



Technology Supported Feedback:
How Technology Supported Feedback Supports
Student Learning in the Elementary Classroom

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Abstract

This study explores how different types of feedback (verbal, written, or using digital technology) can impact student growth and student perception. The researcher used the following questions to guide the research: How does the type of teacher or peer feedback (verbal conference, written, or using digital technology) affect student growth? In what ways can achievement be affected when students have opportunities to respond to feedback given to them by a teacher or a peer? What is the impact on student perception when they are able to receive feedback from teachers and peers? What is the impact on student perception when they are able to revise their work based on feedback from teachers and peers? Due to a lack of research on how feedback affects student achievement and student perception in the elementary classroom, the researcher wanted to explore the topic in her classroom of second grade students in the area of writing. Students completed three different writing activities. One activity acted as the control where there was no feedback provided to the students, the second activity provided feedback from the teacher and students verbally and written, and the third activity provided feedback using a digital tool called SeeSaw. The students also completed a survey after each writing activity for the researcher to collect data on student perception when they received or did not receive feedback on their writing. The results from the study indicate that verbal, written, or technology-supported feedback from teachers or peers can lead to student growth and positive student perception.

Keywords: corrective feedback, SeeSaw (digital tool), revising and editing checklist, scoring rubric

Technology Supported Feedback in the Elementary Classroom

Description

An action research project was performed in a second grade classroom on the topic of how technology supported feedback can impact student growth. The researcher looked at two types of feedback: 1) feedback from the teacher 2) feedback from peers

The participants are 13 students from a second grade classroom of students that are in a Title I school.

Students completed three writing assignments during the course of this action research project. The first activity acted as a control where students wrote a two paragraph piece, then revised and edited on their own. The second activity focused on when peer feedback and teacher feedback are provided to students. The teacher completed brief one to one conferences to provide teacher-given feedback, and students used a checklist to participate in peer feedback. Students received time after feedback was given to go back and revise their work. The last activity included how technology can be used to support the teacher-given and peer-given feedback. An online learning tool, SeeSaw, was used to have the teacher and peers record their feedback. The rationale behind this is that students can listen to the feedback and access it as many times as they need to while responding to feedback and fixing their writing. A rubric was used to compare and analyze how teacher and peer feedback affect student growth and how technology can support the feedback that is given.

Overall Purpose

The primary goals of the action research were to research and collect data on the following questions:

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- 1) How does the type of teacher or peer feedback (verbal conference, written, or using digital technology affect student growth?
- 2) In what ways can achievement be affected when students have opportunities to respond to feedback given to them by a teacher or a peer?
- 3) What is the impact on student perception when they are able to receive feedback from teachers and peers?
- 4) What is the impact on student perception when they are able to revise their work based on feedback from teachers and peers?

Problem Statement

The Self Determination Theory (Deci & Ryan, 1985; 2000) assumes that people have the internal tendencies to want to grow and improve, master challenges, and integrate new experiences that all align with a sense of self. SDT shows that one's motivation and functioning can either be supported by or deteriorated by social context (Deci et al., 1994). The researcher found that there is a gap in research studies that have been done to look at how feedback is best given to support elementary student learning and growth. For this reason, the researcher looked into literature and studies that have been done with athletes and coaches in relation to sports feedback. After reviewing different research studies that have been done, the researcher believes that there is a specific type of feedback that has been proven to work and lead to motivation and growth.

Autonomy is the feeling that a person has choice and control over their actions, and that one feels ownership when it comes to their behavior (Deci & Ryan, 1985; 2000). Corrective feedback, also known as change-oriented feedback, is defined by Carpentier and Mageau as feedback that “indicates that behaviors need to be modified to eventually achieve athletes’ goals”

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(2016). This ties into the purpose of most feedback that is given to students, because teachers generally give feedback to share ideas and suggestions about skills that need to be modified or improved to reach mastery of a skill or goal that the student is working towards. If the two terms are combined, the term autonomy-supporting corrective feedback can be used. Similar to how and why it was studied with athletes, corrective feedback should be given to students in an autonomy-supporting way in order to lead to positive consequences and in a way that supports the idea that learning and growth can follow (Carpentier & Mageau, 2016; Vergara-Torres et al., 2020).

After the researcher came to the understanding that corrective feedback given in an autonomy-supporting way leads to positive consequences that support learning and growth, she looked into the different ways that feedback is given and received in the field of education (teacher given feedback and peer feedback). According to these two researchers (Al-Bashir et al., 2016; Percell, 2017), feedback given by teachers should move away from the traditional style of feedback and start to follow a modern approach that can support student growth. After the literature review study, the researcher is also looking to add technology as an important tool to support and enhance the feedback.

Justification of Approach

An action research seemed like the best option for researching and studying the topic of feedback for a few reasons. First, the researcher felt it will be very telling and interesting to see how the research that is being done now can connect directly to what the researcher is looking at in the classroom. Looking at the group of students that the researcher has in the classroom and researching a topic that directly impacts them is a strong reason to use Action Research rather than writing a curriculum. Feedback can and should go into all different subject areas. This broad

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topic should not be confined to one specific curriculum. However, for this action research project, writing was the academic focus area. Going back to the primary goals of the topic from above, the researcher was able to look at what research has already been done on this topic and which areas have not yet been studied. The researcher could use what she found or what was lacking to do an action research study with her current students and their writing block. These are the reasons why the researcher decided that action research is the best choice for looking at how technology supported feedback can affect student growth.

Project Significance

Significance in the Field

In other courses, the researcher has briefly researched the topic of feedback in elementary school. The researcher was very surprised when she noticed how little previous research had been done on the topic. She was able to find studies and research from high school classes, college courses, and even some middle school classes. However, there was a very limited amount of research found for elementary students. Furthermore, there is an excessive gap in studies on technology supported feedback in elementary classrooms. The researcher found this to be very interesting, considering elementary is where students are building their foundation of their learning path. Educators and many professionals in the education field know how important feedback is for everyone (young or old). This project will help to fill the gap between the importance of technology supported feedback and why it is so important to start with elementary students.

Personal Significance

The researcher feels that so often, especially in elementary school, students are: taught a topic, assessed on the topic, and rarely given feedback on how they can improve on those skills

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before or after they are assessed. If they do receive feedback, it is usually a comment or verbal conversation letting them know what they can work on for next time or what they got “wrong”. However, they are not usually given the time to go back and work on that skill soon after the feedback is given. This is usually due to the fast pace of elementary schedules and time allotted to each subject area. As a student, the researcher was always looking for feedback from the teacher. She felt that there was never enough feedback, and that she was unsure of what was “missing” and could be “worked on” from her work. Our society is very focused on having students take responsibility for their own learning, but it is necessary to give them the resources and tools to allow that to happen. The main reason why the researcher wanted to research this topic is because she is very interested in how technology supported feedback can affect elementary students’ growth, and how to do it in a way that is manageable. The researcher feels that the technology piece can really help with that “manageable” portion, because it can allow for feedback to be received and given in many different ways.

Definition of Terms

Self Determination Theory: a theory that assumes people have the internal tendencies to want to grow and improve, master challenges, and integrate new experiences that all align with a sense of self

Corrective Feedback: a practice in the field of learning and achievement that involves a student receiving feedback on his or her understanding or performance on various tasks by a teacher or peer

Autonomy: the feeling that a person has choice and control over their actions, and that one feels ownership when it comes to their behavior

Literature Review

Educators understand that feedback is crucial to student learning and growth in many different ways. However, the way in which feedback is delivered and received can either make or break a student's learning experience, plus their motivation and desire to improve. The researcher, a second grade general education teacher, has found that in most general education classrooms she has observed, students are taught a topic, assessed on the topic, and rarely given feedback on how they can improve on those skills before or after they are assessed. If they do receive feedback, it is usually a comment or verbal conversation letting them know what they can work on for next time or what they got wrong. However, they are not usually given the time to go back and work on that skill soon after the feedback is given. This is usually due to the fast pace of elementary schedules and time allotted to each subject area.

