The Impact Of Creating A Positive Culture For Feedback Within The Secondary Career & Technical Education Classroom

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The Impact Of Creating A Positive Culture For Feedback Within The Secondary Career & Technical Education Classroom

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Advisor ____________________________ Date __________________
Abstract

Feedback is one of the most influential factors on student learning. It is paramount for educators to spend considerable focus on feedback as instructional time, and learning activities are abundant with opportunities for providing feedback to students (Havnes, Smith, Dysthe, & Ludvigsen, 2012). The purpose of this research study was to ascertain what effect providing a culture of feedback has on student learning in the secondary Career and Technical Education (CTE) classroom, which differ from core classes in their delivery methods, content and overall outcomes. The goal was to utilize feedback with students in a way that promotes a culture where feedback is positively and routinely used and understood to further student learning. The study sample included approximately 54 students in grades ten through twelve in three elective CTE courses: Restaurant Skills, Desktop Publishing (Yearbook), and Health Science II. Data was collected using the following tools: self-assessments, a feedback survey, performance assessments, and observational checklists. The study was conducted for four consecutive weeks in the fall of 2017. The study contained both quantitative and qualitative features. The data sources revealed that students felt positive about feedback as a classroom norm and that feedback helped improve their learning. Feedback culture will continue to be implemented in the classrooms. Future research will investigate additional teaching and guided practice on self-reflection and providing feedback to others.

Keywords: feedback, feedback culture, peer feedback, self-reflection
Feedback is one of the most influential factors on student learning. Every day in classrooms throughout the world, teachers collect information and provide feedback to students. This process occurs on a continual basis. The information gathered can take on many forms from written and oral tests, quizzes, presentations, and projects (summative assessments) to classroom polls, strategic questioning, exit tickets and collaborative discussions (formative assessments). Information can be collected with or without the use of technology. Feedback can be given by the teacher, students, or peers. In the case of this research, feedback is defined as providing information to another that has the intent on improving outcomes. In addition to this definition it should be noted that in order for feedback to be effective, it needs to be dialogic, timely, specific, understandable, and consistent throughout the course.

It is paramount for educators to designate instructional time for feedback as learning activities are abundant with opportunities for providing feedback to students (Havnes, Smith, Dysthe, & Ludvigsen, 2012). Fostering a feedback culture in the classroom will allow students to consider mistakes as learning opportunities. A culture of feedback also teaches students to utilize the information provided to them as a tool to build the necessary skills to collect and use the feedback provided to them. In a classroom where feedback is a priority, students find the ability to reflect on their learning and feel safe providing feedback to peers and receiving it in return.

There have been a variety of studies completed in regards to the impact of feedback on classroom culture, primarily in the core subjects within the elementary and post-secondary levels (Hattie & Timperley, 2007; Wiggins, 2012). However, there is limited research available for the effect of feedback in the career and technical education
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classroom environment. Due to the hands-on nature of Career and Technical Education (CTE), these classes naturally lend themselves to a climate where feedback is provided and accepted as a norm. The feedback that is provided in a CTE classroom, in regards to performance assessments, is given immediately.

**Review of Literature**

**Defining Feedback and Feedback Culture**

Feedback is one of the most influential factors on student learning, and there are decades of research that support that by teaching less and providing more feedback we can produce greater academic gains (Hattie & Timperley, 2007; Wiggins, 2012). It is paramount for educators to spend considerable focus on feedback as instructional time and learning activities are abundant with opportunities for providing feedback to students (Havnes, Smith, Dysthe, & Ludvigsen, 2012). One of the biggest challenges educators face with achieving meaningful feedback is that it is not clearly defined. Feedback is a broad term that is used repeatedly in a variety of contexts (Price, Handley, Millar, & O’Donovan, 2010). For the purposes of this research, feedback is defined as providing instructional direction to students about their performance after an assessment (McMillan, 2014). Schute (2008) agrees, “Feedback is information communicated to the learner that is intended to modify his or her thinking or behavior for the purpose of improving learning” (p. 154). One more definition relates to the information provided by one to another regarding either performance or understanding (Hattie & Timperley, 2007). In addition to this working definition it should be noted that in order for feedback to be effective, research shows that feedback needs to be dialogic, timely, specific, understandable, and consistent throughout the course (McMillian, 2014; Planar & Moya,
Identifying components of an effective feedback culture is the goal of this literature review. For the purpose of this study, feedback culture is defined by McMillian (2014) as:

"Overall the goal is to use feedback to establish a classroom climate in which students anticipate and value feedback, where being wrong and making mistakes are viewed as opportunities to learn and not failure, where students are willing to admit their lack of understanding and ask for help, and where students are involved as self-assessors who reflect on their learning and responsibility for further learning." (p. 123-124).

Within this review, elements of a feedback culture will be explored including the use of technology, using peers as a feedback source for students, and the creation of feedback culture.

**Types of Feedback**

**Use of Technology**

Providing feedback in a digital age has proven difficult because the traditional methods of feedback, verbal or written, are not appealing to students that are savvy in the use of technology to communicate. Research shows that incorporating technology into feedback practice can increase the feedback’s effectiveness (Hatziapostolou & Paraskakis, 2010; Planar & Moya, 2016). Not only does technology increase timeliness, but it also allows students to receive feedback in their preferred method (Hatziapostolou & Paraskakis, 2010; Planar & Moya, 2016).

