in an interview with the researcher, interviews to be videotaped

   b) The amount of time involved in your child's participation will be approximately 45 minutes for each Feedback Learning Group session for a total of 4 - 8 sessions. These sessions will take place on the MICDS Middle School campus either before or after school hours or during your child's FLEX time. At no time will your child miss any regular class time to participate in this study.

3. There are no anticipated risks to your child associated with this research.

4. Your child may benefit from his/her participation in the Feedback Learning Group, but it is not guaranteed. However, your child's participation will contribute to the knowledge about feedback effectiveness at the middle school level.

5. Your child's participation is voluntary and you may choose not to let your child participate in this research study or to withdraw your consent for your child's participation at any time. Your child may choose not to answer any questions that he or she does not want to answer. You and your child will NOT be penalized in any way

should you choose not to let your child participate or to withdraw your child.

6. We will do everything we can to protect your child's privacy. As part of this effort, your child's identity will not be revealed in any publication or presentation that may result from this study.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Researcher, Jody A. Marberry 314-995-7550 x - 7608 or the Supervising Faculty, Dr. Robert Steffes 636-949-4744. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my child's participation in the research described above.

Parent's/Guardian's Signature	Date	Parent's/Guardian's Printed Name
Child's Printed Name		
Researcher's Signature	Date	Researcher's Printed Name

Appendix E: Sample Student Assent Form Child and Adolescent (Feedback Learning Group)

Lindenwood University

ASSENT TO PARTICIPATE IN RESEARCH

A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

1. My name is Mrs. Jody A. Marberry.

2. We are asking you to take part in a research study because we are trying to learn more about teacher feedback and how it can help you do better on assignments and tests.

3. If you agree to be in this study, you will participate in a small study group with other MICDS middle school students for 6 – 8 sessions, each session lasting about 45 minutes. During that time, you will get to share your experiences and ideas about teacher feedback. There will be activities and sometimes little assignments to complete between sessions. You will be asked to fill out a pre-and post-questionnaire, and you will do a follow up interview with me, all of which will be videotaped.

4. There are no anticipated risks associated with this research. All your comments will remain anonymous.

5. You may experience some benefits from your participation in this study but it is not guaranteed. Your participation will help contribute to the knowledge about feedback effectiveness at the middle school level.

6. Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say "yes" you can still decide not to do this.

7. If you don't want to be in this study, you don't have to participate. Remember, being in this study is up to you and no one will be upset if you don't want to participate or even if you change your mind later and want to stop.

8. You can ask any questions that you have about the study. If you have a question later that you didn't think of now, you can email me at jmarberry@micds, or ask me next time.

9. Signing your name at the bottom means that you agree to be in this study. You and your parents will be given a copy of this form after you have signed it.

_____ _____

Student's Name Date

_____

Student's Signature

ADOLESCENT (Ages 13-17) ASSENT TO PARTICIPATE IN RESEARCH

A Mixed-Methods Study of Middle School Students' Perceptions of Teacher Feedback and its Effects on Metacognition and Motivation

You are asked to participate in a research study conducted by Mrs. Jody A. Marberry and associates from the Education Department, at Lindenwood University of Missouri, St. Charles. You were selected as a possible participant in this study because you are a current MICDS middle school student and we greatly value your opinion concerning teacher feedback. Your participation in this research study is voluntary.

Why is this study being done?

We are asking you to take part in a research study because we are trying to learn more about teacher feedback and how it can help you do better on assignments and tests.

What will happen if I take part in this research study?

Please talk this over with your parents before you decide whether or not to participate. We will also ask your parents to give their permission for you to take part in this study. But even if your parents say "yes" you can still decide not to do this.

If you volunteer to participate in this study, the researcher will ask you to do the following:

- Participate in a small study group with other MICDS middle school students for 4 – 8 sessions, (videotaped)
- Complete a pre and post questionnaire
- Be interviewed by Mrs. Marberry (videotaped)

How long will I be in the research study?