In the elementary classroom, the researcher has observed that the school system is often focused on having individuals take responsibility for their own learning, but effective resources and feedback are not often provided for them to do so. This literature review focuses on how technology supported feedback can support student learning and growth. Before looking into different types of feedback and how technology can support each of those types, one must understand how students are motivated to learn and improve.

The Self Determination Theory

The Self Determination Theory (Deci & Ryan, 1985; 2000) assumes that people have the internal tendencies to want to grow and improve, master challenges, and integrate new experiences that all align with a sense of self. SDT shows that one's motivation and functioning can either be supported by or deteriorated by social context (Deci et al., 1994). There are three psychological needs that Deci and Ryan believe must be met in that social context, a) autonomy,

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b) competence, and c) relatedness (1985). SDT assumes these three psychological needs must be satisfied in order for healthy development and motivation to occur (Deci & Ryan, 1985). The first of these needs is autonomy, which is the feeling that one has choice and control over their actions, and that those actions align with one's values. The second is competence, which is when a person experiences the feeling of mastery and effectiveness. The third psychological need that must be met in order for motivation to occur is relatedness, which is the feeling of being connected to others.

The researcher has found a significant gap in research studies that have been done to look at how feedback is best given to support elementary student learning and growth. For this reason, the researcher looked into literature and studies that have been done with athletes and coaches in relation to sports feedback. After reviewing different research studies that have been done, the researcher believes that there is a specific type of feedback that has been proven to work and lead to motivation and growth in relation to student academics.

Autonomy-Supporting Corrective Feedback

As mentioned above, autonomy is the feeling that a person has choice and control over their actions, and that one feels ownership when it comes to their behavior. Corrective feedback, also known as change-oriented feedback, is defined by Carpentier and Mageau (2016) as a type of feedback that shows behaviors need to be changed or modified in order to achieve goals. This ties into the purpose of most feedback that is given to students, because teachers generally give feedback to share ideas and suggestions about skills that need to be modified or improved to reach mastery of a skill or goal that the student is working towards.

If the two terms are combined, the term autonomy-supporting corrective feedback can be used. Corrective feedback is an essential part of the learning process but is usually associated

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with negativity and low self-esteem because it involves focusing on pointing out faults and weaknesses in order for learners to grow and improve (Mouratidis et al., 2010). Mouratidis, Lens, and Vansteenkiste (2010) showed that when corrective feedback is communicated in a motivating way through empathy and support (or in other words, an autonomy supportive way), athletes are more motivated to try and improve on skills than if the feedback is given in a controlling way through criticism, scolding, and/or punishment.

Studies have been done around the Self Determination Theory on how autonomy-supporting corrective feedback given by coaches affects athlete motivation and well-being (Carpentier & Mageau 2016; Mouratidis et al., 2010). Since the studies relied on the SDT, they directly relate to the idea noted above that motivation and growth are followed by the satisfaction of the three psychological needs: autonomy, competence, and relatedness. Results of both studies showed that corrective feedback can motivate athletes to improve and work towards a goal if it is given and received in an autonomy-supporting way. Specifically, it was shown that change-oriented feedback positively correlates with athletes' motivation, self-confidence, and satisfaction of their psychological needs for autonomy and relatedness (Carpentier & Mageau, 2016).

As cited in Carpentier and Mageau (2016), Weinberg and Gould explain that corrective feedback has two important functions. First, it can motivate athletes' desire to want to improve their performance in the future. Second, it can support athletes by helping them to understand and see the aspects of their performance that need change or adjustment if they want to improve. These two functions of corrective feedback can connect and transfer into why corrective feedback is crucial for student success and growth. However, similar to how and why it was studied with athletes, corrective feedback should be given to students in an autonomy-supporting

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way in order to lead to positive consequences and in a way that supports the idea that learning and growth can follow (Carpentier & Mageau, 2016; Vergara-Torres et al., 2020).

Teacher-Given Feedback

After the researcher came to the understanding that corrective feedback given in an autonomy-supporting way leads to positive consequences that support learning and growth, she investigated the different ways that feedback is given and received in the field of education. When looking at students in their learning process, feedback given to students by their teacher is of utmost importance because it is essential to student growth and the overall learning experience of the student. Although researchers agree with the importance of feedback in an educational setting to improve student learning, many have noticed that there are gaps and issues when it comes to feedback given by teachers and have done studies on the importance and impact of feedback in higher education and physical education classes (Al-Bashir et al. 2016; Percell, 2017 Vergarra-Torres et al., 2020).

In a study (Vergarra-Torres et al., 2020) done on correct feedback, upper elementary students from medium and low economic statuses were studied during their physical education classes. The participants were 742 students aged between 10 and 13 years old in 29 physical education groups. The purpose of the study was to understand how students perceive feedback from their teachers, and how it affects their basic psychological needs and subject vitality. Students filled out a questionnaire that followed a Likert scale approach that had students rating statements based on their physical education teacher's feedback that was given to them. The findings of the study showed that corrective feedback had a positive effect on subject vitality, and that students who feel that their basic psychological needs have been met have an increase in subject vitality (Vergarra-Torres et al., 2020). Interestingly enough, these results correlate with

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the results and conclusions determined by the studies noted above on sports feedback (Carpentier & Mageau 2016; Mouratidis et al., 2010). The three studies each had a clear and concise focus on similar topic areas, which was how individuals perceive feedback from an instructor of some sort.

An example of one question and one statement that were used in the physical education class to measure students' perceptions of teacher's corrective feedback are, "Is it true that your physical education teacher points out mistakes?" or "If my teacher points out my mistakes, I find that he (she) has a fair reason to do so" (Vergarra-Torres et al., 2020). Questions like these could be adapted to a general education class at the elementary level to begin looking at how teacher feedback can support student growth. While there have not been many studies done on feedback in elementary classrooms and how it affects student growth, there have been other studies done in addition to Vegarra-Torres' to research how teacher-given feedback should be given to students to meet their psychological needs and maximize their learning experience (Al-Bashir et al., 2016; Percell, 2017).

According to these two researchers, feedback given by teachers should move away from the traditional style of feedback and start to follow a modern approach that can support student growth (Al-Bashir et al., 2016; Percell, 2017). The traditional style refers to when teachers would provide feedback to students on final copies or assessments without having the students take time to revise and fix their work based on the feedback. When providing feedback to students, teachers should make sure the goals are clear and understood by the students, give quality information to students that will help students understand the mistakes that were found in their work, provide a variety of feedback that includes both written and oral discussion with individual students, and ensure that the feedback is limited to the most important pieces of the skills or

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work that is being practiced (Al-Bashir et al., 2016). In addition to these recommendations, Jay C. Parcell conducted a 2017 study that was done from a year-long qualitative study that researched the types of feedback that five high school teachers provided to their students. Parcell took these findings from the research study and organized them into strategies that current classroom teachers can use to provide effective feedback to their students (2017).

According to Parcell's (2017) study, feedback given by teachers should be process-oriented which means that the feedback provides suggestions to students on how they can improve on a skill or take a mastered skill and build upon it, like change-oriented feedback. In the article written by Parcell (2017), a teacher named Brandi explains that the most important part about feedback is that it must be process-oriented because learning is a continuous cycle that does not have a starting point or ending point (2017). Like the previous article (Al-Bashir et al., 2016), Parcell (2017) also shows that feedback should be formative and should include open discussion and dialogue with students as they are working, not just when they have finished a product. Additionally, students should be allowed to use the feedback provided, and have time to work on improving their skills or work by revising and resubmitting (Parcell, 2017).

In addition to feedback being process-oriented and formative, it should also be personal even though it can be challenging to do when a teacher has many students. The teachers in Parcell's study offered three ways for teachers to manage giving personal feedback to students. The teacher suggested that feedback can be made personal to students by keeping it encouraging, constructive, and informal (Parcell, 2017.) A lot of these suggestions and recommendations pair well with the studies that found change-oriented feedback given in an autonomy-supporting way to be beneficial when meeting students' psychological needs and, in turn, supporting student growth (Carpentier & Mageau, 2016; Mouratidis et al., 2010; Vergara-Torres et al., 2020).