There have been a variety of studies done on how technology can enhance feedback practices (Cann, 2007; Crook, Mauchline, Maw, Lawson, Drinkwater,
Lundqvist, Orsmond, Gomez, Park, 2012; Hatziapostolou & Paraskakis, 2010; Merry & Orsmond, 2008; Planar & Moya, 2016). One tool that has proven beneficial is the use of a learning management system (LMS) which is used to meet students in their preferred learning space (Hatziapostolou & Paraskakis, 2010). Hatziapostolou and Paraskakis (2010) study showed the use of a LMS facilitated learning with 100% of students accessing their personal feedback forms. This high participation rate is directly related to the use of an LMS and technology. “An LMS facilitates learning by providing a centralized location where learning materials exist, integrated tools allow for a multitude of teaching and learning activities including collaboration and communication with peers and teachers” (Hatziapostolou & Paraskakis, 2010, p. 114). Also, studies have been conducted on the use of video and audio recordings as tools for improving the clarity of the feedback provided to the student (Merry & Orsmond, 2008; Planar & Moya, 2016). Not only is the feedback more complex and detailed than traditional text, it allows for students to hear the discourse between the teacher’s tone and intonation (Merry & Orsmond, 2008; Planar & Moya, 2016). When weighing audio versus video, video feedback has been shown to have even more potential because of the addition of an image (Cann, 2007). Crook et al. (2012) corroborate this finding by stating that using video as a feedback practice gives teachers the opportunity to provide feedback to students before beginning a new task. Also, Crook et al. (2012) found that using video feedback allowed staff to be more reflective of their feedback practices and improved student’s engagement with the feedback.
Use of Peers for Assessment and Learning

Another resource that the literature shows to be typically underutilized is the inclusion of students’ peers as another facet to the feedback process (Boud, 2000; Fluckinger, Tixier & Vigil, Pasco, & Danielson, 2010; Geitz, Joosten-ten Brinke, & Kirschner, 2016; Harris, Brown, & Harnett, 2014; Liu & Carless, 2006; Orsmond, Merry, & Reiling, 2000; Vygotsky, 1978). Peer feedback provides students with an opportunity to play a lead role in the learning which in turn fosters a sustainable feedback culture (Geitz et al., 2016; Liu & Carless, 2006). The more involved students are in peer feedback, the more opportunities there are for developing a sound judgment system and as Vygotsky states, the ability for them to think on their own (Boud, 2000; Vygotsky, 1978). With the incorporation of peer feedback, students receive a higher quantity of feedback in a timelier manner than if they were provided feedback by the teacher alone (Liu & Carless, 2006). McCallum (2015) states, “Students learn just as much, if not more, from interacting with their peers...Students learn about cooperation, competition, and more, based on feedback from others in the classroom” (p. 81). Liu & Carless (2006) support the use of peer feedback as a focal point of the learning process instead of an occasional option as teachers continue to struggle with the magnitude of providing quality feedback to all students. Havnes et al. (2012), agree that any situation that presents itself with interactional or learning characteristics should be used as a feedback opportunity. It is important to keep in mind when using peers for feedback purposes that trust plays an important role in students’ abilities to collaborate with peers (Fluckinger et al., 2010; Harris et al., 2014; Orsmond et al., 2000). When students perceive an environment as a safe place to voice their opinions and concerns, it facilitates critical
thinking (Fluckinger et al., 2010; Harris et al., 2014; McCallum, 2015; Orsmond et al., 2000). However, as Harris et al. (2014) elude, it is challenging for students to feel comfortable in their own abilities to provide feedback to their peers, even though the environment is conducive for these exchanges to take place. To make students feel more comfortable with this process, giving several opportunities for students to interact and question their peers will aid in an effective implementation of a feedback culture (Harris et al., 2014).

**Collaboration with Students/Feedback Culture**

The concept of feedback culture must be established by the teacher (Chan, Konrad, Gonzalez, Peters, & Ressa, 2014). This culture consists of teachers, peers, and the student working together to give and receive feedback. If one is missing, the culture is not reaching its full potential in the classroom (Chan et al., 2014). Vygotsky (1978) agrees, writing frequently about the dialogic nature of learning and the need for social interaction. The relationship between peer and self-assessment is also noteworthy. Because peer and self-assessments share common skills, peer feedback can provide continued growth in students self-assessing themselves (Liu & Carless, 2006). Boud (2000) suggests teachers foster an environment where giving and receiving peer feedback is an integral part of a student’s learning process. Peer to peer feedback is fundamental to learning. When students receive feedback only from teacher-administered assessments, the naturally occurring environment created by social relationships, is neglected (McCallum, 2015; Vygotsky, 1978). To further ensure the construction of a feedback culture, it is important to recognize the various components that must be present for the environment to function at its highest potential. In creating this climate, educators should
focus less on an assessment grade and more on student learning; develop positive attitudes in students for receiving feedback from multiple sources, instruct on self-regulation and assist students in how to interpret and utilize the feedback provided to them (Fluckinger et al., 2010; Hattie & Timperley, 2007; Hatziapostolou & Paraskakis, 2010; Planar & Moya, 2016).

Conclusions from the Literature Review

In this idea of incorporating a feedback culture into classrooms; feedback must be constructive, and students must require it, receive it in an expedited manner, and be prepared and inclined to use it (Hattie & Timperley, 2007; Schute, 2008). Throughout this literature review, tools and strategies were discovered that would enhance the effectiveness of feedback in the classroom. Technology as a tool, such as 1:1 devices and audio and video files, increase the timeliness of feedback and its ability to reach students (Cann, 2007; Crook et al., 2012; Hatziapostolou & Paraskakis, 2010; Merry & Orsmond, 2008; Planar & Moya, 2016). Using peer feedback as a strategy, provides opportunities for students to think critically and receive a larger magnitude of feedback (Boud, 2000; Fluckinger et al., 2010; Geitz et al., 2016; Harris et al., 2014; Liu & Carless, 2006; Orsmond et al., 2000; Vygotsky, 1978). Lastly, creating a culture of feedback is a strategy that places the students in a primary role in the feedback process. Focusing on growth instead of grades, creating comfort with feedback both in giving and receiving and instructing students on the need for self-regulation for the feedback process to be effective will foster an environment where feedback is a natural part of the learning process (Boud, 2000; Chan et al., 2014; Fluckinger et al., 2010; Hattie & Timperley, 2007; Hatziapostolou & Paraskakis, 2010; Liu & Carless, 2006; Planar & Moya, 2016;
However, Schute (2008) reminds us that amongst the plethora of research on feedback, the findings lack a pattern of consistency. In addition, there is limited research available on the effect of feedback in the secondary CTE classroom environment. Another gap exists in that little is known about how students understand and experience feedback within the classroom (Harris et al., 2012; Paulos & Mahony, 2008). This literature review confirmed that feedback is an essential factor for improving student achievement.