- Study Group - each session will last about 45 minutes
- Questionnaires – about 15 minutes for each one
- Interview – no more than 20 minutes

Are there any potential risks or discomforts that I can expect from this study?

There are no anticipated risks or discomforts.

Are there any potential benefits if I participate?

You may experience some benefits from your participation in this study but it is not

guaranteed. Your participation will help contribute to the knowledge about feedback effectiveness at the middle school level.

Will I receive any payment if I participate in this study?

You will receive no payment for your participation.

Will information about me and my participation be kept confidential?

Any information that is obtained in connection with this study and that identify you will remain confidential. It will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of using a code like "Student 1" rather than using your name. No one will have access to your information or responses except Mrs. Marberry and her Dissertation Chair, Dr. Robert Steffes, at Lindenwood University.

What are my rights if I take part in this study?

You may withdraw your assent at any time and discontinue participation without penalty or loss of benefits to which you were otherwise entitled.

You can choose whether or not you want to be in this study. If you volunteer to be in this study, you may leave the study at any time without consequences of any kind. You are not waiving any of your legal rights if you choose to be in this research study. You may refuse to answer any questions that you do not want to answer and still remain in the study.

Who can answer questions I might have about this study?

If you wish to ask questions about your rights as a research participant or if you wish to voice any problems or concerns you may have about the study to someone other than the researchers, please contact Office of the Provost at mabbott@lindenwood.edu.

SIGNATURE OF STUDY PARTICIPANT

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this

form.

Name of Participant

Signature of Participant | Date

SIGNATURE OF PERSON OBTAINING ASSENT

In my judgment, the participant is voluntarily and knowingly agreeing to participate in this research study.

Jody A. Marberry | 314-995-7450

Name of Person Obtaining Assent | Contact Number

Signature of Person Obtaining Assent | Date

Appendix F: Survey Questions (Student and Teacher)

Faculty Survey (electronic):

Assent: By clicking this box, I affirm that I am choosing to take part in this survey of my own free will. I understand I may stop the survey at any time (Exact wording from Faculty Consent Form will be on the first page of the survey – See Appendix C).

For the purpose of this survey please consider **FEEDBACK** to be any message given by a teacher on student work which communicates student progress in relationship to a learning goal. This could include what the student is doing well, what gaps still exist in his/her learnings as well as suggestions on how to close those gaps.

Please tell me a little about yourself.

- Gender: Male Female
- Grade Level(s) you teach this year: 5 6 7 8
- Department
  - English
  - Fine Arts
  - History
  - Mathematics
  - Physical Education
  - Science
  - World Languages
- How many years have you taught middle school students (grades 5 - 8)?
  - 0 - 3 years
  - 4 - 10 years
  - 11 - 20 years
  - more than 20 years

Answer the following questions using a scale of 1-5, with 1 being "Strongly Disagree" and 5 being "Strongly Agree."

1. Completed rubrics are the best way to explain/show students how they are doing in relationship to the learning goal.

2. Marking incorrect work is the best way to explain/show students how they are doing in relationship to the learning goal.

3. Offering suggestions for how to improve one's work is the best way to explain/show students how they are doing in relationship to the learning goal.

4. Giving a letter grade or percentage is the best way to explain/show students how they are doing in relationship to the learning goal.

5. Pointing out what a student is doing well is the best way to explain/show students how they are doing in relationship to the learning goal.

6. Providing examples of various levels of completed work is the best way to explain/show students how they are doing in relationship to the learning goal.

7. Telling students your expectations before the students begin working is the best way to explain/show students how they are doing in relationship to the learning goal.

8. Providing individual feedback while the student is working on a learning task is the best way to explain/show a student how s/he is doing in relationship to the learning goal.