Peer-Given Feedback

Although teacher-given feedback is essential to student learning and should be used daily in the classroom, it is not the only way to provide effective feedback to students to support their learning and growth. Multiple studies have been done to show why and how peer feedback should be implemented into the classroom (Ion et al., 2018; Li & Grion, 2019; Pandero & Strijbos, 2016; Wanner & Palmer, 2018). In current research, “It has been noted that teachers, when given the choice, may choose not to involve students in the assessment process...This is problematic, not only because the practices then run the risk of becoming more teacher- and teaching-centered, rather than student- and learning-centered; students may thus lose an important opportunity to develop the capacity to self-regulate their learning” (Panadero et al., 2016, p. xx). As shown in many traditional classrooms, learning cannot be sustainable if it requires information being given continuously from teachers on student work (Li & Grion, 2019). This implies that we cannot have a “one size fits all” approach to assessing student work that is teacher centered. Students are not acquiring 21st Century Skills with this method, and studies show if they are not involved in the process, learners will lose motivation or interest (Li & Grion, 2019).

Self-regulation of learning, noted as a large piece of the Self Determination Theory (Deci & Ryan, 1985; 2000), is a high demand of our current society, and we as educators have to understand the importance of preparing our students for that. Incorporating peer-given feedback into the classroom as a routine way of providing feedback to students is one way that we can help students to begin taking responsibility for their learning and having voice and choice in their learning process. In order to understand why peer feedback should be used and how it benefits student learning, the researcher looked into multiple sources and studies that have been done on

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the topic. Similar to studies done on teacher-given feedback, there was a gap in research on peer-given feedback in the elementary classroom. However, research was found on peer feedback done in higher education.

In the article published in 2019, researchers analyzed the benefits of giving and receiving feedback from peers (Ion et al., 2018). The study sample was of 188 students ranging in age from 18-39 that were enrolled in the profession of education. The method of the study used qualitative comments with groups of students during a project that students were completing. The research question that guided this study was to look at the context of peer feedback, and decide which role, assessor or assessee, is perceived as more beneficial to learners. The groups were determined by the instructor, to avoid the issue or pre-existing relationships between students. Students participated in giving and receiving feedback three different times by writing comments to their peers in response to questions that the instructor had provided. The results show that peer feedback was able to give students a better learning experience and helped them to take responsibility for their own learning and growth. The findings also showed that since students were using feedback to improve their learning, they wanted and needed to be a significant part of their own learning. Students concluded that they learned more by providing feedback than by receiving feedback (Ion et al., 2018).

In the research article published by Li and Grion, a study looks at how student learning experiences can be enhanced through feedback given and received by peers (2017). The sample group consisted of 41 education students in a Master's course. The students responded to online surveys and written comments that were given and received in a peer assessment experience. The project was a capstone done in groups, and each group had the experience of giving feedback to three other groups' research projects and receiving feedback from other groups. Two data sets

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were used: three online surveys during different stages of the peer assessment activity, and students' written interactions within their groups. Data analysis showed that students were engaged in a variety of learning processes through the phases of giving and receiving feedback. Students reflected on both experiences, giving and receiving, but a majority of students came to the conclusion that they felt giving feedback gave them more benefits to their learning than receiving feedback (Li & Grion, 2017).

An interesting connection between the two studies was that their findings were close to identical. Even though they had students giving and receiving feedback in different ways, both studies concluded that peer feedback does enhance the learning experience for students and gives them responsibility for their own learning. A key part of the results for both studies was that they found most students preferred giving the feedback rather than receiving it. Students noted that they thought the benefits to learning from giving feedback to another peer or peers outweighed the benefits that they got when they received feedback from others (Ion et al., 2018; Li & Grion, 2017). These findings could have to do with the fact that students were not properly trained or given enough practice for how effective feedback should be given. If educators need practice and examples in order to give effective feedback to students, then students need that experience prior to participating in peer feedback as well.

It is evident that peer feedback is beneficial to students and their learning experiences. Surveys seem to be an appropriate way to collect data on how students felt during the peer review process and what pieces benefitted them the most. This form of data collection would work well when collecting feedback from students in the Capstone Project. One of the studies gave students three different surveys, all at different phases in the process (Ion et al., 2018). This

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gives students a chance to answer questions and give feedback to the process throughout the experiment, and not just at the end.

In her search for literature, this researcher found that reviewing articles and studies show how there is a large gap in finding studies that have been done for technology-supported feedback in the elementary classroom. The studies were both done with older students, which leaves the question and curiosities of how this would benefit younger students. Different elements of the two studies could be used to recreate the study in an elementary classroom and collect data to see if the results are similar to when it was done with older students. Changes can be made to the study by refocusing the research question on how technology-supported feedback can positively impact student learning in the elementary classroom. Additionally, even though the students used online platforms to leave their written feedback, the articles did not discuss the benefits of using the technology to provide the feedback.

Technology-Supported Feedback

Since this researcher has cited empirical research that corrective feedback should be given by teachers as well as peers in an autonomy supportive way to support student growth, it is essential to return to the recommendation that teachers should move away from the traditional style of feedback and transition to a modern and technology based approach (Al-Bashir et al., 2016). Following the pattern of the previous research on feedback, technology-supported feedback also has a large gap in research when it comes to studies that have been done to show that technology-supported feedback can affect student growth. However, similar to the research found for teacher-given and peer-given feedback, the researcher found studies that have been done mostly in higher education to show how technology-supported feedback can have a positive

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impact on student growth (Elmahdi et al., 2020; Molin et al., 2020; Pan & Shao, 2020; Shintani, 2015; Turner, 2019).

A study (Shintani, 2015) that was reviewed on corrective feedback in the area of student writing was conducted to investigate the effects of computer-mediated synchronous corrective feedback and asynchronous corrective feedback on student writing pieces. Writing tasks were completed by two college students, one with synchronous correct feedback (SCF) and one with asynchronous corrective feedback (ACF) both using computer-mediated feedback. An interview was performed directly after the writing task was completed to investigate how the students perceived the feedback. The study's findings showed that SCF provided a similar experience for the student in relation to oral corrective feedback, since it was done while the student was writing. Secondly, both types of feedback showed the students different gaps in their writing, but SCF better promoted self-correction. Lastly, both types of feedback gave the students an understanding of the expected outcomes of the writing task. These differences were confirmed by analyzing compositions written by fifteen similar learners who received either type of feedback (Shintani, 2015).

A second study (Molin et al., 2020) focused on giving formative feedback to secondary education students, and how using polling technology can have an impact on students' metacognitive skills. Students were broken into three groups, and each group used the polling technology called Socrative. Some students used both peer discussions and teacher feedback, while other students used only teacher feedback. There was a control group where those students only used Socrative but did not receive any feedback from teachers or peers. The study supported that when compared with the control group, students who received peer and teacher feedback had positive effects in the areas of motivation and metacognitive skills (Molin et al., 2020).

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Shintani's (2015) study was done with only two Japanese university students, but results were also supported at the end of the study with 15 other students. With Molin, Haelermans, Cabus, and Groot's (2020) study, the sample groups were made up of 633 physics students from six different Dutch secondary schools. The second study (Molin et al., 2020) had a larger sample size, and in turn could collect more data to come up with the results of their study. More importantly, the study with the larger sample was randomized and broken into three groups with one of those groups being a control group. This is very important to the results of the study, because there is a direct comparison that can be made between the two groups that got the cooperative or individual treatment and the control group that only used the technology tool but did not receive any type of feedback.