The purpose of this study was to determine the effect of implementing feedback culture on student achievement in the secondary CTE classroom. The literature has shown that feedback is a crucial influence on student learning and there are several factors that help feedback be its most impactful: technology, peer feedback, and focusing on feedback as a cultural norm in the classroom (Boud, 2000; Cann, 2007; Chan et al., 2014; Crook et al., 2012; Fluckinger et al., 2010; Geitz et al., 2016; Harris et al., 2014; Hattie & Timperley, 2007; Hatziapostolou & Paraskakis, 2010; Liu & Carless, 2006; Merry & Orsmond, 2008; Orsmond et al., 2000; Planar & Moya, 2016; Vygotsky, 1978). When feedback is implemented as part of the culture of the classroom, both students and teachers benefit. Previous studies have confirmed that feedback is an essential ingredient for improving student achievement (Hattie & Timperley, 2007; McMillian, 2014; Schute, 2008). However, there is a lack of research regarding the impact of feedback as a cultural component in the secondary CTE classroom. Therefore, the study investigated whether there is an effect from creating a culture of feedback on student achievement in the secondary CTE classroom.
Methodology

This study used both a qualitative and quantitative design. Before beginning data collection, the researchers provided students with an explanation of the action research, feedback, and feedback culture in a Google Slides format (see Appendix A). Students or guardians were given the opportunity to have their data excluded from the study. Data collection tools such as self-assessment, performance assessment and an observational checklist were used to support triangulation. A feedback survey featured open-ended questions and Likert scales designed to gather information about the students’ perceptions of the degree to which there is a presence of feedback culture within the classroom.

The population for this action research study was tenth through twelfth grade students enrolled at a high school in North Dakota. The sample consisted of 54 students enrolled in secondary CTE classes during the first quarter. The sample featured 41 females and 13 males as shown in Table 1. The courses in question were elective classes and the sample was representative of typical high school CTE classes.

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenth</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Eleventh</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Twelfth</td>
<td>8</td>
<td>17</td>
</tr>
</tbody>
</table>
A self-assessment (see Appendix B) evaluated how students felt they were using feedback, accepting feedback and reflecting on their role in the dialogic nature of feedback. An observational checklist (see Appendix C) was used to track students’ on-task behaviors and utilization of feedback by the teacher. Looking specifically at the areas of teamwork and communication, a performance assessment (see Appendix D) was used to determine what impact feedback has on student outcomes. The feedback survey (see Appendix E) asked students to describe how feedback became a part of the classroom culture, how comfortable they were creating a dialogue with peers and teachers, and whether or not their views on feedback were impacted.

The self-assessment was anonymous and was distributed three times throughout the research term in paper format. Teachers collected the self-assessments after students completed them. The observational checklist was used during a period of student collaboration. Teachers recorded the observed behaviors over the course of fifty minutes. Student names were used for the initial data collection but then were de-identified. An assessment was used to evaluate a student’s performance on a task or skill. Teachers used components from the North Dakota Career Ready Practices Rubric for this performance assessment. At the end of the study students completed a feedback survey using Google Forms as the collection tool. No names or identifying markers were used in the collection of this data. The researchers reviewed the data collected, identified prominent themes evident in each response, coded the themes based on their similarity with other students’ responses, and determined their frequency.
Analysis of Data

A portion of the raw data was comprised of qualitative information in the form of simple sentences and short statements, written by the students in their own words taken from self-assessments and a final survey. In addition to the qualitative data, data was collected from quantitative measures including observational checklists, self-assessments and performance assessments. The team of researchers utilized Excel to create graphic charts of the data.

The observational checklists were completed three times throughout data collection by each researcher, for a total of nine observations. The data represented each time a researcher observed an exhibited behavior during the fifty minute observation time. Using Excel, the data was divided into the total number of observed behaviors across a three week period within each category that appeared on the observational checklist. In addition, the researchers further refined the data to represent the occurrence within each classroom during each week of the data collection.

Self-assessments were given once a week and compared across a three week period. The self-assessment included both qualitative and quantitative questions. Each researcher administered the self-assessments three times over the course of the research. The three researchers systematically coded the data by identifying a series of distinct categories in the qualitative data. From the data it was determined that there were two primary categories: things they (the students) did well and things they could improve upon. The researchers then tallied the salient themes to discern how many students responded in similar ways. Once identified, the themes were reported in a table. The quantitative data of the self-assessment was analyzed using descriptive statistics in
Microsoft Excel. The data compiled from the Likert scale questions included all students from the sample, and was not analyzed by each individual researcher’s classes. Each question produced its own data, and the aggregate was compared from week one to two to three.

The performance assessments were administered twice over the research term, in each researcher’s classroom, for a total of six performance assessments. Rubrics were used to identify students’ competencies in the following areas: when it is appropriate to listen and when to speak; use communication to inform, instruct, motivate, and persuade; collaborate and cooperate effectively with teams; and demonstrate an ability to work efficiently and respectfully with diverse groups. Microsoft Excel was used to analyze the data in the four categories assessed. For each category, the researchers totaled the number of students at each competency level (4 = Exceeding Competency, 3 = Meets Competency, 2 = Approaching Competency, 1 = Not Yet Reached Competency). The totals included all six performance assessments conducted by the researchers.

The final data gathering tool utilized a mixed-method approach. The first section of the survey asked students to select words that they felt represented feedback in the classroom: helpful, frustrating, meaningful, confusing, trivial, important, rewarding, overwhelming, unnecessary, needed, worthwhile, unpleasant. Students were able to select as many words as they felt were applicable. Additional survey sections included Likert scale questions and an open-ended question about the students’ perceptions of the feedback culture within the classroom. The researchers gathered the total number of selected words and inputted them into Excel, pairing positive words with their negative counterparts. The total number of responses, per word, were depicted in a bar graph.
showing the positive selections versus the negative selections. The Likert scale (5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree) data was analyzed in Excel, and is represented in the form of a table and pie charts. The data was depicted in percentage terms comparing all students who completed the survey.