9. My students agree with the feedback I give them on their work.

10. My students like it when I give them feedback about their work.

11. The feedback I give my students makes them feel good about their learning.

12. The feedback I give my students inspires them to keep working hard.

13. I prefer to provide written comments by hand on the student work

14. I prefer to provide typed, electronic comments on student work.

15. I prefer to use Canvas when providing electronic comments on student work.

16. I prefer to use email when providing electronic comments on student work.

17. I prefer to use Quick Comments providing electronic comments on student work.

18. I prefer to provide comments orally (talk/conference with the student about the assignment).

19. I prefer to provide comments through audio or video recordings..

20. After reading or listening to teacher feedback, my students delete or throw away their work.

21. After reading or listening to teacher feedback, my students try to figure out their errors and correct the work.

22. After reading or listening to teacher feedback, my students ask follow up questions.

23. After reading or listening to teacher feedback, my students save their work but rarely look at it again.

24. After reading or listening to teacher feedback, my students save their work and use it as a reference on future assignments.

25. My students do not read or listen to the feedback I provide.

26. I do not know what my students do with the feedback I provide.

27. My students understand the feedback I provide.

28. My students find my feedback to be helpful.

29. My students use the feedback I provide to improve their work.

30. The amount of time I spend providing feedback to my students is worth the effort.

31. My students ask clarifying questions regarding my feedback.

32. My students meet with me outside of class time to go over my feedback at their request.

33. I ask my students if they find my feedback to be helpful.

RECOMMENDATIONS

- **If you could give one recommendation to your students about what to do with the feedback they receive on their work, what would it be?**

Student Survey (electronic):

Directions: For the purpose of this survey, please consider **FEEDBACK** to be any message given by a teacher on student work which communicates where you are in relationship to a learning goal. This could include what you are doing well, what gaps still exist in your learning as well as suggestions on how to close those gaps.

Please tell me a little about yourself:

- Gender: Male Female
- Current grade in school: 5 6 7 8
- Are you new to the MICDS this year? Yes No
  If Yes, please list last school attended_____
- Race (please check all that apply)
  African American Asian American Latino/Hispanic American Middle Eastern American Native American White/Non Hispanic

  Other, please specify _____
- Languages other than English spoken at home _____
- Would you consider yourself to be a/an (Select one):
  - Exceptional student (top of the class)
  - Good student
  - Average student
  - Below average student

Answer questions #1-24 using a scale of 1-5, with 1 being "Strongly Disagree" and 5 being "Strongly Agree."

1. When a teacher gives me a completed rubric, I understand how my work compares to the goal of the assignment.

2. When a teacher marks my errors, I understand how my work compares to the goal of the assignment.

3. When a teacher offers suggestions for improvement, I understand how my work compares to the goal of the assignment.

4. When a teacher gives me a letter grade or percentage, I understand how my work compares to the goal of the assignment.

5. When a teacher points out what I am doing well, I understand how my work compares to the goal of the assignment.

6. When a teacher gives me examples of other student's work, I understand how my work compares to the goal of the assignment.

7. When a teacher tells me his/her expectations before I begin working, I understand how my work compares to the goal of the assignment.

8. When a teacher gives me feedback while I am working on an assignment, I understand how my work compares to the goal of the assignment.

9. When a teacher gives me feedback, I agree with what s/he says about my work.

10. I like it when my teacher gives me feedback about my work.

11. The feedback I get from my teachers makes me feel good about my learning.

12. The feedback I get from my teachers inspires me to keep working hard.

13. The feedback I get from my teachers makes me feel good about myself.

14. I prefer comments from my teacher about my work to be written by hand on the assignment.

15. I prefer comments from my teacher about my work to be typed and provided electronically on the assignment (Canvas or email).

16. I prefer comments from my teacher about my work to be sent as a Quick Comment.

17. I prefer comments from my teacher about my work to be given orally (talk/conference with the teacher about the assignment).