Shitani's (2015) study collected feedback from students at the end of the writing task by conducting an interview where the participants and the researcher watched the video of their writing session and the feedback that was given to them during or directly after the writing task. While the researcher and student were watching the video of the experience, the researcher would pause at any time where a student received feedback and in turn made a correction to their writing. Some questions that were asked during this time were questions such as "Why did you do that?" or "Did you notice the correction?" Each interview with the two students was recorded, so that researchers could go back and listen to the participants' responses to these questions as they reflected on the feedback. Technology was a strong supportive tool in this study, because it assisted in giving the feedback to the students as well as took an important role of sharing the writing task experience with the researcher and the participant while giving the researcher opportunity to ask questions about the process.

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The types of technology used in each study were different, which supports the idea that technology-supported feedback can be used in a variety of ways depending on the age of the students and the skill they are trying to master. One study (Molin et al., 2020) used a polling technology tool called Socrates alongside peer discussions and teacher feedback, while the other (Shintani, 2015) used the technology as a tool to provide feedback either synchronously (during the students' writing process) or asynchronously (directly after the students were done with their writing task). It was very interesting how each study took different avenues to use technology in their studies. Other studies used technology in different ways to support student learning in the area of providing feedback. One study (Elmahdi et al., 2018) used a technology tool called *Plickers* to provide immediate feedback to students during formative assessment. A different study (Turner, 2019) looked at how technology in a one-to-one learning environment can help students to become more independent as learners. Lastly, a study (Pan & Shao, 2020) showed how technology can be used by teachers to provide online feedback to enhance learning motivation and learning engagement.

Conclusion

A new approach to traditional feedback can be overwhelming and scary for teachers as well as students, but so are most things worth trying. Our world and our students' futures are not straightforward and clear cut. They are messy and full of mistakes and failures, most of which turn into great successes or at the very least, valuable life lessons. As educators, it is not our job to give our students the easy way out while they are in school. It is our job to inspire and challenge them while preparing them for successful futures. Although research that has come before has been done for change-oriented feedback in sports and physical education classrooms, and on teacher-given, peer given, and technology supported feedback in higher education, the

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researcher did not find any studies on all of these topics combined nor have they been researched in an elementary setting.

The learning process is a journey that begins at a very young age, and students deserve an educational experience that provides them with the tools necessary for continued growth and mastery in skills needed for them to succeed in life. For these reasons, it is necessary for the researcher to conduct a research study in an elementary classroom on how technology-supported feedback given by teachers and peers affects student growth.

Methodology

Participants

Participants in this action research study included thirteen students in second grade between the ages of seven and eight at an elementary school in Ephrata, Pennsylvania. Seven students were males and 6 students were females. The elementary school is a Title I school, which is a school with large concentrations of low-income students who will receive supplemental funds to assist in meeting student's educational goals. All students are enrolled in the researcher's general education classroom. This study took place during their regular 40-minute writing block from late February to mid-March. Parents and students completed assent and consent forms in order for these thirteen students to take part in the study. Students participated in each level of feedback that was provided, which was 1) self-provided feedback, 2) oral and written teacher and peer feedback, 3) teacher and peer feedback with the use of technology. Data were collected during each of the three writing assignments and compared between the three different methods of feedback to determine if there was a growth in student performance and student perception. Students from the school were from a wide variety of ethnic and socioeconomic backgrounds. All of the students participating were students of the instructor administering the study.

Materials

For each data collection, students will be using a two-paragraph planning sheet (See Appendix A) to write a two-paragraph informational writing piece. The paragraph planning sheet is from the district writing series, Writing City. Students iPads and the teacher laptop will be used to access an online platform that students use daily. SeeSaw is an online tool that gives students a place to share their learning. Drawings, recordings, videos, etc. are all different ways

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that students can share their learning with family, teachers, and peers. Students will use a revising and editing checklist (see Appendix B) in all three writing activities and with each type of feedback that is being researched. The teacher will use the same rubric each time when assessing students' final writing pieces (see Appendix C). The rubric also comes from Writing City.

For this action research and data collection, the researcher focused on three areas of the students' writing from the rubric. These target areas were shared with students each time they completed one of the three writing activities: Ideas and Content, Organization, and Conventions. The scores from the three different writing activities were compared to analyze how teacher and peer feedback affect student growth and how technology can support the feedback. The scores were also used to show how student achievement can be affected when students have opportunities to respond to feedback given to them by a teacher or a peer. In addition to the scores from each writing activity being used to analyze and collect data on the research questions, the researcher also provided surveys (See Appendix D) for students to answer after completing each of the three writing activities. Surveys differed after each writing activity. The survey asked dichotomous questions. The answers to these surveys will help the researcher analyze how students felt about the three different writing activities that used different types of feedback.

Ethical Considerations

Because this study involved students under the age of 18, assent was gathered from the students and consent was given from a parent or legal guardian to take part in the study. Information was presented to students using grade appropriate language, so they understood what would be collected and asked of them during the research project. Students were repeatedly

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reminded that their participation was voluntary, and that the data collected would not affect their grades or their relationship with the teacher. Students were given the option to remove themselves from the research at any time throughout the data collection period. All data collected was stored in a password encrypted online system on the teacher's laptop for confidentiality.

Research Questions

The researcher conducted an action research project on the topic of how technology supported feedback can impact student growth. The researcher looked at two types of feedback: (a) feedback from the teacher (b) feedback from peers.

The primary goals of the action research were to research and collect data on the following questions:

- 1) To what extent does the type of teacher or peer feedback (verbal conference, written, or using digital technology affect student growth?
- 2) In what ways can achievement be affected when students have opportunities to respond to feedback given to them by a teacher or a peer?
- 3) What is the impact on student perception when they are able to receive feedback from teachers and peers?
- 4) What is the impact on student perception when they are able to revise their work based on feedback from teachers and peers?

Procedures

Data was collected every week until all three writing activities and surveys were completed. For each data collection, students used a two-paragraph planning sheet (see Appendix A) to write a two-paragraph informational writing piece. The paragraph planning sheet is from the district's writing series, Writing City. The researcher had students complete three different

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writing activities. The first being one where students wrote a two paragraph piece, then revised and edited on their own. Students used a checklist (see Appendix B), which was the same checklist students used in the second writing activity with a peer. The second activity was one where peer feedback and teacher feedback were provided to students. The teacher conducted one-to-one conferences to provide teacher-given feedback, and students used a checklist to participate in peer feedback. Students received time after feedback was given to go back and revise their work. The third writing activity was one where technology was used to support the teacher-given and peer-given feedback. SeeSaw was used to have the teacher and peers record their feedback, so that students could listen to the feedback and access it as many times as they needed to. Seesaw is an online tool that gives students a place to share their learning. Drawings, recordings, videos, etc. are all different ways that students can share their learning with family, teachers, and peers. The same checklist from the first two writing activities was used again for this writing activity, but it was used through an online platform where students could record why they marked what they did on each piece of the checklist. Students received time after feedback was given to go back and edit/revise their work. The time that students received to revise their work was two writing periods of 30 minutes each. Not all students used this entire time, but it was available to them to utilize.

The teacher used the same rubric each time when assessing students' final writing pieces (see Appendix C). For this action research and data collection, the teacher focused on three areas of the students' writing from the rubric. These target areas were shared with students each time they were completing one of the three writing activities: Ideas and Content, Organization, and Conventions. The scores from the three writing activities were compared to analyze how teacher and peer feedback affected student growth and how technology supported the feedback that was

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given. The scores were also used to show how student achievement can be affected when students have opportunities to respond to feedback given to them by a teacher or a peer (see Figures 2 and 3).

In addition to the scores from each writing activity being used to analyze and collect data on the research question, the researcher also provided a survey (see Appendix D) for students to answer after completing each of the three writing activities. Surveys differed after each writing activity. The answers to these surveys helped the researcher to analyze how students felt about the three writing activities that used different types of feedback.