Findings

The purpose of this study was to identify the impact of creating a culture of feedback in the secondary career and technical education classroom. The research design was both qualitative and quantitative and included self-assessments, observational checklists, performance assessments and a survey that utilized a series of Likert scales and open-ended questions. These data tools were used to gather information about the students' perceptions of feedback in the classroom.

The subjects for this action research study were tenth through twelfth-grade students enrolled at a North Dakota high school. A total of five classes were surveyed during the fall semester of the 2017-2018 school year. The sample included approximately 54 students enrolled in CTE classes: Restaurant Skills, Desktop Publishing (Yearbook) and Health Science II. The research was conducted with 41 females and 13 males.

Impact of Feedback

The observational checklist results were tallied to find each course’s observed behaviors over the data collection period. The data collected from the self-assessment was divided into salient themes and placed in a table. In addition, students’ Likert scale data was compiled by weeks and looked at according to each of the four questions asked. The performance assessment was divided into categories based on a modified North
Dakota Career Ready Practices Rubric. The data reflects the scores of students and the competency achieved, according to that category. The feedback survey utilized a mixed-method approach. The first section of the survey asked students to select words that they felt represented feedback in the classroom, while additional survey sections included Likert scale questions and an open-ended question about the students’ perceptions of the feedback culture within the classroom.

Observational Checklist

With the observational checklist, the researchers observed their students during a fifty minute class period. Due to the diverse nature of the career and technical education classes, students were performing a variety of tasks on the days teachers were performing observations including a foods lab in Restaurant Skills, practicing the application of restraints in Health Science II, and working with Photoshop editing tools in Desktop Publishing (Yearbook). The teachers were looking for the following behaviors exhibited by students: used feedback to improve their skill(s), used feedback to create a dialogue with teacher, accepted feedback with an appropriate attitude, provided feedback to a peer and/or received feedback in an appropriate manner from a peer, exhibited on-task behavior (engaged, actively participating, show positive effects in their academic achievement). These criterion were chosen because they encapsulate behaviors students would be exhibiting in a feedback-friendly classroom. During the fifty minute period, every time a teacher observed one of the above-listed behaviors, it was noted on the observational checklist. Each researcher conducted a total of three checklists in their classroom for a combined total of nine. The numbers listed in Table 2 reflect the number of times students were observed each week of the three weeks exhibiting a type of
behavior, in each of the three classrooms. The data did not produce a discernable pattern of increased behaviors, as hypothesized. Furthermore, the researchers viewed less of the observed behaviors, in certain categories, as the data collection period progressed.

<table>
<thead>
<tr>
<th>Table 2 Observational Checklist</th>
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</thead>
<tbody>
<tr>
<td>Improve Skills</td>
</tr>
<tr>
<td>Health Science II</td>
</tr>
<tr>
<td>Week 1</td>
</tr>
<tr>
<td>Week 2</td>
</tr>
<tr>
<td>Week 3</td>
</tr>
<tr>
<td>Restaurant Skills</td>
</tr>
<tr>
<td>Week 1</td>
</tr>
<tr>
<td>Week 2</td>
</tr>
<tr>
<td>Week 3</td>
</tr>
<tr>
<td>Desktop Publishing (Yearbook)</td>
</tr>
<tr>
<td>Week 1</td>
</tr>
<tr>
<td>Week 2</td>
</tr>
<tr>
<td>Week 3</td>
</tr>
</tbody>
</table>

In addition to data being divided into individual courses, data was consolidated into an overall number of observed behaviors for each category over a three week period. See Figure 1. During week one of the observations, all of the observed behaviors were at their highest occurrence across all three classes.
Self-Assessment

A second tool utilized was a self-assessment which was given to students once a week during the first three weeks of data collection. Using traditional paper/pencil format, students were required to rate themselves on specific feedback criterion. Students were asked to rate themselves using the following Likert scale: 1 = Not Yet Reached Competency, 2 = Approaching Competency, 3 = Meets Competency, 4 = Exceeds Competency. Using this scale, students evaluated themselves with the following questions, “I understood the feedback provided and asked clarifying questions if I did not,” followed by, “I used the feedback provided to me to improve my skill(s),” then, “I used the feedback provided to me to create a dialogue with my teacher,” and lastly, “I accepted the feedback with a good attitude.” This was important data for this project because the researchers wanted the students to share their perspectives. In comparison to
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summative assessments, which do not always give an accurate depiction of mastering a skill, CTE classrooms require students to be able to self-reflect because they are completing performance tasks on a frequent basis. The data compiled from the Likert scale questions included all students from the sample, and was not analyzed by each individual researcher’s classes. Each question produced its own data, and the aggregate was compared from week one to two to three. See Figures 2-5. The data shows the only consistent improvement evidenced was for students answering question three, “utilizing feedback to create a dialogue with the teacher,” that entered fours, or exceeding expectations. See Figure 4.

![Figure 2](image_url)

**Figure 2** Total number of responses for self-assessment question 1 compared over a three week period
Figure 3 Total number of responses for self-assessment question 2 compared over a three week period.

Figure 4 Total number of responses for self-assessment question 3 compared over a three week period.
Figure 5 Total number of responses for self-assessment question 4 compared over a three week period

In addition to the Likert scale evaluation, the self-assessment also included a reflective piece. Students were asked to reflect on one thing they did well, one thing they could improve upon, and a question they still had. The three researchers systematically coded the data by identifying a series of distinct categories in the qualitative data. From the data it was determined that there were two primary categories: things they (the students) believed they did well and things they believed could improve upon. The researchers then tallied the salient themes to discern how many students responded in similar ways. Once identified, the themes were reported in a table. See Table 3. The researchers deduced that there was some juxtaposition in the answers from students. The students either reflected that they were “with it” depending on the task for the day or they were not, essentially leaving no middle ground. This statement is evidenced by responses to self-assessment question one versus self-assessment question two. The salient themes
were not identified in question 3 because the responses were course specific (ex: “How do I square off edges better to get a perfect dice?,” “What fonts can I use to better fit the layout?,” and “How do I tie a slip knot better?”).