18. I prefer comments from my teacher to be recorded (audio and or video) through Canvas.

19. After reading or listening to teacher feedback, I throw/delete my work away.

20. After reading or listening to teacher feedback, I try to figure out my errors and correct the work.

21. After reading or listening to teacher feedback, I ask the teacher questions.

22. After reading or listening to teacher feedback, I save my work but rarely look at it again

23. After reading or listening to teacher feedback, I save my work and use it as a reference on future assignments.

24. I don't read or listen to the feedback my teacher gives me on my work.

For question #25, select one answer that expresses your opinion the best.

25. In general, how useful is the feedback you receive from your teachers? (select one)

A. It is very useful. The information helps me understand my mistakes and how to improve on future assignments.
B. It is useful most of the time but not always. Sometimes I don't understand what the teacher is trying to tell me or how to improve my work, but most of the time the feedback helps.
C. It can be useful but not very often. Occasionally the feedback makes sense and I can use it for future assignments but not all the time.
D. It is not useful at all. I don't understand what the teacher is telling me nor how to use the feedback to improve my work.
E. I don't read or listen to the feedback my teachers give me on my work.

For the last question, please respond thoughtfully.

- **If you could give one recommendation to your teachers about giving you feedback on your work, what would it be?**

Appendix G: Sample Focus Group Questions (Faculty and Students)

Focus Group Questions (Teacher Version)

For the purpose of this focus group, please consider **FEEDBACK** to be any message given by a teacher on student work which communicates student progress in relationship to a learning goal. This could include what the student is doing well, what gaps still exist in his/her learnings as well as suggestions on how to close those gaps.

1. What do you like about electronic feedback? What don't you like?
2. What kind of feedback do you find to be the most effective and why?
3. What is the most difficult part about giving feedback to students?
4. Do you find there are certain categories or types of students where a particular type of feedback is more effective and if so, how do you decide/determine what kind of feedback to give a particular child?
5. What has been your experience with students initiating conversations about the feedback you have provided on their work?
6. Do you think students are reading/listening to/etc. your feedback?
7. What do you want students to do with the feedback you give them?
8. What do you feel are the critical components of good feedback?
9. List three words you associate with good feedback.
10. List three words you associate with bad feedback.

Focus Group Questions (Student Version)

For the purpose of this focus group, please consider **FEEDBACK** to be any message given by a teacher on student work which communicates where you are in relationship to a learning goal. This could include what you are doing well, what gaps still exist in your learning as well as suggestions on how to close those gaps.

1. What do you like about electronic feedback? What don't you like?
2. What makes feedback useful?
3. How do you feel when you read the feedback a teacher has given you on your work?
4. Think about a specific teacher's feedback and tell me what you liked and or didn't like about that feedback and how it made you feel.
5. What has been your best experience with talking to a teacher about the feedback you have received?
6. What has been your worst experience with talking to a teacher about the feedback you have received?
7. List three words you associate with good feedback.
8. List three words you associate with bad feedback.

Appendix H: Sample Questionnaires (Faculty and Students)

Teacher Questionnaire:

Teacher's name:_____

Name of student you are recommending:_____

For the purpose of this learning group, please consider **FEEDBACK** to be any message given by a teacher on student work which communicates student progress in relationship to a learning goal. This could include what the student is doing well, what gaps still exist in his/her learnings as well as suggestions on how to close those gaps.

1. How would you describe this student's approach to using teacher feedback?

2. Do you think this student uses feedback effectively? Why or why not? Please give some examples.

3. If you could change one way this student approaches your class, what would it be?

4. How often does this student approach you for help or clarification about his/her work?

5. What do you hope the student will take away from his/her participation in the Feedback Learning Group?

Student Questionnaire:
Student's name:_____

- Current grade in school: 5 6 7 8
- Gender: Male Female
- Is this your first year at MICDS? Yes No
- Is this your first year at an independent school? Yes No
- Do you meet with a tutor? Yes No
- Is yes, for which subjects due you receive tutorial support?
  - English
  - History

- Mathematics
- Science
- World Languages

For the purpose of this learning group, please consider **FEEDBACK** to be any message given by a teacher on student work which communicates where you are in relationship to a learning goal. This could include what you are doing well, what gaps still exist in your learning as well as suggestions on how to close those gaps.