Results

The researcher hypothesized that teacher or peer feedback (verbal conference, written, or using digital technology) would positively affect student growth in the area of writing if students were given opportunities to respond to feedback. The researcher also looked at the impact on student perception when students are able to revise their writing after receiving feedback from teachers and peers. The primary goals of the action research were to research and collect data on the following questions:

- 1) How does the type of teacher or peer feedback (verbal conference, written, or using digital technology) affect student growth?
- 2) In what ways can achievement be affected when students have opportunities to respond to feedback given to them by a teacher or a peer?
- 3) What is the impact on student perception when they are able to receive feedback from teachers and peers?
- 4) What is the impact on student perception when they are able to revise their work based on feedback from teachers and peers?

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For research questions 3 and 4, the researcher collected data from three different surveys. Survey 1 was given after the first writing assignment where students did not receive feedback from a teacher or peer. Survey 2 was given after the second writing assignment where students received written and oral feedback from a peer and the teacher. Survey 3 was given after the third writing assignment where students received feedback via an online tool, SeeSaw to hear glows and grows about their writing piece. The results of the three surveys are shown in Table 1 (Appendix F) below (see Appendix D for full surveys and questions).

Table 1

Survey Questions and Responses

Survey 1 (Question Number)	Yes	No	Abbreviated Survey Questions
1	3 (23%)	10 (77%)	could talk with Teacher
2	2 (15%)	11 (85%)	could talk with Peer
3	9 (69%)	4 (31%)	would be a better writer if met with T
4	10 (77%)	3 (23%)	would be a better writer if met with P
5	8 (62%)	5 (38%)	better final draft if heard ideas from T and P
Survey 2 (Question number)	Yes	No	Abbreviated Survey Questions
1	9 (69%)	4 (31%)	could talk with Teacher
2	9 (69%)	4 (31%)	could talk with Peer
3	9 (69%)	4 (31%)	helped meeting with P
4	9 (69%)	4 (31%)	helped meeting with T
5	1 (8%)	12 (92%)	write same final if had not met with T or P
6	11 (85%)	2 (15%)	time to fix before writing final
7	9 (69%)	4 (31%)	helped to fix writing after meeting with T or P
8	9 (69%)	4 (31%)	felt better about final with ideas from T and P
Survey 3 (Question number)	Yes	No	Abbreviated Survey Questions
1	13 (100%)	0	heard glows/grows from Teacher
2	13 (100%)	0	heard glows/grows from Peer
3	11 (85%)	2 (15%)	glows/grows on SeeSaw = better writer
4	1 (8%)	12 (92%)	write same final if not heard glows/grows
5	12 (92%)	1 (8%)	time to fix before writing final
6	10 (77%)	3 (23%)	helped to fix writing after heard glows/grows
7	11 (85%)	2 (15%)	feel better about final with ideas on SeeSaw

As expected, about 77% felt that they did not get to meet with a teacher and 85% of students stated that they did not get to meet with a peer before writing their final draft. This

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assignment acted as a control group to see how students would feel without feedback, and with feedback on the second and third activity. After doing the second and third writing assignment and survey, the researcher found that the majority of the students felt better about their writing after they received feedback from a teacher or a peer face to face (69%) and with the use of technology (85%). About 69% of the students felt they were able to meet with a teacher and a peer before writing their final drafts.

In the first survey, it appears that 69% of students felt that it would help them to become a better writer if they met with a teacher and 77% of students felt it would help them to become a better writer if they met with a peer. The second survey suggests that 69% of the students felt that it helped them to go through the checklist with their teacher and their peer before writing their final draft. The third survey suggests that 77% of students felt that hearing their glows and grows on SeeSaw from a teacher and peer helped them to fix their writing for their final draft. Additionally, it appears 92% of students felt that they would not have written the same final draft if they had not met with a teacher or peer to go over their writing face to face and 85% of students felt that they had time to go back and fix their writing after they met with their teacher and peer.

The first and second research question that the researcher explored during the data collection was to see how different types of feedback affect student growth. See Table 2 and Figure 1 to see the results of the control group (the first writing assignment without feedback) and the second assignment with oral and written feedback from a teacher or peer. The third assignment was not scored due to time constraints in the classroom and was used specifically for analyzing student perception from the survey.

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Table 2 and Figure 1 suggest that all student scores from the rubric (Appendix C) either showed growth from Assignment 1 to Assignment 2 or remained the same from both assignments. The average score that students received without feedback was a 12.92 out of 18, which calculates to a 72%. The average score that students received with oral and written feedback from a teacher and peer was a 15.31 out of 18, which calculates to 85%. This shows that students grew an average of 13% when receiving feedback on their writing assignment and were given time to fix their writing based on that feedback. There were no students that showed a decrease in scores from the first assignment to the second assignment. Therefore, from the descriptive statistics the researcher can say that from her data collection in this elementary class, it appears that feedback from a teacher and peer can positively affect student growth in the area of writing.

Table 2

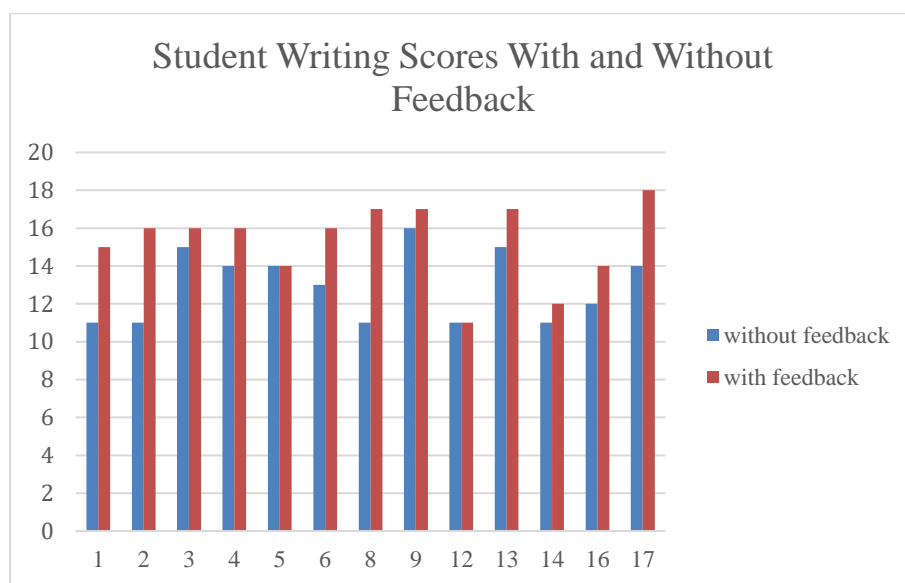
Scores compared from Assignment 1 to Assignment 2

Student	Assignment 1	Assignment 2
1	11	15
2	11	16
3	15	16
4	14	16
5	14	14
6	13	16
8	11	17
9	16	17
12	11	11
13	15	17
14	11	12
16	12	14
17	14	18
Average	12.92	15.31

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Figure 1

Scores graphed with and without feedback from assignments 1 and 2



Discussions and Conclusions

Through the action research on how feedback affects student growth and student perception when they receive feedback, the researcher found that almost all students showed growth in their writing when using a writing rubric to assess. The researcher also found that most students felt that receiving feedback from a teacher or peer helped them to fix their writing or helped them to feel better about writing their final draft, which showed positive student perception when receiving feedback that is corrective.

How does the type of teacher or peer feedback (verbal conference, written, or using digital technology) affect student growth? In what ways can achievement be affected when students have opportunities to respond to feedback given to them by a teacher or a peer? When students completed a writing activity without teacher or peer feedback, the majority of the academic scores on the writing rubric for the first assignment were lower than when students completed the second and third writing assignments where they were given feedback from a teacher and a peer. Students showed growth in the areas of Ideas and Content, Organization, and Conventions after receiving corrective feedback from peers and teachers. Many students also stated in the surveys that they felt they would not have written the same final draft if they had not met with a teacher or peer about their writing.