<table>
<thead>
<tr>
<th>Self-Assessment Question 1: One thing I did well...</th>
</tr>
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<tbody>
<tr>
<td>● Paid attention (10 students responded this way.)</td>
</tr>
<tr>
<td>● On-task (27 students responded this way).</td>
</tr>
<tr>
<td>● Communicated well with teacher and/or peers (14 students responded this way).</td>
</tr>
<tr>
<td>● Worked well with group members (5 students responded this way).</td>
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</tbody>
</table>

<table>
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<tr>
<th>Self-Assessment Question 2: One thing I can improve on...</th>
</tr>
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<tbody>
<tr>
<td>● Be better prepared (4 students responded this way).</td>
</tr>
<tr>
<td>● Pay attention more (13 students responded this way).</td>
</tr>
<tr>
<td>● Be in class (3 students responded this way).</td>
</tr>
<tr>
<td>● Ask more questions (24 students responded this way).</td>
</tr>
<tr>
<td>● Give better comments to peers (3 students responded this way).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-Assessment Question 3: A question I still have...</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Salient themes were not identified in this section as the questions were too closely related to the specific course content and topic/task the day the assessment was given to the students.</td>
</tr>
</tbody>
</table>

Performance Assessment

A third data collection device, the performance assessment, was implemented twice during the action research for a total of six performance assessments. Again, because of the diverse nature of CTE, the teachers utilized the performance assessment rubric to assess a variety of student skills including a market order and a foods lab in Restaurant Skills, the application of geriatric restraints in Health Science II, and oral presentations in Desktop Publishing (Yearbook). The researchers modified the extensive
North Dakota Career Ready Practices Rubrics to two components their district is currently implementing, communication and teamwork. Within those two components, the following criterion was used to identify students’ competencies in the following areas: when it is appropriate to listen and when to speak (see Figure 6); use communication to inform, instruct, motivate, and persuade (see Figure 7); collaborate and cooperate effectively with teams (see Figure 8); and demonstrate an ability to work efficiently and respectfully with diverse groups (see Figure 9). The researchers used the following Likert scale: 1 = Not Yet Reached Competency, 2 = Approaching Competency, 3 = Meets Competency, 4 = Exceeds Competency.

Microsoft Excel was used to analyze the data in the four categories assessed. For each category, the researchers totaled the number of students at each competency level. The totals included all six performance assessments conducted by the researchers. As shown in Figures 6-9 below, the majority of the students performed at either “meets competency” or “exceeds competency.” Still, there were many students who showed potential for growth. In comparison to the self-assessment data, which was completed by the students reviewing their own performance, the researchers’ assessment of the students’ performance differed. While many of the students rated themselves at “exceeds competency,” the researchers would rate the researchers would rate many more students at “meets” or “approaching competency.” The research alludes to the need for teachers to instruct on self-regulation and assisting students in interpreting and using the feedback provided to them (Fluckinger et al., 2010; Hattie & Timperley, 2007; Hatziapostolou & Paraskakis, 2010; Planar & Moya, 2016).
**Figure 6** Total number of students performing at the specific competency levels.

**Figure 7** Total number of students performing at the specific competency levels.
Feedback Survey

Lastly, the researchers asked students to reflect on feedback culture in the classroom with a mixed-method Google survey comprised of an open-ended question and
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Likert scales. This data gathering tool was given at the end of the research period using Google Forms. The first section of the survey asked students to select words that they felt represented feedback in the classroom: helpful, frustrating, meaningful, confusing, trivial, important, rewarding, overwhelming, unnecessary, needed, worthwhile, unpleasant. See Figure 10. Students were able to select as many words as they felt were applicable and the chart reflects the total number of times each word was chosen out of the 47 completed surveys. The positive words and their negative counterparts were paired together in the chart and the data showed that more students selected positive words in association with feedback culture than negative words.

![Figure 10](image)

**Figure 10** Percentage of students who chose positive and negative words associated with feedback

Next, students were provided an open-ended question, “Describe how you feel feedback became a part of our classroom culture.” The three researchers organized the data into categories. From the data it was determined that there were four salient themes: It became normal, It helped me improve, It opened up class discussion, and It was useful.
The researchers then tallied the salient themes to discern how many students responded in similar ways. Once identified, the themes were reported in a table. See Table 4.

<table>
<thead>
<tr>
<th>Table 4 Responses to Open-Ended Question on Feedback Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback Survey Question 1: <em>Describe how you feel feedback became a part of our classroom culture.</em></td>
</tr>
<tr>
<td>• It became normal or became part of our culture (8 students responded this way).</td>
</tr>
<tr>
<td>• It helped me improve (14 students responded this way).</td>
</tr>
<tr>
<td>• Opened up class discussion/communication (6 students responded this way).</td>
</tr>
<tr>
<td>• It was useful (10 students responded this way).</td>
</tr>
</tbody>
</table>

Lastly, students were asked eleven questions concerning the feedback culture the teachers created throughout the action research. A Likert scale was utilized: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. Data was analyzed in Excel, is represented in the form of a table and pie charts, and each question produced its own data. The data was depicted in percentage terms comparing all students who completed the survey. See Table 5 and Figures 11-13.

<table>
<thead>
<tr>
<th>Table 5 Responses to Likert Scale Questions on the Feedback Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel comfortable creating a dialogue with my teacher about feedback.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>I prefer receiving feedback from my teacher.</td>
</tr>
<tr>
<td>I prefer receiving feedback from my peers.</td>
</tr>
</tbody>
</table>
Some of the data in Table 5 relates to the student-teacher relationship and showed that no students “disagreed” or “strongly disagreed” to those questions. With the dialogic nature of feedback, an openness to receiving feedback and a positive attitude is essential to effectiveness of the feedback (McMillian, 2014; Planar & Moya, 2016; Wiggins, 2012). Questions relating to peers and peer feedback are also exhibited in Table 5. The data shows that students “disagreed” or “strongly disagreed” the most on questions relating to receiving or giving feedback to peers. 91% of students felt comfortable self-reflecting. This data shows that students are willing to self-reflect, but as evidenced by data collected in the self-assessments (Table 3) and performance assessments (Figures 6-9), teachers and students are viewing student work at different ability levels. Less than 10% of students disliked receiving feedback during the research period, compared to 89% of students that felt feedback helped to improve their skills. This idea of improvement mirrors the current literature. Teachers need to create an environment where giving and receiving feedback is an important aspect of student’s learning (Boud, 2000). Another