1. Please finish this statement: I like it when teachers give me feedback on my work because…

2. Please finish this statement: I don't like it when teachers give me feedback on my work because…

3. What do you typically do with the feedback teachers give you on your work?

4. Describe a situation where the feedback you received was really helpful and why.

5. Please describe how you feel about approaching teachers for help or clarification about your work.

6. List three words you associate with good feedback.

7. List three words you associate with bad feedback.

Appendix I: Sample Interview Questions (Faculty and Students)

Teacher Interview Question:

1. What changes have you seen, if any, in the student's approach to learning regarding feedback?

Student Interview Questions:

1. Have student interpret authentic teacher feedback in front of me and record:
    - How does this make you feel?
    - What does this mean to you?
    - What would you do with this now?
2. What are your takeaways from your participation in the Feedback Learning Group?

Appendix J: Sample Thank You Letters (Administrator, Faculty, and Student)

Dear Division Director,
I would like to express my sincere appreciation for your continued support of my professional growth. By allowing me to complete my research at MICDS, I not only have acquired the necessary data to examine the relationship between teachers and student at the middle school level in regard to feedback, but I have developed stronger ties with the MIDS faculty and student body. Your willingness to provide support each both professionally, as well as personally, is one of the reasons I love working at MICDS. Please know that findings from this study will contribute to existing research in the educational community, specifically in the area of the shared communication during the learning process between teachers and students. I look forward to analyzing the data I collected and would appreciate the opportunity to share my findings with you in the future.
Again, thank you.

Kind regards,

Jody A. Marberry

Dear Colleagues,

Thank you for your participation in this study. I would like to express my sincere appreciation for your time and efforts. I know Having colleagues, like yourself, who are always willing to provide support each both professionally, as well as personally, is one of the reasons I love working at MICDS. Please know that findings from this study will contribute to existing research in the educational community, specifically in the area of the shared communication during the learning process between teachers and students. I look forward to analyzing the data I collected from your responses as a result of your participation.
Again, thank you.

Kind regards,

Jody A. Marberry

Dear student,
Thank you for your participation in this study. I would like to express my sincere

appreciation for your time and efforts. I know that you lead a very busy life with your regular school work and additional activities, so for you to willingly participate in my study means a lot. I look forward to analyzing the data I collected from your responses as a result of your participation.
Again, thank you very much.

Warmly,

Mrs. Marberry

Vitae

Colleges and Universities

B.A., Educational Studies, Cum Laude, Knox College, Galesburg, Illinois – June 1996

M.A.T., Middle School Mathematics, Webster University, Webster, Missouri – December 2005

Ed.D., Instructional Leadership - Curriculum and Instruction, Lindenwood University, St. Charles, Missouri (expected graduation date in December of 2018)

Employment History

Atsa Biyaazh Community School, Shiprock, NM, Navajo Nation

Language Arts Specialist August 1996 – May 1998

Blue Hills Homes Corporation, St. Louis, MO Title I Reading and Math Teacher

August 1998 – June 2000

Mary Institute and St. Louis Country Day School, Ladue, MO August 2000 – present

Middle School Mathematics Faculty (August 2000 – present)

Dean of Students Grade 6 (July 2014 – June 2017)

Eliot Summer Academy Faculty (July 2017 – present)

PROFESSIONAL AFFILIATIONS AND AWARDS

Phi Beta Kappa – June 1996

The Class of 1968 Chair of Distinguished Teaching – April 2005 - 2009

The Albert G Blanke Jr. '28 Chair of Distinguished Teaching – April 2010 – 2013

The Thomas Family Fellowship Ghana, Africa – April 2012

The Edward M. Rivinus Summer Sabbatical to Ghana, Africa – April 2012

The Sears Foundation Faculty Merit Award – April 2014

The Donald H. Webb Chair of Distinguished Teaching – April 2017 - present