What is the impact on student perception when they are able to receive feedback from teachers and peers? What is the impact on student perception when they are able to revise their work based on feedback from teachers and peers? Most students felt that receiving feedback from a teacher or peer helped them to fix their writing before writing their final draft and to feel better about writing their final draft, whether it was oral, written, or using digital technology on SeeSaw. Overall, the results of the surveys supported that students perceived the corrective

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feedback from their teacher and peers in a positive way. In addition, most students felt from the first writing activity (the control group activity without feedback) that they would feel better about writing their final draft if they were able to hear ideas from their teacher and peers. The researcher observed during the first writing activity that many students were seeking feedback from the teacher or other students, and became frustrated when they were not able to receive any feedback from either person.

Discussion

As stated in the literature review, The Self Determination Theory (Deci & Ryan, 1985; 2000) assumes that people have the internal tendencies to want to grow and improve, master challenges, and integrate new experiences that all align with a sense of self. SDT shows that one's motivation and functioning can either be supported by or deteriorated by social context (Deci et al., 1994). Similar to how and why it was studied with athletes, corrective feedback should be given to students in an autonomy-supporting way in order to lead to positive consequences and in a way that supports the idea that learning and growth can follow (Carpentier & Mageau, 2016; Vergara-Torres et al., 2020). When students were given feedback from a student and teacher with time given to fix their writing, they were given the opportunity to experience that corrective feedback is a way to grow and improve in different skills.

According to these two researchers (Al-Bashir et al., 2016; Percell, 2017), feedback given by teachers should move away from the traditional style of feedback and start to follow a modern approach that can support student growth. For this current study that focused on Technology-Supported Feedback, the researcher looked at a modern approach to providing feedback to her students in an autonomy supportive way. As shown in the results section, it appears that the

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modern approach to providing feedback in an elementary classroom can lead to student growth and mastery or exposure to new skills.

When looking back on Parcell's (2017) study and seeing that feedback given by teachers should be process-oriented which means that the feedback provides suggestions to students on how they can improve on a skill or take a mastered skill and build upon it, like change-oriented feedback, the researcher saw this to be true in her study with elementary students. When the researcher or peers gave the students specific things to work on, they were able to go back and improve on those skills in their writing. Students also showed in the surveys how they felt about this process and having time to go back and fix their work after receiving feedback. In the article written by Parcell (2017), a teacher named Brandi explains that the most important part about feedback is that it must be process-oriented because learning is a continuous cycle that does not have a starting point or ending point (2017). The researcher agrees with this statement in regards to an elementary classroom after completing this action research study.

Limitations and Implications

A few limitations were identified by the researcher during the process of this study. First, if there was interruption to instruction such as snow days, assemblies, changes in schedules, student work was interrupted and could cause a limitation in the study. Another limitation that was noticed by the researcher was how specific partners and academic ability affected student perception and quality of feedback.

For future study, the researcher suggests having students with similar academic abilities being partnered together. In addition, students with higher writing abilities could provide feedback to a partner with similar abilities as well as to another classmate who may need additional help and explanation in their feedback.

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In order to deepen the understanding of how technology supported feedback can affect student growth in the elementary classroom, future studies could focus on other academic areas such as math or reading. Because there is not many studies or research on this specific topic, other researchers could look into different grade levels in the elementary grade bands, use different types of technology to compare tools and effectiveness, and look at how the peer feedback process can be enhanced by preparing and teaching students how to provide and receive feedback from peers.

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Appendix A
Two Paragraph Planner

WritingCity

2 PARAGRAPH PLAN & WRITE

2 Paragraph Planning Sheet

Topic Sentence:

Paragraph 1

Main Idea: _____

Supporting Detail 1

Supporting Detail 2

Supporting Detail 3



Paragraph 2

Main Idea: _____

Supporting Detail 1

Supporting Detail 2

Supporting Detail 3

Conclusion Sentence:

Appendix B

Revising and Editing Checklist

WritingCity®

INFORMATIVE/EXPLANATORY: Informative Revising/Editing

Name: _____ Date: _____

My 2nd Grade Informative Revising Checklist

	I fixed it	Peer Reviser's Initials
1. Does my topic have a definition ?		
2. Does my Paragraph 1 tell What ?		
3. Does my Paragraph 2 tell How ?		
4. Do I stay focused on my topic and support it with only facts and no opinions ?		
5. Does my writing have a concluding sentence or section ?		
6. Do I use a variety of words , phrases, and/or sentences ?		

My Second Grade Editing Checklist

	I fixed it	Peer Editor's Initials
1. Did I end each sentence with a period , an exclamation point , or a question mark ?		
2. Did I start each sentence with a capital letter ?		
3. Did I use quotation marks to show when someone is talking?		
4. Did I circle any words I think are misspelled?		
5. Did I use a dictionary or other resources to check my spelling?		

Appendix C

Writing Rubric

Focus- Ideas and Content, Organization, and Conventions

WritingCity® INFORMATIVE/EXPLANATORY: 6 Traits Rubric						
Name: _____		Date: _____		Writing Subject: _____		
Directions: Circle the score for each category. Add the scores to determine the overall score.						
Trait		Score		Teacher Comments		
Ideas & Content W.2.2 W.2.5 <ul style="list-style-type: none"> The ideas are clear, focused and original A single topic is clearly defined Facts and definitions are used to develop points The writing has been revised 		6 5 4 3 2 1				
Organization W.2.2 <ul style="list-style-type: none"> The writing is organized into paragraphs each with a main idea and details Details are in order A conclusion is present Temporal words are used to signal the order of events 		6 5 4 3 2 1				
Voice <ul style="list-style-type: none"> The writing holds the reader's attention. 		6 5 4 3 2 1				
Word Choice <ul style="list-style-type: none"> The words used are descriptive and create a clear mental picture The words convey ideas precisely 		6 5 4 3 2 1				
Sentence Fluency L.2.1f <ul style="list-style-type: none"> The writing flows and sounds natural The writer has produced, expanded, and rearranged complete simple and compound sentences 		6 5 4 3 2 1				
Conventions L.2.1d L.2.2 L.2.2a, e <ul style="list-style-type: none"> The writing follows standard capitalization, punctuation, spelling, grammar and usage rules Names, dates, holidays, product names, and place names are capitalized Form and use the past tense of irregular verbs Check spelling by using reference materials 		6 5 4 3 2 1				
Presentation W.2.5 <ul style="list-style-type: none"> The writing is neat and legible The piece has been edited 		6 5 4 3 2 1				
6 – Outstanding 5 – Very Good 4 – Good 3 – Average 2 – Below Average 1 – Poor						

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Appendix D

Student Surveys

Survey 1 (students complete this after the first writing activity)-

1. Do you feel that you were able to talk to your teacher about your writing before you wrote your final draft? Yes or No
2. Do you feel that you were able to talk about your writing with another student from your class before you wrote your final draft? Yes or No
3. Do you feel that it would help you to become a better writer if you were able to talk about your writing with a teacher before you wrote your final draft? Yes or No
4. Do you feel that it would help you to become a better writer if you were able to talk about your writing with another student from your class before you wrote your final draft? Yes or No
5. Do you think you would feel better about writing your final draft if you heard ideas from your teacher and another student in your class? Yes or No.

Survey 2 (students complete this after the second writing activity)-

1. Do you feel that you were able to talk to your teacher about your writing before you wrote your final draft? Yes or No
2. Do you feel that you were able to talk about your writing with another student from your class before you wrote your final draft? Yes or No
3. Do you feel that going through the checklist with a student from your class helped you to become a better writer and write your final draft? Yes or No
4. Do you feel that going through the checklist with your teacher helped you to become a better writer and write your final draft? Yes or No

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5. Do you feel like you would have written the same final draft if you did not meet with your teacher and partner about your writing? Yes or No
6. Do you feel like you had time to fix your writing and make it better before you wrote your final draft? Yes or No
7. Do you feel like it helped you to fix your writing after you met with your partner and your teacher before you had to write your final draft? Yes or No
8. Did you feel better about writing your final draft after hearing ideas from your teacher and your partner? Yes or No.