<table>
<thead>
<tr>
<th>I am comfortable self-reflecting on my feedback procedures.</th>
<th>0%</th>
<th>2%</th>
<th>7%</th>
<th>41%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I dislike receiving feedback on my performance.</td>
<td>54%</td>
<td>24%</td>
<td>13%</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>Giving feedback to my peers assists in my learning.</td>
<td>2%</td>
<td>9%</td>
<td>26%</td>
<td>33%</td>
<td>30%</td>
</tr>
<tr>
<td>Receiving feedback from my peers assists in my learning.</td>
<td>2%</td>
<td>6%</td>
<td>13%</td>
<td>43%</td>
<td>36%</td>
</tr>
<tr>
<td>Utilizing technology made the feedback in this class more timely and effective.</td>
<td>2%</td>
<td>0%</td>
<td>21%</td>
<td>39%</td>
<td>38%</td>
</tr>
</tbody>
</table>
Running head: CREATING A POSITIVE CULTURE FOR FEEDBACK

A crucial feature of feedback culture is making mistakes in the classroom, in which only 6% of students were neutral or strongly disagreed. Over 75% of students felt that technology made feedback more timely and effective. Research shows that incorporating technology into feedback practices can increase the feedback’s success (Hatziapostolou & Paraskakis, 2010; Planar & Moya, 2016). Figures 11 through 13 depict the elements specifically relating to feedback culture that the researchers implemented in their classrooms. The data shows that feedback had a beneficial impact. In particular, Figure 13 depicts that ⅔ of students agreed or strongly agreed that participating in the class changed the way they felt about feedback. This data is important as it relates directly to the research question and the impact feedback has on students.

![Feedback Helps Me Improve My Skills](chart.png)

**Figure 11** Percentage of students who answered the question.
**Figure 12** Percentage of students who answered the question.

**Figure 13** Percentage of students who answered the question.
The purpose of the research was to determine the impact of feedback on classroom culture in the secondary CTE classroom. The data sources used were an observational checklist, self-assessment, performance assessment, and a feedback survey. Parts of the data helped researchers to determine the impact that feedback culture had in their classroom. Overall, students appreciated the focus on feedback in the classroom and realized its relevance to furthering their learning as indicated in the feedback survey. However, some of the tools that the researchers used ended up casting the net too wide, providing the researchers with vast amounts of unneeded data. The data mined from these sources showed a variety of implications for teachers and students.

Impact

The feedback survey provided the researchers the most insight as to how feedback culture affected students within the classroom. All data that was collected from the final survey was able to be analyzed and directly related to the research question. The researchers identified many themes and patterns that shed a positive light on the incorporation of both feedback as a classroom practice and achieving a feedback culture-infused classroom. In essence, the data showed that feedback continues to be one of the most impactful teaching practices when implemented correctly (Hattie & Timperley, 2007; Wiggins, 2012). The open-ended question of the feedback survey provided an opportunity for students to articulate their appreciation for the use of feedback. Students frequently responded with an overall feeling of comfort with knowing that mistakes were acceptable in each classroom, as well as finding feedback to be “very helpful,” and “useful.” In addition to being appreciated, feedback made a positive impression on over
half of the students surveyed within this action research study. From the self-assessment, it was determined that the only consistent improvement evidenced by the data, was for students answering question three, “utilizing feedback to create a dialogue with the teacher,” that entered fours, or exceeding expectations (See Figure 4). While the remaining data within the self-assessment showed that students might struggle with self-reflection, it was revealed that students did feel more comfortable creating a dialogue with the teacher from week one to week three.

**Limitations**

The data amassed from the variety of tools were useful to the researchers’ instruction. Upon reflecting on the data analyzed, however, it was clear to the researchers that there were issues with the data tools used for collecting data in this study. One example of the limitations of the data tools became evident after analyzing the data produced by the observational checklist. Because the information collected was too vast and without a clear intention, it was not an accurate depiction of the feedback culture within the researchers’ classrooms. After completing data collection, the researchers realized that they were unable to compare the data laterally, instead finding virtually nine different observational checklists. This was a result of the diverse nature of CTE content areas, as each of the researchers conducted the checklist on different tasks. Furthermore, each researcher completed a checklist on a different task every week or observation, which resulted in no congruence and commonality, essentially comparing apples to oranges to bananas, instead of apple to apples to apples. Should additional research be done on the topic of feedback culture, researchers could investigate further the potential use of the Learning Environment Inventory (LEI) as a data collection tool which seems to
have a successful precedent for validity and reliability in a number of settings.

Additionally, another limitation of the observational checklist was that the researchers did not include a place to record undesired behaviors. On multiple occasions, the researchers witnessed negative student actions, comments, and attitudes that reflected their inexperience with feedback. The researchers feel that recording this information would be important for future studies.

Similar to the observational checklist results, the findings for the self-assessment proved inconclusive. The salient themes found in the self-assessment were contradictory in nature. For example, students listed “paying attention” as something they did well, but then followed that with “paying attention more” under things they could improve. While it is likely that these discrepancies resulted from different students responding to this question, the researchers had no irrefutable evidence to support that theory because no names were collected. The self-assessment, specifically, provided researchers with too much unusable data to determine any impact. The researchers felt that if names had been collected initially, this would have allowed them to track Student A across weeks one, two, and three. Using the above strategy would have made more of the data from the self-assessment usable.