Survey 3 (students complete this after the third writing activity)-

1. Do you feel that you were able to hear glows and grows about your writing from your teacher before you wrote your final draft? Yes or No
2. Do you feel that you were able to hear glows and grows about your writing from your teacher before you wrote your final draft? Yes or No
3. Do you feel that being able to listen to your grows and glows as many times as you wanted to on SeeSaw helped you to become a better writer and write your final draft?
Yes or No
4. Do you feel like you would have written the same final draft if you did not hear the glows and grows from your teacher and partner? Yes or No
5. Do you feel like you had time to fix your writing and make it better before you wrote your final draft? Yes or No
6. Do you feel like it helped you to fix your writing after you heard your glows and grows from your teacher and partner? Yes or No

TECHNOLOGY-SUPPORTED FEEDBACK

7. Did you feel better about writing your final draft after hearing ideas from your teacher and your partner? Yes or No.

Appendix E

Consent and Assent Forms



CHILD ASSENT FORM

I am your teacher, Miss Dagen. I want to find out how feedback can help your writing. I am asking you to join me.

I will have you do three writing activities. You will have a chance to get different kinds of feedback from your teacher and your classmates. This can help you become a better writer. I will keep your writing activities to myself. I will not show them to other teachers or your parents.

I don't see any big problems that will happen from this. I know that you may feel that I will be using these writing activities to grade you. I am only using them to show how you can grow. I want you to tell the truth about how you feel during this. This will not change your grades. It won't change your relationship with me. I am excited to see how our class can grow in writing.

You can feel good about helping teachers to make things better for other kids. Some kids might be struggling with writing. This could help them!

You should know that:

- You do not have to be in this study if you do not want to. You won't get into any trouble with Highland Elementary, your teacher, or the University of the Arts if you say no.
- You may stop being in the study at any time. If there is ever a question you don't want to answer, just leave it blank.
- Your parent(s)/guardian(s) were asked if it is OK for you to be in this study. Even if they say it's OK, it is still your choice whether or not to take part.
- You can ask any questions you have, now or later. If you think of a question later, you or your parents can contact me on Seesaw or my email at Victoria_dagen@easdpa.org, or you can ask my advisor, Sarah Eckert at seckert@uarts.edu.

Sign this form only if you:

- have understood what you will be doing for this study,
- have had all your questions answered,
- have talked to your parent(s)/legal guardian about this project, and
- agree to take part in this research

Your Signature

Printed Name

Date

Name of Parent(s) or Legal Guardian(s)

Researcher explaining study Signature

Printed Name

Date



Institutional Review Board

PARENTAL CONSENT FORM

Technology-Supported Feedback in the Elementary Classroom

Purpose and Duration

Your child is being asked to participate in a research study conducted by Miss Dagen. I am taking my last course to complete my Masters in Educational Technology at the University of the Arts. I will be conducting an action research project on the topic of how technology supported feedback can impact student growth in writing. I will look at two types of feedback: 1) feedback from the teacher 2) feedback from peers. The expected duration of your child's participation is approximately thirty days.

Selection of Subjects

Your child has been invited to participate in this study, because he/she is in my second-grade classroom at Highland Elementary School. Inform the subject of the reason he/she has been invited to participate (give brief description of inclusion and exclusion criteria). State the number of subjects who will be enrolled in this study.

Description of Study

Research Questions-

The primary goals of the action research are to research and collect data on the following questions:

1. How does the type of teacher or peer feedback (verbal conference, written, or using digital technology affect student growth in writing?)
2. In what ways can achievement be affected when students have opportunities to respond to feedback given to them by a teacher or a peer?
3. What is the impact on student perception when they receive feedback from teachers and peers?
4. What is the impact on student perception when they can revise their work based on feedback from teachers and peers?

For each data collection, students will be using a two-paragraph planning sheet to write a two-paragraph informational writing piece. The paragraph planning sheet is from our district writing series, Writing City.

Students will complete three different writing activities over the course of the research study:

- 1) One where students write a two-paragraph piece, then revise and edit on their own (students will use a checklist, which will be the same checklist they will use in the second writing activity with a peer)
- 2) One where peer feedback and teacher feedback are provided to students (teacher will do one to one conferences to provide teacher-given feedback, and students will use a checklist to participate in peer feedback). Students will have time after feedback is given to go back and revise their work.

Subject's Initials

TECHNOLOGY-SUPPORTED FEEDBACK

3) One where technology is used to support the teacher given and peer given feedback (~~SeeSaw~~ will be used to have the teacher and peers record their feedback, so that students can listen to the feedback and access it as many times as they need to). SeeSaw is an online tool that gives students a place to share their learning. Drawings, recordings, videos, etc. are all different ways that students can share their learning with family, teachers, and peers. The same checklist from the first two writing activities will be used again. Students will have time after feedback is given to go back and revise their work.

I will use the same rubric each time when assessing students' final writing pieces (these scores will not impact their grades on report cards). The rubric comes from Writing City. For this action research and data collection, I will be focusing on three areas of the students' writing from the rubric (these target areas will be shared with students each time they are completing one of the three writing activities)-

1) Ideas and Content, 2) Organization, 3) Conventions (punctuation, spelling, grammar, capitalization)

The data from writing targets 1, 2, and 3 will be compared to analyze how teacher and peer feedback affect student growth and how technology can support the feedback that is given. The data will also be used to show how student achievement can be affected when students have opportunities to respond to feedback given to them by a teacher or a peer.

In addition to the data collected from each writing activity, I will also provide a survey for students to answer after completing each of the three writing activities. Surveys will differ after each writing activity. The answers to these surveys will help the researcher to analyze how students felt about the three different writing activities that used different types of feedback. Samples of survey questions are below-

Do you think you would feel better about writing your final draft if you heard ideas from your teacher and another student in your class? Yes or No.

Do you feel that you were able to talk to your teacher and a partner about your writing before you wrote your final draft? Yes or No

Do you feel like you had time to fix your writing and make it better before you wrote your final draft? Yes or No

Do you feel that going through the checklist with your teacher and partner helped you to become a better writer and write your final draft? Yes or No

Do you feel that being able to listen to your grows and glows as many times as you wanted to on ~~SeeSaw~~ helped you to become a better writer and write your final draft? Yes or No

Subject's Initials

TECHNOLOGY-SUPPORTED FEEDBACK

Writing activities and surveys will be saved in a protected file, and will be deleted one year after I have completed my action research study for the University of the Arts.

Risks

The only foreseeable risk for this project is discomfort in the relationship between teacher and student. This will be minimized by reminding students that participation will not impact grade or relationship. Students will be reminded frequently that they can discontinue being part of the study at any time. However, the writing activities will still be expected to be completed since they are included in our Writing City assignments and lessons. Participation in this project does not increase the risk of exposure to Covid-19.

If students do experience discomfort, they or their guardians will be encouraged to speak a school administrator (Brett Esbenshade) or the graduate advisor (Sarah Eckert).

Benefits

The student can feel good about helping teachers to make things better for other kids who might be struggling with writing, and/or who do not get to talk with their teacher or classmates very often. In addition, students will be given extra one on one time with teacher and partners to receive individualized feedback on their writing process.

Alternatives/Standard Treatment(s)

The writing activities will still be expected to be completed since they are included in our Writing City assignments and lessons. Students will still participate in the writing lessons and complete the peer feedback activities, as they are a part of the writing curriculum and learning targets for second grade. They will not need to complete the surveys if they are not participating in the study.

Confidentiality

All student information will be kept confidential. Data will be stored securely and will be made available only to the researcher. No reference will be made in oral or written reports that could link participants to the study. All paper records will be stored in locked cabinets/drawers in the classroom and all electronic records will be protected by a password.

Refusal or Withdrawal of Participation

Participation in this project is voluntary, if you do not grant permission or your child declines to participate there will be no impact on your child's grades or class involvement. Your child may discontinue participation at any time for any reason without penalty.

Students who are absent for more than 5 of the days where the data collection is taking place will be excluded from the study.