Implications

Even though there were limitations within the action research project as designed, there is much to be learned from the study. Several implications for future research and instructor use emerge from the analysis of data. Two of the most evident themes that became prevalent related to students’ ability to self-reflect and their ability to provide feedback to others. Self-assessment is a difficult task no matter a person’s age. As
effective teachers, instructors should be reflective in their practice. However, students are often trained to “not make mistakes” and “not mess up.” From the final survey, it was determined that 91% of students felt comfortable self-reflecting on their work, which is something that the researchers had hoped would be a result of implementing a feedback culture. In spite of that, the self-assessment data showed students frequently viewed their work as a 4, or “exceeding expectations,” with little room for improvement. This begs the question, do the students understand the skill of self-reflection? If researchers are going to further study feedback culture, teachers and/or researchers need to provide further instruction for students that answer the following questions: what is feedback, what does it mean, why should we do it, and how does it help us improve ourselves? (Fluckinger et al., 2010; Hattie & Timperley, 2007; Hatziapostolou & Paraskakis, 2010; Planar & Moya, 2016).

Within feedback culture, providing feedback to peers is a crucial element (Hattie & Timperley, 2007; Schute, 2008). Even with this knowledge, researchers in this study neglected to include a data tool that evaluated peer feedback specifically. Instead, the researchers viewed student interactions with the observational checklist and performance assessment, as well as asking students questions such as: “I prefer to receive feedback from peers,” “Giving feedback to peers assists in my learning,” and “Receiving feedback from my peers assists in my learning.” Future studies on feedback in the classroom should include a data tool to assess the type of feedback provided from peers to peers. Furthermore, additional teaching should be done on communication and how to provide feedback to peers. As performance assessment data showed during the communication competencies, a handful of students (20%) were scored at “exceeding expectations,”
while, the majority of students (80%) presented with room for growth. Berger (2006) stresses the importance of creating ongoing opportunities for students to expand their communication skills through everyday practice of giving and receiving feedback from peers.

In conclusion, the overall hope of the research study was for students to feel the impact of incorporating feedback as a normative practice in the classroom. While many students selected adjectives such as “helpful, important, needed, and worthwhile,” to describe their feedback experience, just over half of the students (66%) felt that participating in this study altered the way they felt about feedback. A considerable amount of the data yielded from this study was irrelevant to the researchers because of the diverse nature of CTE content. Even though the researchers were all CTE instructors and their courses were abundant with feedback opportunities, the researchers were essentially three distinct classes, as if a study was comparing three separate core classes. Any additional studies that are conducted should consider focusing on only one content area to provide more useful data for the researchers.

Without a doubt, feedback will continue to be an important and powerful teaching strategy to research because of its impact (Hattie & Timperley, 2007; Wiggins, 2012). Students benefit when feedback is effectively implemented as part of the classroom culture. Any learning situation that contains dialogue and is interactional in nature should be harnessed for the feedback opportunity it presents (Havnes et al., 2012; Vygotsky, 1978). The researchers witnessed firsthand the benefit to students involved in a feedback-friendly classroom. See Table Four, Figure 10, and Figure 16. When
implemented effectively, feedback can greatly impact the culture in the secondary CTE classroom.
References


Running head: CREATING A POSITIVE CULTURE FOR FEEDBACK


McCallum, D. (2015). *The feedback-friendly classroom: How to equip students to give, receive, and seek quality feedback that will support their social, academic, and developmental needs.* Markham, Ontario, Canada: Pembroke Publishers.


Creating a Positive Culture for Feedback

Action Research Project Fall 2017
St. Catherine University
Jennifer Denuault, Kristine Hintz, & Kelsey Thielges

What is an Action Research Project?

Action research is either research initiated to solve an immediate problem or a reflective process of progressive problem solving led by individuals working with others in teams or as part of a "community of practice" to improve the way they address issues and solve problems.

https://en.wikipedia.org/wiki/Action_research
Feedback: What is it?

- Feedback is information about how one is doing in effort to reach a goal.
- It helps learners to maximize their potential at different stages of training, raise their awareness of strengths and areas for improvement, and identify actions to be taken to improve performance.

The Right Mindset

in this room, we don’t do easy
we make easy happen through
hard work & learning

Whether you think you can or think you can’t – you are right.
- Henry Ford

What to expect:

Data will be collected from September 18th to October 13th

NO NAMES will be used in the research data!

Mistakes and feedback are expected in this classroom...it’s how we learn!

There will be self-assessments & a survey to fill out at the end
QUESTIONS!

1. What am I studying in my research project?
2. What will you be expected to do in the study?
3. Do you have any questions for me about the study before we begin?
Rate how you feel you did in class today regarding use of feedback. Use this scale:

1 = Not Yet Reached Competency  2 = Approaching Competency  3 = Meets Competency  4 = Exceeds Competency

<table>
<thead>
<tr>
<th>Student Assessment</th>
<th>Feedback Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
<td>I understood the feedback provided and asked clarifying questions if I did not.</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>I used the feedback provided to me to improve my skill(s).</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>I used the feedback provided to me to create a dialogue with my teacher.</td>
</tr>
<tr>
<td>1 2 3 4</td>
<td>I accepted the feedback with a good attitude.</td>
</tr>
</tbody>
</table>

Reflection

One thing I did well.

One thing I can improve on.

A question I still have.
Appendix C
Observational Checklist

Date: ______________________  Class Observed_____________________

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Student used feedback to improve their skill(s).</th>
<th>Student used feedback to create a dialogue with teacher.</th>
<th>Student accepted feedback with an appropriate attitude.</th>
<th>Student provided feedback to a peer and/or received feedback in an appropriate manner from a peer.</th>
<th>Student exhibited on-task behavior (engaged, actively participating, show positive effects in their academic achievement).</th>
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</tbody>
</table>
Communicate Clearly, Effectively, and With Reason--Career Ready

Practice Standard 4

Individual Competency

*Know when it is appropriate to listen and when to speak.*

<table>
<thead>
<tr>
<th>Student Names</th>
<th>4 Exceeds Expectations</th>
<th>3 Meets Competency</th>
<th>2 Approaching Competency</th>
<th>1 Not Yet Reached Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>While engaged in conversations/discussions, consistently understands when it is appropriate to effectively speak and when it is appropriate to listen.</td>
<td>While engaged in conversations/discussions, understands when it is appropriate to speak and when it is appropriate to listen.</td>
<td>At times, speaks when it is not appropriate and does not listen when it is appropriate.</td>
<td>Often needs to be reminded of appropriate times to speak and appropriate times to listen.</td>
</tr>
</tbody>
</table>
Communicate Clearly, Effectively, and With Reason--Career Ready