Subject's Initials



Institutional Review Board

TECHNOLOGY-SUPPORTED FEEDBACK

Subject's Rights

You can obtain further information from the study investigator, Victoria Dagen, at 717-721-1160 and/or through email/SeeSaw, or from the university advisor Sarah Eckert, Director of Med Programs at the University of the Arts via email at seckert@uarts.edu. If you have questions concerning your rights as a research subject, you may contact the IRB administrator at irb@uscience.edu or 215-596-7490.

Any significant new findings that develop during the course of the research that may relate to the participant's willingness to continue participation will be provided to the participant.

Consent

I have been informed of the reasons for this study. I have had the study explained to me. I have had an opportunity to ask questions and have had them answered. I have read this consent form, have initialed each page, and have received a signed copy. I agree to allow my child to participate in this study voluntarily.

Subject Name

Subject Signature

Date

Witness Name

Witness Signature

Date

Investigator's Affidavit

I have carefully explained to the subject the nature of the above project. I hereby certify that to the best of my knowledge the person who is signing this consent form understands clearly the nature, demands, benefits, and risks involved in his/her participation and his/her signature is legally valid. A medical problem or language or educational barrier has not precluded this understanding.

Signature of Investigator

Date



Institutional Review Board

Appendix F

Data from Writing Activities

Table 1*Survey Questions and Responses*

Survey 1 (Question Number)	Yes	No	Abbreviated Survey Questions
1	3 (23%)	10 (77%)	could talk with Teacher
2	2 (15%)	11 (85%)	could talk with Peer
3	9 (69%)	4 (31%)	would be a better writer if met with T
4	10 (77%)	3 (23%)	would be a better writer if met with P
5	8 (62%)	5 (38%)	better final draft if heard ideas from T and P
Survey 2 (Question number)	Yes	No	Abbreviated Survey Questions
1	9 (69%)	4 (31%)	could talk with Teacher
2	9 (69%)	4 (31%)	could talk with Peer
3	9 (69%)	4 (31%)	helped meeting with P
4	9 (69%)	4 (31%)	helped meeting with T
5	1 (8%)	12 (92%)	write same final if had not met with T or P
6	11 (85%)	2 (15%)	time to fix before writing final
7	9 (69%)	4 (31%)	helped to fix writing after meeting with T or P
8	9 (69%)	4 (31%)	felt better about final with ideas from T and P
Survey 3 (Question number)	Yes	No	Abbreviated Survey Questions
1	13 (100%)	0	heard glows/grows from Teacher
2	13 (100%)	0	heard glows/grows from Peer
3	11 (85%)	2 (15%)	glows/grows on SeeSaw = better writer
4	1 (8%)	12 (92%)	write same final if not heard glows/grows
5	12 (92%)	1 (8%)	time to fix before writing final
6	10 (77%)	3 (23%)	helped to fix writing after heard glows/grows
7	11 (85%)	2 (15%)	feel better about final with ideas on SeeSaw

TECHNOLOGY-SUPPORTED FEEDBACK

Table 2

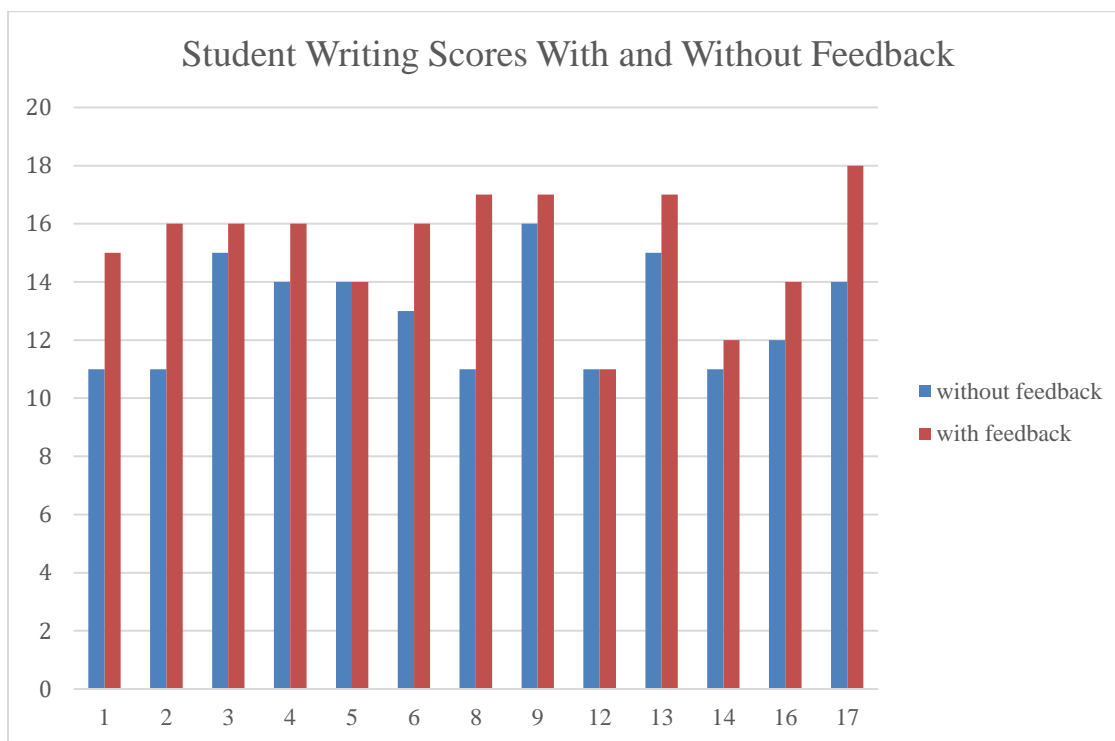
Scores compared from Assignment 1 to Assignment 2

Student	Assignment 1	Assignment 2
1	11	15
2	11	16
3	15	16
4	14	16
5	14	14
6	13	16
8	11	17
9	16	17
12	11	11
13	15	17
14	11	12
16	12	14
17	14	18
Average	12.92	15.31

TECHNOLOGY-SUPPORTED FEEDBACK

Figure 1

Scores graphed with and without feedback from assignments 1 and 2



Curriculum Vitae

Victoria Dagen

Educational History

University of the Arts, Pennsylvania
Master's Of Educational Technology, May 2021
West Chester University of Pennsylvania
Bachelor of Science in Education, December 2016
Major: Early Grades Preparation
Certification: PA Elementary Education (PreK-4)
GPA: 3.8
Dean's List: Fall 2013, Fall 2014, Spring 2014, Fall 2105, Spring 2015
Teaching English as a Foreign Language (TEFL) Certified 2016
Awarded *Future Teachers Scholarship* in 2013

Professional History

Kindergarten and Second Grade Teacher *Ephrata Area School District, PA* Aug. 2017- Current

- Planning lessons to differentiate for students with IEP's, those who receive ESL services, and different levels of learners
- Implementing technology daily with 1:1 student ipads
- Collaborating with colleagues to strengthen the learning experience of all students

Intervention Specialist Substitute *Ephrata Area School District, PA* Nov. 2017

- Administered reading intervention to elementary students while a teacher was on temporary leave
- Taught in small groups to work on letter sounds and word segmentation

Teaching English as a Foreign Language *Kanchanaburi, Thailand* Jan. 2017-Mar. 2017

- Enhanced students' English language from K-6
- Adapted to the school's limited resources to plan and implement lessons without a curriculum
- Created engaging games and activities with visuals to further the students' learning while assisting with the language barrier

Leadership History

Girls on the Run Coach *Ephrata Area School District, PA* March 2018-Current

- Building relationships with students outside of the classroom
- Encouraging girls to embrace their unique inner beauty
- Challenging individuals to reach their fullest potential physically and mentally

Love Your Melon Vice Captain *West Chester University, PA* Aug. 2014-Dec. 2018

- Planned meetings, community events, fundraisers, hospital and household visits to children
- Followed up with crew members to submit weekly postings
- Promoted Love Your Melon on social media and around campus