**Practice Standard 4**

**Individual Competency**

*Use communication to inform, instruct, motivate, and persuade.*

<table>
<thead>
<tr>
<th>Student Names</th>
<th>4 Exceeds Expectations</th>
<th>3 Meets Competency</th>
<th>2 Approaching Competency</th>
<th>1 Not Yet Reached Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effectively uses</td>
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<tr>
<td></td>
<td>communication</td>
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<tr>
<td></td>
<td>to inform, instruct,</td>
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<tr>
<td></td>
<td>motivate, and persuade.</td>
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<td></td>
<td>Uses communication</td>
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<td></td>
<td>to inform, instruct,</td>
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<tr>
<td></td>
<td>motivate, and persuade.</td>
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<td></td>
<td>Communicates only to</td>
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<tr>
<td></td>
<td>inform or instruct.</td>
<td></td>
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<tr>
<td></td>
<td>Communicates only to</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>inform or instruct.</td>
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</tbody>
</table>
**Work Productively in Teams While Using Cultural/Global Competence**

**Individual Competency**

*Collaborate and cooperate effectively with teams.*

<table>
<thead>
<tr>
<th>Student Names</th>
<th>4 Exceeds Expectations</th>
<th>3 Meets Competency</th>
<th>2 Approaching Competency</th>
<th>1 Not Yet Reached Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consistently listens to others and their ideas; helping them to develop their ideas while giving them full credit; helping the team reach its full potential.</td>
<td>Listens to other’ points of view; always uses appropriate and respectful language; tries to make a definite effort to understand others’ ideas.</td>
<td>Sometimes listens to others, and often assumes others’ ideas will not work; tries to work well with the team.</td>
<td>Is argumentative with others; does not listen to groups opinions and ideas; wants things done their way and does not listen to alternate approaches. Often needs to be reminded of appropriate times to speak and appropriate times to listen.</td>
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</tbody>
</table>


Work Productively in Teams While Using Cultural/Global Competence

**Individual Competency**

*Demonstrate ability to work effectively and respectfully with diverse teams.*

<table>
<thead>
<tr>
<th>Student Names</th>
<th>4 Exceeds Expectations</th>
<th>3 Meets Competency</th>
<th>2 Approaching Competency</th>
<th>1 Not Yet Reached Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All statements, responses, and body language are respectful and appropriate. Always listens to, shares with, and supports the efforts of others.</td>
<td>Listens to, shares with, and supports others. Statements and responses are respectful and appropriate body language is exhibited.</td>
<td>Most statements, responses, and body language are respectful; occasionally a negative tone. Does not always listen to, share with, or support the efforts of others.</td>
<td>Statements, responses, and/or body language are consistently not respectful. Rarely listens to, shares with, and supports the efforts of others.</td>
</tr>
</tbody>
</table>
Feedback Data Gathering Tool

Completion of this survey is voluntary. By completing this survey, you are giving your consent to participate in this study. Because completing this survey is voluntary, you may quit at any time.

1. Select word(s) that represent how you feel about feedback culture. You may choose more than one answer.
   Check all that apply.
   - Helpful
   - Frustrating
   - Meaningful
   - Confusing
   - Trivial
   - Important
   - Rewarding
   - Overwhelming
   - Unnecessary
   - Needed
   - Worthwhile
   - Unpleasant

2. Describe how you feel feedback became part of our classroom culture.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree, please answer the following statements.

3. I feel comfortable creating a dialogue with my teacher about feedback.
   Mark only one oval.

   1  2  3  4  5

   Strongly disagree  ○ ○ ○ ○ ○ Strongly agree

https://docs.google.com/forms/d/1u3jIP4NdU62EJhlh6Smyv8ik88Hr6WV4t7[NBT]/r/edit
4. I prefer receiving feedback from my teacher.
   Mark only one oval.
   1 2 3 4 5
   Strongly disagree  ○ ○ ○ ○ ○  Strongly agree

5. I prefer receiving feedback from my peers.
   Mark only one oval.
   1 2 3 4 5
   Strongly disagree  ○ ○ ○ ○ ○  Strongly agree

6. I am comfortable self-reflecting on my feedback procedures.
   Mark only one oval.
   1 2 3 4 5
   Strongly disagree  ○ ○ ○ ○ ○  Strongly agree

7. I dislike receiving feedback on my performance.
   Mark only one oval.
   1 2 3 4 5
   Strongly disagree  ○ ○ ○ ○ ○  Strongly agree

8. Feedback helps me improve my skills.
   Mark only one oval.
   1 2 3 4 5
   Strongly disagree  ○ ○ ○ ○ ○  Strongly agree

9. It is okay to make mistakes in this classroom.
   Mark only one oval.
   1 2 3 4 5
   Strongly disagree  ○ ○ ○ ○ ○  Strongly agree

10. Giving feedback to my peers assists in my learning.
    Mark only one oval.
    1 2 3 4 5
    Strongly disagree  ○ ○ ○ ○ ○  Strongly agree
11. Receiving feedback from my peers assists in my learning.
Mark only one oval.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="false" alt="Strongly disagree" /></td>
<td><img src="false" alt="Strongly disagree" /></td>
<td><img src="false" alt="Strongly disagree" /></td>
<td><img src="false" alt="Strongly disagree" /></td>
<td><img src="false" alt="Strongly agree" /></td>
</tr>
</tbody>
</table>

12. Utilizing technology made the feedback in this class more timely and effective.
Mark only one oval.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
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<tbody>
<tr>
<td></td>
<td><img src="false" alt="Strongly disagree" /></td>
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<td><img src="false" alt="Strongly disagree" /></td>
<td><img src="false" alt="Strongly disagree" /></td>
<td><img src="false" alt="Strongly agree" /></td>
</tr>
</tbody>
</table>

13. Participating in this class changed the way I feel about receiving feedback.
Mark only one oval.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tr>
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<td><img src="false" alt="Strongly disagree" /></td>
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<td><img src="false" alt="Strongly disagree" /></td>
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<td><img src="false" alt="Strongly agree" /></td>
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